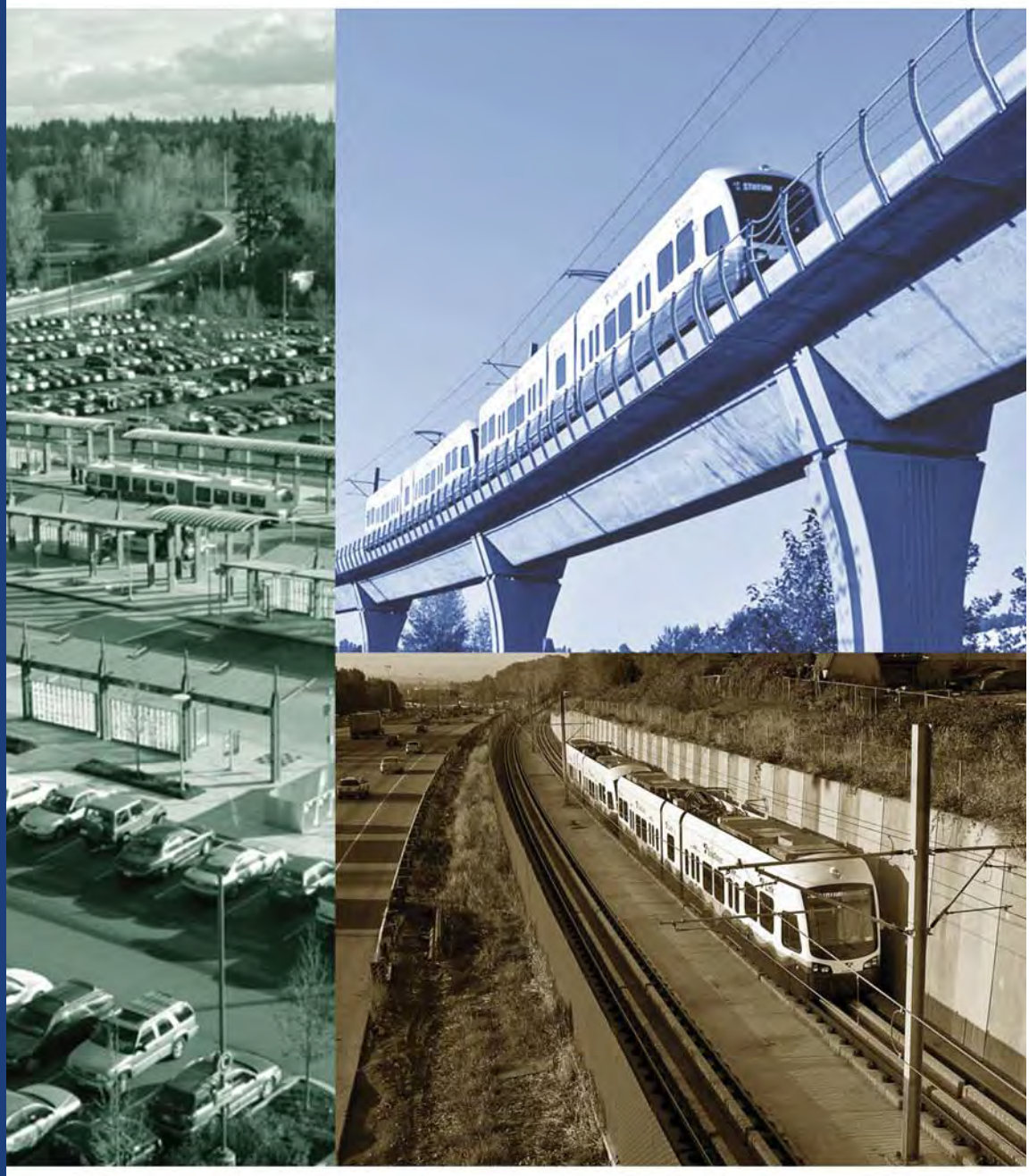
LYNNWOOD LINK EXTENSION

FINAL ENVIRONMENTAL IMPACT STATEMENT

Ecosystem Resources Technical Report



SOUNDTRANSIT

U.S. Department of Transportation
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SOUNDTRANSIT
RIDE THE WAVE

Lynnwood Link Extension

Technical Report

Ecosystem Resources

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North Corridor Transit Partners
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Table of Contents

1 Introduction....1-1

1.1 Data Gathered....1-1

1.1.1 Agency and Public Contacts....1-1

1.1.2 Maps and Existing Documentation....1-2

1.2 Guiding Regulations, Plans, and/or Policies....1-3

1.3 Study Area....1-4

1.3.1 Aquatic Species and Habitat....1-4

1.3.2 Vegetation, Terrestrial Wildlife, and Wildlife Habitat....1-4

1.3.3 Wetlands....1-4

1.4 Assumptions....1-5

1.4.1 Impact Assessment....1-5

1.4.2 Site Restoration....1-6

1.4.3 Avoiding and Minimizing Impacts on Sensitive Ecosystem Resources....1-6

2 Study Objectives and Methods....2-1

2.1 Aquatic Species and Habitat....2-1

2.1.1 Study Objectives....2-1

2.1.2 Methods....2-1

2.2 Vegetation, Terrestrial Wildlife, and Wildlife Habitat....2-5

2.2.1 Study Objectives....2-5

2.2.2 Methods....2-6

2.3 Wetlands....2-7

2.3.1 Study Objectives....2-7

2.3.2 Methods....2-7

3 Affected Environment....3-1

3.1 Aquatic Species and Habitat....3-1

3.1.1 Drainage Basin....3-1

3.1.2 Streams in the Study Area....3-6

3.1.3 Threatened, Endangered, and Candidate Species....3-17

3.1.4 Tribal Fishing....3-20

3.2 Vegetation, Terrestrial Wildlife, and Wildlife Habitat....3-20

3.2.1 Land Cover Types....3-20

3.2.2 Terrestrial Wildlife Species 3-21
3.2.3 Threatened, Endangered, and Candidate Species 3-25
3.3 Wetlands 3-26
3.3.1 Hydrology 3-29
3.3.2 Soils 3-29
3.3.3 Vegetation 3-29
3.3.4 Jurisdictional Determination 3-29
4 Environmental Consequences 4-1
4.1 Aquatic Species and Habitat 4-1
4.1.1 Long-Term Impacts 4-2
4.1.2 Construction Impacts 4-10
4.2 Vegetation, Terrestrial Wildlife, and Wildlife Habitat 4-13
4.2.1 Long-Term Impacts 4-14
4.2.2 Construction Impacts 4-20
4.3 Wetlands 4-22
4.3.1 Long-Term Impacts 4-22
4.3.2 Construction Impacts 4-29
4.4 Indirect and Secondary Impacts 4-32
4.5 Cumulative Impacts 4-34
4.6 Potential Mitigation Measures 4-35
5 References 5-1

List of Tables

Table 2-1. Minimum Buffer Requirements for Streams in the Study Area by Local Jurisdiction....2-4
Table 3-1. Summary of Streams in the Lynnwood Link Extension Study Area....3-7
Table 3-2. Land Cover Types in the Lynnwood Link Extension Study Area....3-24
Table 3-3. Species of Concern That May Occur in the Lynnwood Link Extension Study Area....3-26
Table 3-4. Summary of Field-Identified Wetlands within the Lynnwood Link Extension Study Area....3-27
Table 3-5. Summary of Potential Wetlands within the Lynnwood Link Extension Study Area....3-28
Table 4-1. Long-Term Impacts on Streams and Buffers by Project Alternative....4-7
Table 4-2. Long-Term Impacts on Land Cover Types by Project Alternative....4-17
Table 4-3. Long-Term Impacts on Wetlands and Buffers by Project Alternative....4-24
Table 4-4. Construction Impacts on Wetlands and Buffers by Project Alternative....4-30
Table 4-5. Recommended Wetland Mitigation Ratios for Projects in Western Washington a....4-37
Table 4-6. City of Seattle Wetland Mitigation Ratiosa....4-37
Table 4-7. City of Shoreline Wetland Mitigation Ratiosa....4-37
Table 4-8. City of Mountlake Terrace Wetland Mitigation Ratiosa....4-37
Table 4-9. City of Lynnwood Wetland Mitigation Ratiosa....4-37

List of Figures

Figure 3-1a. Streams and Fish Passage Barriers....3-3
Figure 3-1b. Streams and Fish Passage Barriers....3-4
Figure 3-1c. Streams and Fish Passage Barriers....3-5
Figure 3-2a. Land Cover Types....3-21
Figure 3-2b. Land Cover Types....3-22
Figure 3-2c. Land Cover Types....3-23

List of Appendices

A Best Management Practices for Ecosystem Resources
B Wetland and Stream Delineation Report
C Stream Photographs
D Wetland and Stream Impacts

ACRONYMS AND ABBREVIATIONS

BMP	best management practice
CFR	Code of Federal Regulations
CWA	Clean Water Act
DNR	Washington State Department of Natural Resources
Ecology	Washington State Department of Ecology
EIS	Environmental Impact Statement
ESA	Endangered Species Act
GIS	geographic information system
GPS	global positioning system
HGM	hydrogeomorphic
HPA	Hydraulic Project Approval
I-5	Interstate 5
NEPA	National Environmental Policy Act
NOAA Fisheries	National Oceanic and Atmospheric Administration, National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
PCB	polychlorinated biphenyl
PEM	palustrine emergent
PFO	palustrine forested
PGIS	pollution-generating impervious surfaces
PHS	Priority Habitats and Species
PSS	palustrine scrub-shrub
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
Sound Transit	Central Puget Sound Regional Transit Authority
SR	State Route
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

1 INTRODUCTION

An ecosystem is defined by the interaction between plants, animals, microorganisms, and the physical environment in which they live. Ecosystems consist of living organisms, including humans, and the environment they inhabit. Understanding this relationship is basic to the environmental review process and the assessment of impacts on ecosystems.

This technical report addresses the ecosystem components—aquatic species and habitat; vegetation, terrestrial wildlife, and wildlife habitat; and wetlands—in the vicinity of the Lynnwood Link Extension alternatives. The report describes the affected environment as well as the expected long-term and construction-related impacts on these ecosystem resources for each of the project alternatives. It also discusses measures intended to avoid and minimize impacts, including compensatory mitigation for unavoidable impacts.

This report is organized into four main parts, beginning with a summary of data-gathering activities, identification of related laws and regulations, definition of the study area, and assumptions (Chapter 1); followed by Chapter 2, Study Objectives and Methods; Chapter 3, Affected Environment; and Chapter 4, Environmental Consequences. Appendices A through D provide additional project-related information and site photographs.

1.1 Data Gathered

The Central Puget Sound Regional Transit Authority (Sound Transit) performed a literature and data review to identify and characterize potentially affected resources in and near the project area. Before the field reconnaissance, existing documentation and information were compiled and reviewed so that the reconnaissance effort could focus on verifying data and filling information gaps. Existing ecosystem resource information was gathered from many local, state, and federal agencies. These information sources included published and unpublished reports, maps, Web sites, aerial photographs, and communication with agency staff familiar with resources within the project vicinity. The data sources are listed in the following subsections.

1.1.1 Agency and Public Contacts

Sound Transit contacted the following agencies and local jurisdictions:

- Washington State Department of Transportation (WSDOT)
- City of Seattle
- City of Shoreline
- City of Mountlake Terrace
- City of Lynnwood

1.1.2 Maps and Existing Documentation

Maps and other existing documents were an important resource used to identify ecosystem features within the project vicinity. The following resources were reviewed:

- National Wetlands Inventory (NWI) data (U.S. Fish and Wildlife Service [USFWS])
- Natural Resources Conservation Service (NRCS) Soil Survey maps
- Priority Habitats and Species (PHS) data (Washington Department of Fish and Wildlife [WDFW])
- SalmonScape fish data and maps (WDFW)
- StreamNet data and maps (StreamNet)
- City of Seattle *State of the Waters 2007* report (City of Seattle 2007)
- Basin characterization reports of Thornton Creek/West Lake Washington (Tetra Tech/KCM 2004a) and McAleer Creek/Lyon Creek (Tetra Tech/KCM 2004b)
- Stream habitat analysis for the City of Lynnwood (Jones and Stokes 2000)
- Swamp Creek Urban Growth Area Drainage Needs Report, including Scriber Creek Subbasin (Snohomish County 2002)
- *Salmon and Steelhead Habitat Limiting Factors Report for the Cedar-Sammamish Basin* (Kerwin 2001)
- Washington State Department of Natural Resources (DNR) Natural Heritage Program database
- *A Catalog of Washington Streams and Salmon Utilization, Volume 1, Puget Sound Region* (Williams et al. 1975)
- Critical area maps from local jurisdictions (Cities of Seattle, Shoreline, Mountlake Terrace, Lynnwood, King County, and Snohomish County)
- *Sound Transit 2 Mitigation: Impact Summary and Analysis Memorandum*, as well as geographic information system (GIS) data (ESA Adolfson 2010)
- Aerial photography of the project corridor (including the King County aerial photography database or Google Earth database)
- Regulatory compliance documents, such as the *North Link Light Rail Transit Project Final Supplemental Environmental Impact Statement* (Sound Transit 2006), critical area studies, wetland delineation reports, and stream studies by other agencies or consulting firms, as available
- Lists of listed and proposed endangered and threatened species and critical habitat, candidate species, and species of concern in King and Snohomish counties (USFWS)
- Endangered Species Act Status of West Coast Salmon and Steelhead List (National Oceanic and Atmospheric Administration, National Marine Fisheries Service [NOAA Fisheries])
- Salmon Critical Habitat Designation Maps (NOAA Fisheries)
- USFWS Critical Habitat Maps for Threatened and Endangered Species
- List of Migratory Birds Protected by the Migratory Bird Treaty Act

1.2 Guiding Regulations, Plans, and/or Policies

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

Federal

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

State

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

Local

- Critical Area Ordinances for local jurisdictions (Cities of Seattle, Shoreline, Mountlake Terrace, and Lynnwood)

Miscellaneous

- *Thornton Creek Draft Watershed Action Plan* (Thornton Creek WMC 2001)
- *Greater Lake Ballinger/McAleer Creek Watershed Study Draft Strategic Action Plan* (Otak et al. 2009)
- Sound Transit Environmental Policy (April 2004)
- Sound Transit Executive Order No. 1, Establishing a Sustainability Initiative for Sound Transit (2007)
- Sound Transit Sustainability Plan (June 2011)

1.3 Study Area

1.3.1 Aquatic Species and Habitat

The study area for aquatic species and habitat includes all streams within 200 feet of the project alternatives or features; however, the description of the affected environment will acknowledge ecosystem features such as streams or natural corridors that are partly within or cross through the field reconnaissance survey area. For example, for streams, the study area will extend up to 100 feet upstream to 300 feet downstream (in accordance with WAC 73-201A-400) from where project limits cross the stream, as well as the entire stretch of any stream paralleling the project within 200 feet of the edge of the alternative. A wetland and stream ordinary high water mark (OHWM) delineation was performed along the Preferred Alternative alignment (approximately 100 feet on each side beyond the construction limits for the Preferred Alternative; this area is referred to as the delineation area). The purpose of the OHWM delineations was to refine resource boundaries and update information for the Final Environmental Impact Statement (Final EIS).

1.3.2 Vegetation, Terrestrial Wildlife, and Wildlife Habitat

The study area for vegetation and wildlife habitat includes the project alignment or related facility footprint (i.e., the area in which clearing, grading, and the operation of construction machinery would disturb existing habitat) plus all areas within 200 feet of the project alternatives. This is the area in which project construction could affect vegetation cover and habitat quality for terrestrial wildlife species that may occur in the area. To evaluate wildlife potentially affected by project-related noise and human activity, project biologists also reviewed documented occurrences of sensitive wildlife species within 0.25 mile of the project alternatives.

1.3.3 Wetlands

The study area for wetlands encompasses the area within 200 feet of either side of the project alternatives or features. Within this area, a field reconnaissance survey was conducted during the Draft EIS phase to identify, map, and describe wetlands. The field reconnaissance survey area consisted of public rights-of-way administered by WSDOT or other public agencies within the study

area. Portions of wetlands that extended beyond the field reconnaissance survey area and other potential wetlands outside of this survey area were identified based on visual observation from public areas during the field survey; current local, state, and federal wetland maps; critical area reports; and aerial photographs. A wetland and stream OHWM delineation was performed along the Preferred Alternative alignment (approximately 100 feet on each side beyond the construction limits for the Preferred Alternative). The purpose was to refine resource boundaries and update information for the Final EIS. Wetland descriptions in this assessment include those wetlands that are partly within or cross through the study area.

1.4 Assumptions

1.4.1 Impact Assessment

This ecosystems impact assessment is based on examining the data from overlaying the conceptual designs for the light rail alternatives onto ecosystem resource base maps and applying an additional buffer (10 to 12 feet) to account for other features such as noise walls and retaining walls. The project footprint includes the guideway, station footprints (including parking), roadway improvements, storm drainage ponds, and ancillary features. Not all areas within the 10- to 12-foot analytical buffer on the project footprint would be subject to long-term impacts; some areas would be unaffected under the light rail alternatives or would be subject only to temporary impacts during construction. The acreage values resulting from this analytical approach provide a reasonable indication of the nature and magnitude of potential impacts and reflect differences among alternatives. To provide a conservatively high estimate of impacts, all impacts within these areas are considered long-term effects for this analysis. Although these analytical buffers represent a conservative estimate of the areas where long-term effects may occur, some impacts could take place outside of these areas. For example, some trees in areas adjacent to the analytical buffer may need to be removed to protect light rail safety and reliability. Removal of such hazard trees may accompany construction of any of the light rail alternatives, and it may continue as a maintenance activity during the operational life of project facilities.

Sound Transit will identify detailed temporary construction limits during the permitting phase to distinguish which ecosystem resources could be restored. Although detailed construction limits are not defined at this phase in the project design, potential construction limits have been estimated in the vicinity of streams, stream buffers, wetlands, and wetland buffers. These consist of areas where temporary impacts could extend beyond the analytical buffer defined for the analysis of long-term impacts. For the analyses of temporary construction impacts on vegetation in this technical report and the EIS, it is assumed that the level of temporary construction impacts would be commensurate with the level of long-term impacts.

The elevated guideway may create a rain shadow effect and in some cases would have a low clearance that could limit sunlight to vegetation underneath. This analysis conservatively assumes that the area under the elevated guideway would be a long-term impact on wetlands, wetland buffers, riparian buffers, and vegetation because of shading and precipitation interception from the

structure. However, shrubs and herbaceous plants may be able to grow in some areas where the guideway is high enough above the ground and where stormwater runoff from the guideway can be directed to underlying plants. Sound Transit will re-evaluate this assumption during the permitting phase to identify specific situations where ecosystem resources under the elevated guideway do not have a long-term impact and could be restored. Estimating this impact is complicated and depends on multiple variables, such as slope, aspect, soil conditions, and stormwater dispersion from the elevated guideway. All these variables make for a complicated impact analysis that exceeds the site and design information available during EIS development. It is assumed that permanent impacts on wetlands associated with elevated sections of the alternatives can be avoided or further minimized during final design and construction.

1.4.2 Site Restoration

For purposes of analysis and discussion of temporary construction impacts, Sound Transit assumes that areas supporting native upland or wetland vegetation and riparian corridors located outside of the project limits would be restored after construction is completed. Site restoration features would be installed immediately following construction in each project segment. The length of time that would be required for site restoration to effectively replace pre-project wetland functions would vary.

1.4.3 Avoiding and Minimizing Impacts on Sensitive Ecosystem Resources

Sound Transit assumes that best management practices (BMPs) would be implemented at appropriate locations and that they would perform as intended to avoid or minimize impacts. Also, where possible, project features would be designed and located to avoid or minimize impacts on sensitive resources. For example, support columns and fill slopes would be situated outside of sensitive areas to the maximum extent practicable. Appendix A provides a compilation of BMPs that could be used to avoid or minimize project construction and operational impacts on sensitive ecosystem resources, including state and federal protected species and their habitats, wetlands, and aquatic resources. These BMPs are either required by state or federal agencies to obtain the permits that would be necessary for the project or may be required to comply with permit conditions.

2 STUDY OBJECTIVES AND METHODS

This chapter describes the objectives and methods used to study the aquatic species and habitat; vegetation, terrestrial wildlife, and wildlife habitat; and wetland resources. Sound Transit and the Federal Transit Administration (FTA) also prepared and circulated the *Lynnwood Link Technical Methodologies Report* in April 2012, and invited cooperating and participating agencies to review and comment. The following discussion summarizes the approach defined in the original methodologies report but also incorporates further detail that became available after field surveys and other reconnaissance were complete.

2.1 Aquatic Species and Habitat

2.1.1 Study Objectives

This technical report is intended to provide information in support of Sound Transit's NEPA and SEPA analyses, assist project planning, and facilitate permitting. Discussions in this report identify and describe aquatic habitats and species in the study area, evaluate the potential impacts of each alternative within each segment, and describe measures to avoid, minimize, or compensate for impacts.

2.1.2 Methods

Aquatic species and habitat (streams) were identified through existing maps and documents, communication with local municipality staff, a field reconnaissance, and OHWM delineation. State and local regulations and guidance were reviewed to assist in identifying stream types and to confirm project compliance with existing laws.

Review of Existing Information

Sound Transit reviewed existing information to identify and characterize aquatic species and habitats that would be potentially affected by the project (see Section 1.1.2). Sources were reviewed to collect information regarding the presence of resident and anadromous fish species and habitat (streams) near the study area. For this analysis, fish species with the potential to be present in a particular stream segment (based on the species' range, habitat associations, and expected upstream extent of use in the stream in question) were assumed to be present, unless their absence was documented. Existing maps and documentation were gathered, reviewed in the office, and then evaluated in the field within the reconnaissance survey area. Existing digital GIS data were gathered from the Cities of Seattle, Shoreline, Mountlake Terrace, and Lynnwood. GIS data from previous reconnaissance work performed for the Sound Transit 2 light rail projects (ESA Adolfson 2010) were also reviewed.

Agency Coordination

Staff members from the Cities of Seattle, Shoreline, Mountlake Terrace, and Lynnwood were contacted regarding their critical area maps and any other resources that may have been identified

subsequent to finalization of these maps. Staff members from WSDOT were contacted regarding plans for potential future fish passage improvement projects.

Identification of Threatened, Endangered, and Candidate Species

Sound Transit reviewed several data sources to determine the known or expected presence of ESA-listed threatened or endangered species in study area streams, or of species that are proposed for listing. Sources included online data from SalmonScape (WDFW 2014a) and PHS (WDFW 2014b), as well as reports prepared by the City of Seattle (2007), Tetra Tech/KCM (2004a, 2004b), Jones and Stokes (2000), and Kerwin (2001). The potential for individual species to use habitats in the Lynnwood Link Extension study area was evaluated based on documented observations and the known or expected upstream extent of each species' use of each stream.

Stream Classifications and Buffer Width Designations

Streams in the study area were assigned preliminary classifications based on the systems used by the Cities of Seattle[1], Shoreline, Mountlake Terrace, and Lynnwood, respectively. Each of these stream classification systems classifies and assigns protective buffers to streams based on the presence of fish and whether water flow is perennial or seasonal. Each system is hierarchical; that is, a stream is assigned to a particular category only if it does not meet the criteria of any higher ranking categories.

Identification and classification of streams in this report represent conservative estimates, based on available information and the provisions of local critical areas rules. The purpose of the preliminary assignments in this document was to identify stream buffer areas that could be affected under the light rail alternatives to allow a comparison of the potential effects of the alternatives. For stream segments that may be affected by project construction, stream classification determinations will be made in accordance with the applicable local jurisdiction's critical areas ordinance during the permitting phase of this project. These determinations will also be informed by determinations of presumed fish use according to WAC 222-16-031. Some of the watercourses identified in this analysis may not actually be defined as streams by the local jurisdictions, or they may be assigned smaller buffers.

The categories of the City of Seattle classification system (Seattle Municipal Code 25.09.020) are as follows:

- **Type 1:** Waters inventoried as "shorelines of the state" under RCW Chapter 90.58, but not including periodically inundated areas of their associated wetlands
- **Type 2:** Segments of natural waters that have high value to fish for spawning, rearing, or migration (i.e., having a defined channel width of at least 20 feet and a gradient less than 4 percent), or that are used for off-channel habitat
- **Type 3:** Segments of natural waters that have moderate to slight value to fish for spawning, rearing, or migration (i.e., having a defined channel width of at least 2 feet and a gradient less than 16 percent)

[1] Only applicable to development on publicly or privately owned parcels.

- **Type 4:** Segments of natural waters with perennial flow, lacking fish habitat
- **Type 5:** Segments of natural waters with seasonal flow only, lacking fish habitat

The categories of the City of Shoreline classification system (Shoreline Municipal Code 20.80.470) are as follows:

- **Type I:** Streams identified as "shorelines of the state" under the City's Shoreline Master Program
- **Type II:** Streams that are used by or that have habitat value for salmonids
- **Type III:** Streams with a channel width of at least 2 feet that are not used by salmonids
- **Type IV:** Streams with a channel width less than 2 feet that are not used by salmonids
- **Piped stream segments:** Segments of streams, regardless of their type, that are fully enclosed in an underground pipe or culvert

The categories of the City of Mountlake Terrace classification system (Mountlake Terrace Municipal Code 16.15.080) are as follows:

- **Class I:** Natural streams identified as "shorelines of the state" under the City's Shoreline Master Program
- **Class II:** Natural streams that have documented or significant potential for anadromous fish use
- **Class III:** Natural streams that are not used by anadromous fish
- **Class IV:** Natural streams with a channel width less than 2 feet that are not used by salmonid fish
- **Class V:** Natural streams that are seasonal and do not contain fish

The categories of the City of Lynnwood classification system (Lynnwood Municipal Code 17.10.060) are as follows:

- **Category I:** Scriber Creek, Swamp Creek, Lunds Creek, and Halls Creek
- **Category II:** Streams that flow year-round or that are used by salmonids
- **Category III:** Streams that are naturally intermittent and are not used by salmonids

Cities have jurisdiction over stream buffers, which are regulated through each City's Critical Areas Ordinance. Table 2-1 lists the stream buffer widths for the various stream classifications. The distances presented below are minimum requirements; wider buffers may be required in response to site-specific conditions (e.g., the presence of ESA-listed fish species) or the type and intensity of proposed uses.

Table 2-1. Minimum Buffer Requirements for Streams in the Study Area by Local Jurisdiction

Jurisdiction	Stream Classification	Buffer Requirement (feet)
City of Seattle[a]	Type 1	100 feet
	Type 2/3 – anadromous fish	75 feet
	Type 2/3 – no anadromous fish	50 feet
	Type 4	50 feet
	Type 5	50 feet
City of Shoreline[b]	Type I	115 feet
	Type II	75 feet
	Type III	35 feet
	Type IV	25 feet
	Piped	10 feet
City of Mountlake Terrace[c]	Class I	150 feet
	Class II	100 feet
	Class III	65 feet
	Class IV	50 feet
	Class V	Based on review
City of Lynnwood[d]	Category I	100 feet
	Category II	60 feet
	Category III	35 feet

[a] Seattle Municipal Code 25.09.020 (D5) and 25.09.200.A.3.d.1. Only applicable to development on publicly or privately owned parcels.

[b] Shoreline Municipal Code 20.80.470 and 20.80.480

[c] Mountlake Terrace Municipal Code 16.15.080 and 16.15.090

[d] Lynnwood Municipal Code 17.10.060 and 17.10.061

Stream Determination and Field Investigations

A detailed field reconnaissance survey was conducted in the study area to identify, map, and describe aquatic species (fish) and habitat (streams) within public rights-of-way (i.e., the field reconnaissance survey area; see Section 1.3) during the Draft EIS phase. General information was collected in the field at that time and stream courses were estimated and mapped using global positioning system (GPS). These documented streams were included in the aquatic species and habitat findings in the Draft EIS. During the Final EIS phase, biologists performed a wetland and stream OHWM delineation in areas approximately 100 feet on each side beyond the construction limits for the Preferred Alternative (i.e., the delineation area; see Section 1.3). The purpose of the OHWM delineations was to refine resource boundaries and update information for the Final EIS. Data from the delineation field work amends those previously collected during the field reconnaissance survey.

Segments of streams or potential streams beyond the delineation area and outside of the WSDOT or other public rights-of-way were identified based on field reconnaissance from public areas; current local, state, and federal habitat maps and reports; and aerial photographs. These areas outside of the WSDOT or other public rights-of-way that appear to be streams were included in the EIS stream findings to provide a conservative estimate of the alternatives' impacts.

Reconnaissance-level aquatic habitat surveys were conducted 300 feet downstream and 100 feet upstream of each proposed stream crossing, and along the entire stretch of any stream paralleling the project within 200 feet from the edge of an alternative. Aquatic habitat suitability (functional

status) was evaluated based on fish life histories, spawning and rearing habitat requirements, seasonal use, and field observations. The following stream habitat information was obtained during a pre-field review of existing literature, supplemented by qualitative observations gathered during the field reconnaissance: overall rating, water quality, in-stream habitat, riparian habitat, and anthropogenic factors. Additionally, aquatic species habitat was described, when possible and applicable, in a subbasin context. Habitat was assessed with the assumption that anadromous fish may one day be able to access the area even if they cannot under present conditions. To the extent information was currently available or could be readily ascertained in the field, downstream impediments to fish passage were identified for each stream reach.

Mapping

Each stream identified in the study area received a unique identifier that was tracked in a GIS database. Within the delineation area, biologists flagged the OHWM of streams, which professional land surveyors then surveyed. For segments of streams identified during the field reconnaissance that are beyond the delineation area, the OHWM was estimated and mapped using GPS. All data were incorporated into the project GIS. 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. The OHWMs of all streams that may be affected by construction of the Preferred Alternative have been delineated. Final stream classification determinations, in accordance with local jurisdictions' critical areas ordinances, will be made during the permitting phase of this project.

Impact Assessment

To evaluate the impacts on aquatic resources, the project and construction limits were overlain onto ecosystem resource base maps. The project limits include the guideway, station footprints (including parking), roadway improvements, storm drainage ponds, ancillary features, and analytical buffer (Section 1.4.1, Impact Assessment). Impact areas were determined as the area of intersection between the project and construction limits and the stream and/or buffers. This assessment also considered loss of riparian function (based on the amount of clearing, filling, and/or excavation as a result of the project) and other direct and indirect impacts on streams. The impacts assessment for aquatic resources also considered differences in the amount of impervious surface under the alternatives, as well as impacts related to changes in water quality.

2.2 Vegetation, Terrestrial Wildlife, and Wildlife Habitat

2.2.1 Study Objectives

This technical report is intended to provide information in support of Sound Transit's NEPA and SEPA analyses, assist project planning, and facilitate permitting. Discussions in this report identify and describe vegetation and wildlife resources in the study area, evaluate the potential impacts of each alternative within each segment, and describe measures to avoid, minimize, or compensate for impacts.

2.2.2 Methods

To establish the basis for analyzing the effects on vegetation, terrestrial wildlife, and wildlife habitat, Sound Transit delineated and classified land cover on aerial photographs and visited a sample of these areas during the field reconnaissance survey. Major plant communities and habitat types were identified and classified based on the structural categories defined in *Wildlife-Habitat Relationships in Oregon and Washington* (Johnson and O'Neil 2001).

To support the analysis of effects on wildlife, Sound Transit identified wildlife species that are associated with the land cover types in the study area, and with specific habitat elements within each cover type. Sound Transit also assessed locations of known ecologically sensitive areas and important wildlife occurrences that may be sensitive to disturbance from noise or human presence. This information was supplemented with data gathered during the field reconnaissance and delineation visits.

Sound Transit reviewed Natural Heritage Program data from DNR for known locations of rare plant species or rare plant communities within the study area. They also studied PHS data for known locations of wildlife species that are listed or proposed for listing under ESA or that are a management concern for WDFW, as well as habitats with unique or significant value. Each major plant community and habitat type that exists in the study area is described in this report. The relative function of each plant community in providing habitat for wildlife is described based on reconnaissance-level field observations, literature review (including *Wildlife-Habitat Relationships in Oregon and Washington* [Johnson and O'Neil 2001]), professional opinion, and agency consultation. Sensitive information regarding the locations of proposed, candidate, and listed species and habitats is not mapped to protect the integrity of this information.

Biologists conducted a limited field reconnaissance to verify habitat mapping and to observe wildlife species in the vicinity of the study area. A wildlife biologist conducted a site visit on March 30, 2012. Biologists conducting site visits to gather data on wetlands and streams also collected data on wildlife use of the area between March and July 2012 and between July 2013 and July 2014. No formal surveys were conducted for any wildlife species. However, if the project alternative site were located within the known or expected range of a particular species, and if habitat for that species were present within the study area, then the species was assumed to be present.

Sound Transit evaluated the potential effects of the proposed action on vegetation and wildlife using a variety of methods and resources, including the following:

- GIS analysis to determine the acreage, type, and location of affected cover types
- Review of existing literature on the effects of project construction, use, and maintenance on vegetation and wildlife
- Review of WDFW management recommendations for priority habitats and species

To evaluate the impacts to vegetation and wildlife resources, project limits were overlain onto ecosystem resource base maps in GIS. The project limits include the guideway, station footprints (including parking), roadway improvements, storm drainage ponds, ancillary features, and analytical

buffer (Section 1.4.1, Impact Assessment). Impact areas were determined as the area of intersection between the project limits and land cover.

2.3 Wetlands

This section describes the study objectives and methods used to characterize wetlands within the study area and to identify potential impacts.

2.3.1 Study Objectives

This technical report is intended to provide information in support of Sound Transit's Lynnwood Link Extension NEPA and SEPA analyses, assist project planning, and facilitate permitting. Discussions in this report identify and describe wetland resources in the study area, evaluate the potential impacts of each alternative within each segment, and describe measures to avoid, minimize, or compensate for impacts.

Existing data and previous reconnaissance surveys show that wetlands are located within the project limits for all project alternatives. As a result, specific objectives of this study include the following:

- Identify, map, and describe the existing conditions of the wetlands and wetland buffers located within 200 feet of either side of the proposed project alternatives
- Delineate wetlands within approximately 100 feet on each side of the Preferred Alternative
- Determine each project alternative's impacts on wetlands
- Describe measures to avoid, minimize, or compensate for impacts

2.3.2 Methods

Wetlands were identified through existing maps and documents, communication with local municipality staff, a field reconnaissance, and a delineation. Federal, state, and local regulations and guidance were consulted to assist in classifying and rating wetlands and to confirm project compliance with existing laws.

Review of Existing Maps and Documentation

Existing maps and documentation were gathered from a variety of sources (see Section 1.1.2), reviewed in the office, and then evaluated in the field within the field reconnaissance survey area. Existing digital GIS data were gathered from the Cities of Seattle, Shoreline, Mountlake Terrace, and Lynnwood; the USFWS NWI; and Sound Transit (previous reconnaissance performed for the Sound Transit 2 light rail projects [ESA Adolfson 2010]).

Agency Coordination

Sound Transit contacted staff from the Cities of Seattle, Shoreline, Mountlake Terrace, and Lynnwood for their critical area maps and 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.

Wetland Determination and Field Investigations

Wetlands were identified in the field reconnaissance survey area (defined as the area within 200 feet of either side of the project alternatives or features within public rights-of-way) during the Draft EIS phase. During the Final EIS phase, biologists delineated wetlands on parcels where rights of entry could be obtained within approximately 100 feet of the construction limits for the Preferred Alternative (i.e., the delineation area; see Section 1.3). The criteria used for wetland delineations were those provided in the *Corps of Engineers Wetland Delineation Manual* (1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (2010). Within the delineation area on properties where rights of entry were obtained, biologists flagged wetland boundaries. Within portions of the field reconnaissance areas outside of the delineation area, boundaries were estimated and mapped using GPS. All data were incorporated into the project GIS.

Wetlands that extend beyond the field reconnaissance survey area and other potential wetlands outside of the WSDOT or other public rights-of-way that appear to meet the wetland criteria were also incorporated into the GIS database. Ground-truthing and data collection were not possible for these areas because no rights of entry were obtained for properties outside of the field reconnaissance survey area. Potential wetlands were identified by visual observation from public areas during the field reconnaissance; current local, state, and federal wetland maps; and critical area report figures or plans. Boundaries of potential wetlands were added to the project GIS database by incorporating GIS layers prepared by others or estimating and digitizing boundaries over aerial photographs. All wetlands on properties where rights of entry were obtained within 100 feet of the alignment of the Preferred Alternative have been delineated and rated to support permitting with state and local agencies. Some wetlands could not be accessed because right of entry was not granted.

Identified wetlands were classified according to the USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) and *A Hydrogeomorphic Classification for Wetlands* (Brinson 1993). The Washington State Department of Ecology's (Ecology) *Washington State Wetland Rating System for Western Washington – Revised* (Hruby 2004) was used to rate wetlands. Wetlands were also rated according to local regulations. The Cities of Seattle, Mountlake Terrace, and Lynnwood use the Ecology rating system (Seattle Municipal Code 25.09.160A, Mountlake Terrace Municipal Code 16.15.080, and Lynnwood Municipal Code 17.10.050), while the City of Shoreline uses its own rating system (Shoreline Municipal Code 20.80.320). Wetland ratings are used to determine required buffer widths and compensatory mitigation ratios. Generally, the required buffer width and compensatory mitigation ratio increase in conjunction with higher wetland ratings. Functions of delineated wetlands were assessed using the WSDOT *Wetland Functions Characterization Tool for Linear Projects* (Null et al. 2000).

Additional information on methods used for wetland identification, delineation, classification, rating, and buffer width designation is provided in the Wetland and Stream Delineation Report (Appendix B).

Mapping

Each wetland identified in the study area received a unique identifier that was tracked in a GIS database. Wetlands were named based on whether they were field-identified wetlands ("W") or not field-identified/potential wetlands ("PW"), the city they are located in (Seattle = SE, Shoreline = SH, Mountlake Terrace = MT, or Lynnwood = LY), and the order they were encountered in the field (1,2,3, etc.). For example, Wetland WSE5 is the fifth field-identified wetland in Seattle. The field reconnaissance was conducted moving generally from south to north through the study area.

Within the delineation area, biologists flagged wetland boundaries, which professional land surveyors then surveyed. For wetlands identified during the field reconnaissance that are beyond the delineation area, the boundaries were estimated and mapped using GPS. Wetlands that extend beyond the field reconnaissance survey area and other potential wetlands outside of the WSDOT or other public rights-of-way were also incorporated into the GIS database. These included wetlands identified by visual observation from public areas during the field reconnaissance; current local, state, and federal wetland maps; and critical area report figures or plans. These wetland boundaries were added to the project GIS database by adding existing GIS layers or estimating and digitizing boundaries. All wetlands within 100 feet of the Preferred Alternative have been delineated and rated to support permitting with state and local agencies.

Impact Assessment

To evaluate wetland impacts, the project and construction limits were overlain onto ecosystem resource base maps. The project limits include the guideway, station footprints (including parking), roadway improvements, storm drainage ponds, ancillary features, and analytical buffer (Section 1.4.1, Impact Assessment). Impact areas were determined as the area of intersection between the project and construction limits and the wetland and/or buffers. This assessment also considered loss of wetland function (based on the amount of clearing, filling, and/or excavation as a result of the project) and other direct and indirect impacts on wetlands.

3 AFFECTED ENVIRONMENT

3.1 Aquatic Species and Habitat

The Lynnwood Link Extension would be constructed in an urban area where aquatic habitats have already been subjected to a moderate to high degree of alteration. The degree of alteration varies from stream to stream, with the greatest alteration occurring where urban development is the greatest. Some of the smaller streams and headwater reaches have been placed in conveyance systems consisting of pipes and ditches, interfering with natural flow patterns and processes such as groundwater recharge.

3.1.1 Drainage Basin

The study area for the Lynnwood Link Extension is drained by three stream systems: Thornton Creek, McAleer Creek, and Scriber Creek (Figures 3-1a through 3-1c). This map also shows the locations of fish passage barriers within and near the study area, as well as the locations of proposed stream crossings under the light rail alternatives. Salmonid species that are known or expected to occur at locations where project alternatives cross streams are identified in text boxes at those locations on the map. All three streams drain to Lake Washington. These waterways also provide essential fish habitat for federally managed species; such habitat is protected under the Magnuson-Stevens Fishery Conservation and Management Act. Thornton and McAleer creeks drain directly to the lake, while water from Scriber Creek flows to the lake via Swamp Creek and the Sammamish Slough. Lake Washington is the second-largest natural lake in Washington, with a surface area of 22,138 acres. The lake lies at an elevation of 22 feet and has a maximum depth of 214 feet. The major sources of water that enter the lake are the Cedar River (55 percent of the average inflow) and the Sammamish River (27 percent of the average inflow). The remainder of inflow comes from May Creek, Coal Creek, Lyon Creek, McAleer Creek, Thornton Creek, and other smaller streams. The lake drains to Puget Sound through the Lake Washington Ship Canal—an artificial waterway constructed in 1916.

Many species of fish, both native and introduced, inhabit Lake Washington. Discussions in this document focus on salmonids—anadromous[2] salmonids in particular—because these species are a management concern due to habitat degradation and population declines. Salmonids in the Lake Washington watershed are a mix of native and introduced stocks. For example, sockeye salmon (*Oncorhynchus nerka*) that spawn in some areas appear to be descendants of introduced fish, while those in other areas may be native fish (Hendry et al. 1996). Chinook salmon (*O. tshawytscha*) naturally reproduce in many of the watershed streams and are supplemented by hatchery production of fish originally from the Green River (Weitkamp and Ruggerone 2000). Coho salmon (*O. kisutch*) in the watershed also appear to be a mix of naturally produced and hatchery fish (Walter 2013). Chum salmon (*O. keta*) and pink salmon (*O. gorbuscha*) have also been observed. Rainbow trout

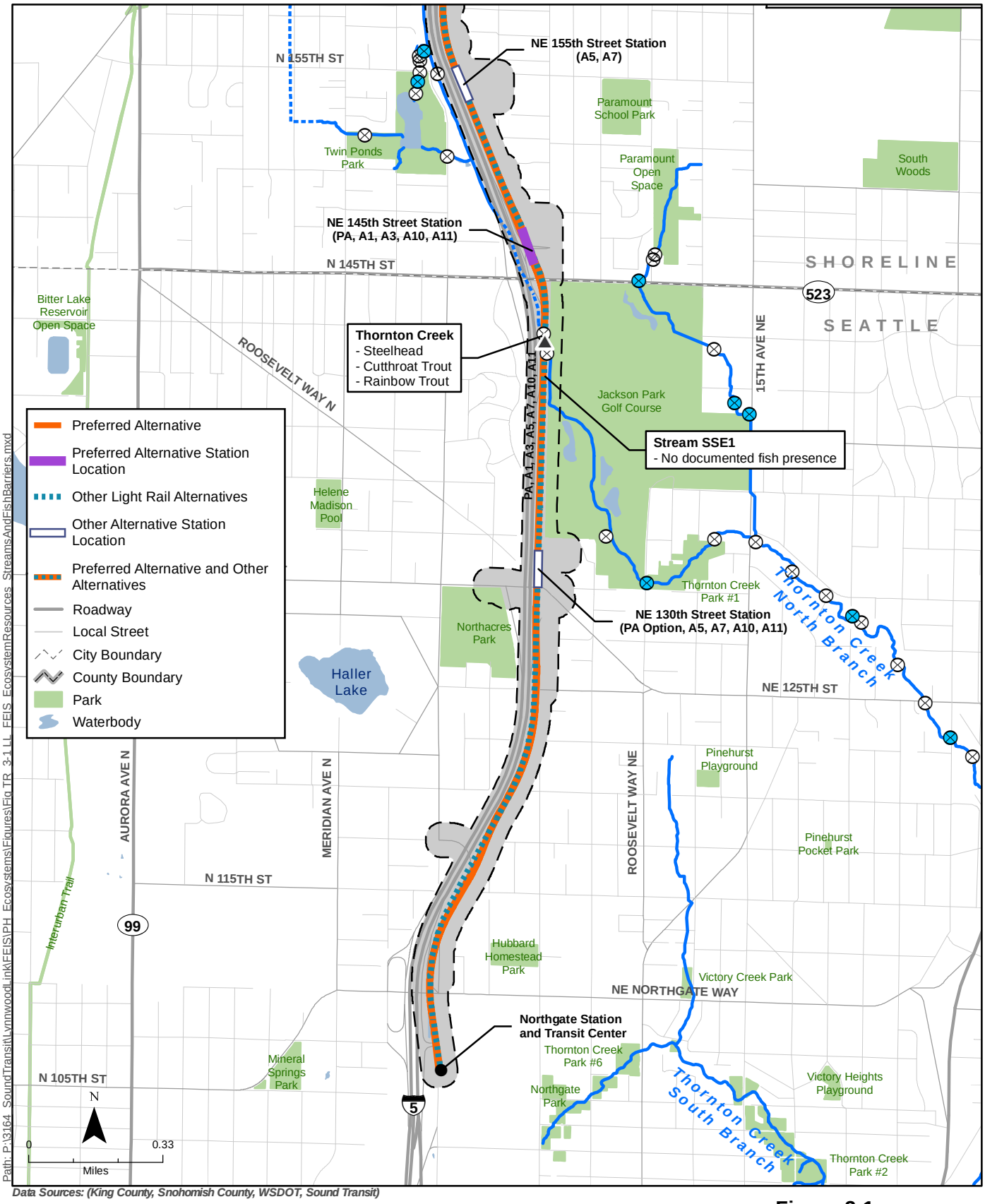
[2] Anadromous fish begin their life in fresh water, migrate to marine waters to reach maturity, and then return to fresh water as adults to spawn.

(*O. mykiss*) and steelhead trout (the anadromous life form of *O. mykiss)* are a mix of introduced hatchery and native stocks. Cutthroat trout (*O. clarkii*), in both resident and anadromous (i.e., sea-run) forms, are also present in the watershed. Kokanee salmon (a form of sockeye that remains in freshwater habitats throughout its life cycle) are also found in the lake and some of its tributary streams. Several species of introduced fish, such as yellow perch (*Perca flavescens*) and smallmouth bass (*Micropterus dolomeiui*), are very abundant. Other introduced species include tench (*Tinca tinca*) and common carp (*Cyprinus carpio*), both native to Europe. The following paragraphs provide additional information about native salmonids.

Adult Chinook salmon in the study area belong to the Sammamish stock (WDFW 2013). Most spawning takes place in North, Swamp, Bear, Little Bear, Thornton, McAleer, Cottage Lake, and Issaquah creeks, as well as in the Sammamish River (WDFW 2012). Run sizes fluctuate considerably; between 2001 and 2012, escapement estimates based on counts of live Chinook in Bear Creek and Cottage Lake Creek ranged between 74 and 531 (WDFW 2013). Spawning in Lake Washington tributary streams generally occurs from mid-September through October (WDFW 2012). Fry emerge from redds during January, February, and March (Celedonia et al. 2008). These juveniles appear to have two rearing strategies: (1) rear in streams until May and then emigrate downstream to lake habitat during May or June; or (2) emigrate shortly after emergence and rear in the lake as fry for 3 to 5 months (Celedonia et al. 2008). Most juvenile Chinook salmon leave Lake Washington and enter Puget Sound in June and July (DeVries et al. 2004).

Steelhead, as well as their resident life form (rainbow trout), are present in the Lake Washington system but are not abundant. Based on chronically low redd counts in Cedar River, Issaquah Creek, and Bear Creek, as well as severe declines in 2000 and 2001, the status of the Lake Washington winter steelhead stock is rated as critical (WDFW 2012). Steelhead spawn in rivers and tributaries throughout the Lake Washington basin, including Thornton Creek and McAleer Creek, generally between mid-December and early June (WDFW 2012). Naturally produced juvenile steelhead either migrate to sea or remain in freshwater as resident rainbow trout (Kerwin 2001). Most juvenile steelhead in the Lake Washington basin remain in streams for 1 to 3 years (Kerwin 2001). Steelhead smolts move into Lake Washington from tributary streams in April on their way out of the system. They stay in the lake for a month or two, migrating out before mid-June (Kerwin 2001). Resident rainbow trout are present in some streams all year long.

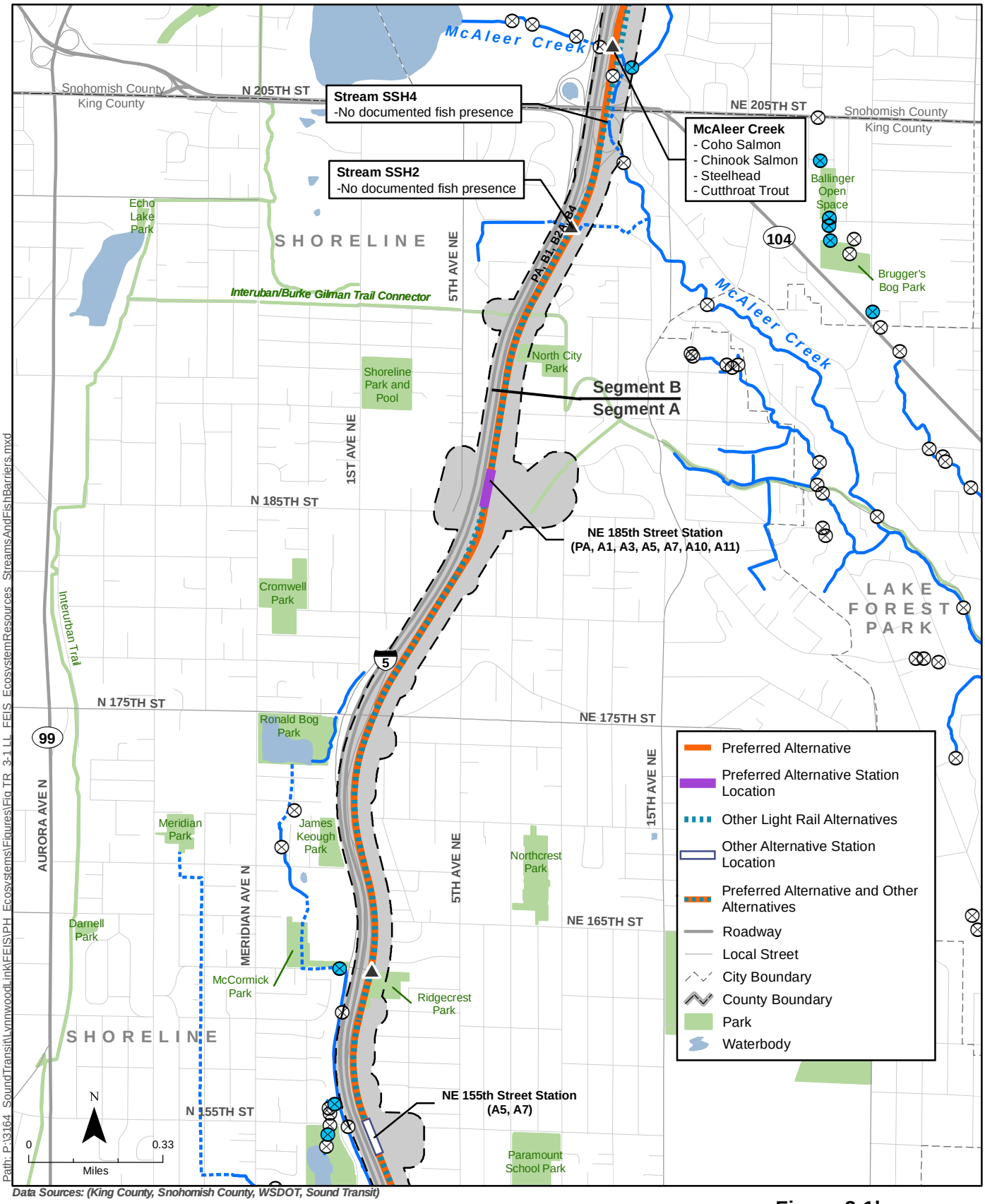
Coho salmon in the study area belong to the Lake Washington/Sammamish Tribs stock (WDFW 2012). Based on low escapement values and a long-term negative trend, the stock is rated as depressed (WDFW 2012). Spawning occurs in nearly all tributaries, including Thornton Creek, McAleer Creek, and Scriber Creek, generally from late October to mid-December (WDFW 2012). Fry emerge in late winter and rear in freshwater habitats for 12 to 14 months before migrating through Lake Washington to marine habitats in April and May (Kerwin 2001).



Note:
Text boxes where the project alternatives cross or pass near streams identify the salmonid species known or expected to occur at those specific locations, and are not intended to depict upstream limits of fish distribution.

Figure 3-1a
Streams and
Fish Passage Barriers

Lynnwood Link Extension

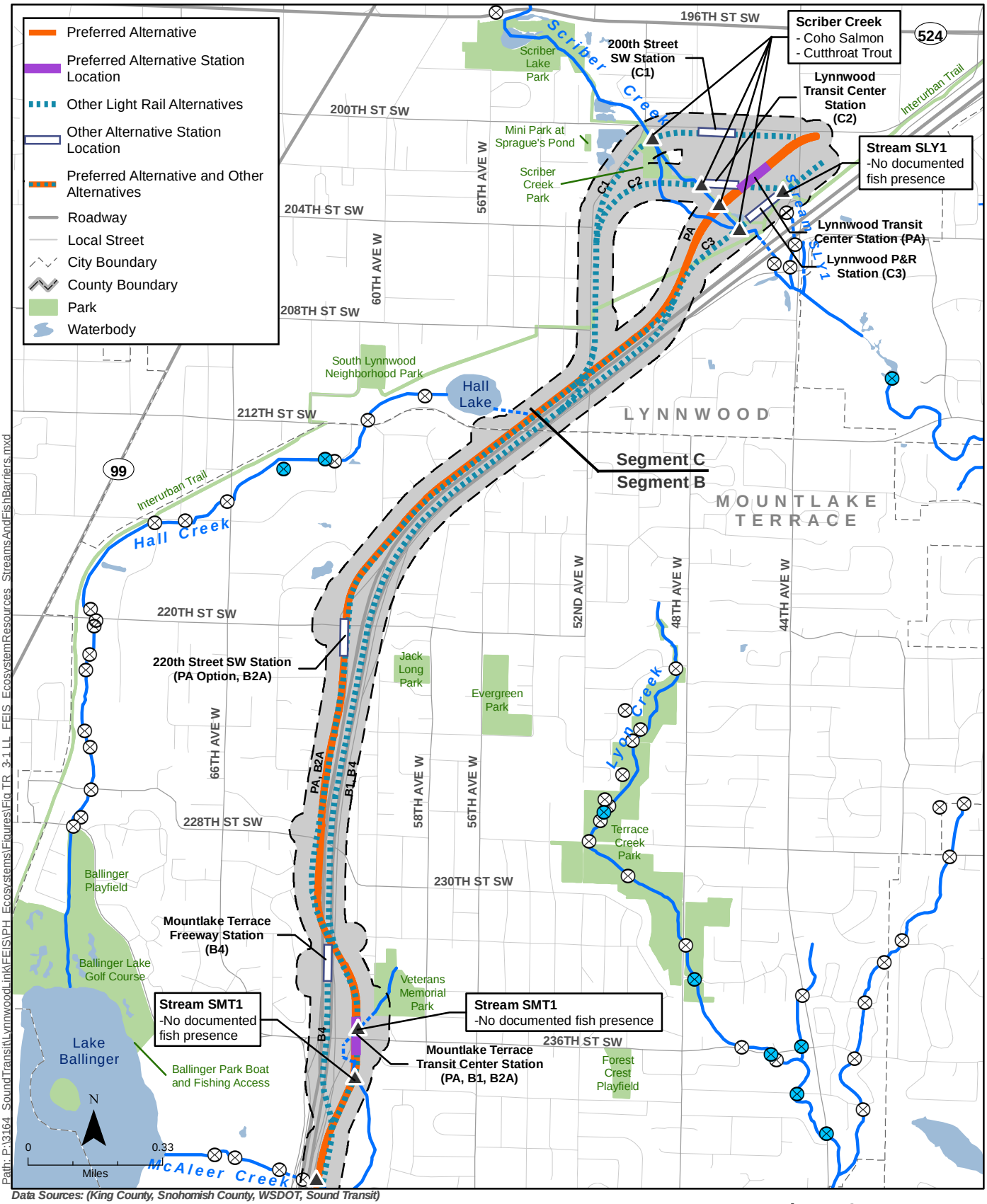


Stream Crossing
Open Stream
Piped Stream
Total Fish Barrier
Partial or Unclassified Fish Barrier
Study Area

Note:
Text boxes where the project alternatives cross or pass near streams identify the salmonid species known or expected to occur at those specific locations, and are not intended to depict upstream limits of fish distribution.

Figure 3-1b
Streams and
Fish Passage Barriers

Lynnwood Link Extension



Note:
Text boxes where the project alternatives cross or pass near streams identify the salmonid species known or expected to occur at those specific locations, and are not intended to depict upstream limits of fish distribution.

Figure 3-1c
Streams and
Fish Passage Barriers

Lynnwood Link Extension

Sockeye salmon that use habitats in the study area belong to the Lake Washington/Sammamish Tribs stock (WDFW 2012). The primary spawning areas for this stock are in the Big Bear Creek system and Issaquah Creek (WDFW 2012), but sockeye also use nearly all of the larger tributary streams, including Thornton Creek and McAleer Creek. WDFW (2012) rates the stock as healthy. Between 1991 and 2008, escapement values from Big Bear Creek averaged around 7,400 spawning adults in odd-numbered years and 40,000 adults in even-numbered years (WDFW 2013). Spawning for this stock generally occurs from early September through late December (WDFW 2012). After emerging from spawning gravel in winter and early spring, juvenile sockeye migrate to Lake Washington, where they rear for 1 to 3 years (Kerwin 2001). Juveniles enter the lake as fry during late winter and early spring, and most rear in the lake for 1 year.

Coastal cutthroat trout in both resident and anadromous forms are present in the Lake Washington basin in moderate abundance. Resident fish are present all year long. Sea-run cutthroat spawn over a long period, from winter through May (WDFW 2013). They seek smaller streams with minimal flow and small substrates; cutthroat trout are commonly found in the uppermost reaches of streams, in areas that are too shallow for other salmonids (WDFW 2013). Most sea-run cutthroat rear in stream habitats for 2 to 3 years before migrating to salt water (WDFW 2013).

Bull trout (*Salvelinus confluentus*) have been observed entering Lake Washington through the fish ladder viewing area at the Ballard Locks, where every year, one or two fish are seen traveling into the lake. Many researchers believe that these fish are seasonal transient strays rather than fish produced within the system. Surveys to date have not produced conclusive evidence for the presence or absence of bull trout in the Lake Washington system, outside of a self-sustaining population in the Cedar River drainage above Lower Cedar Falls (King County Department of Natural Resources 2000). For regulatory purposes, USFWS assumes that natural production is possible in the system.

3.1.2 Streams in the Study Area

Discussions in this subsection describe the streams that are present in the study area and provide information about fish use, fish habitat quality, and riparian habitat conditions in the streams and their tributaries. Anthropogenic factors that influence habitat quality for each stream are also identified. Information is organized by the three major stream systems in the study area, progressing from south to north. Table 3-1 summarizes the stream information in the study area. Appendix C includes photographs of the streams.

Thornton Creek

The 7,200-acre Thornton Creek basin drains a substantial portion of northeastern Seattle and most of Shoreline. The stream flows generally south and east before discharging to Lake Washington. Land elevations range from 18 feet at the stream's mouth in Lake Washington to more than 500 feet in the northwestern portions of the basin.

Table 3-1. Summary of Streams in the Lynnwood Link Extension Study Area

Stream Name[a]	Stream Index No.[b]	Fish Habitat Status[c]	Local Jurisdiction	Local Jurisdiction Stream Classification[d]	Local Jurisdiction Buffer Width (feet)
Thornton Creek, North Branch	08.0030	Documented	Seattle	Type 3[e]	75[e]
Thornton Creek Tributary (SSE1)	NA	Potential	Seattle	Type 3[e]	75[e]
McAleer Creek Tributary (SSH2)	NA	Unknown (Presumed Potential)	Shoreline	Piped	10
McAleer Creek Tributary (SSH4)	NA	Unknown	Shoreline	Type III	65
McAleer Creek	08.0049	Documented	Shoreline	Type II	115
McAleer Creek	08.0049	Documented	Mountlake Terrace	Class II	100
McAleer Creek Tributary (SMT1)	08.0050	Potential	Mountlake Terrace	Class III/Class V[f]	65/0[f]
Scriber Creek	08.0061	Documented	Lynnwood	Category I	100
Scriber Creek Tributary (SLY1)	08.0064	Potential	Lynnwood	Category III	35

[a] Streams other than Thornton Creek, McAleer Creek, and Scriber Creek are identified with alphanumeric codes: SYYn. S = stream; YY = two-letter code for local jurisdiction (SE = Seattle, SH = Shoreline, MT = Mountlake Terrace, LY = Lynnwood); n = sequential identification number

[b] Water Resource Inventory Area (WRIA) identification numbers according to Williams et al. (1975). 'NA' indicates watercourses that are not identified in that inventory.

[c] Documented = Fish have been observed in the study area; Potential = Potential fish habitat is present, based on field assessment of stream width and gradient, but stream segments in the study area are upstream of human-caused fish passage barriers; Unknown = No fish presence data are available and stream segments are contained within culverts in the study area.

[d] Identification and classification of streams in this analysis represent conservative estimates, based on available information and the provisions of local critical areas rules. Some of the watercourses identified in this analysis may not actually be defined as streams by the local jurisdictions, or they may be assigned smaller buffers than indicated here. Actual impacts would be analyzed and mitigated as appropriate through local permitting processes.

[e] The Seattle Municipal Code applies development restrictions and specifies mitigation requirements only within environmentally critical areas or buffers on publicly or privately held parcels. The locations where the proposed alignments would pass near Thornton Creek and Stream SSE1 are within the right-of-way for I-5 or other roads and are therefore not subject to City of Seattle buffer requirements. Regulatory buffer widths are used in this analysis to identify areas where construction of the light rail alternatives could affect the condition of riparian buffers. Mitigation requirements would be developed through local permitting processes.

[f] See McAleer Creek discussion below.

Thornton Creek drains the southern half of the study area (south of NE 185th Street, approximately). Segments of the North Branch of Thornton Creek (Water Resources Inventory Area [WRIA] No. 08.0030) within and immediately upstream of the Jackson Park Golf Course fall within the study area. The South Branch of Thornton Creek, also known as Maple Leaf Creek, originates in wetlands near Northgate, North Seattle Community College, and Interstate 5 (I-5) (City of Seattle 2007). The stream drains the southernmost portion of the study area. The two branches join to form the 1.4-mile-long main stream near the Meadowbrook stormwater detention pond in northeast Seattle. The study area does not include any portions of the South Branch or the main stem of Thornton Creek.

The North Branch of Thornton Creek (hereafter referred to as Thornton Creek in this report) originates near Ronald Bog in Shoreline and flows 5 miles before joining the South Branch.

Portions of the stream above and within the study area are as follows, progressing from upstream to downstream:

- After exiting the piped segment immediately south of Ronald Bog, Thornton Creek passes through backyards, roadside ditches, and culverts along and through the I-5 corridor. The stream flows at the surface from approximately North 167th Street through most of the solid waste transfer station, re-enters pipes under the King County Metro bus facility, then flows at the surface most of the way to Twin Ponds (Tetra Tech/KCM 2004a).
- Downstream from Twin Ponds, the creek passes through a small wetland called Peverly Pond and eventually through a concrete-lined channel into a pair of 1,500-foot-long, 72-inch-wide culverts under I-5.
- Downstream of the I-5 culverts, the stream enters the study area, emerging from the I-5 culverts south of North 145th Street and west of 5th Avenue NE, passing through a pair of 48-foot-long, 40-inch-diameter culverts under 5th Avenue NE, and then flowing in a ditch between 5th Avenue NE and the Jackson Park Golf Course for approximately 700 feet before veering east into the golf course (Tetra Tech/KCM 2004a).

Approximately 300 feet south of Thornton Creek's crossing under 5th Avenue NE, a watercourse emerges from a culvert in the I-5 right-of-way, flows southward in the ditch on the west side of 5th Avenue NE, and then drains to Thornton Creek via a culvert under 5th Avenue NE. The watercourse was not catalogued by Williams et al. (1975); the source of the water in the ditch is not known; and historic maps of the area do not indicate the presence of a tributary to Thornton Creek at this location. However, field observations of flowing water during the summer months suggest the possibility that some flow may be derived from groundwater. For this analysis, this watercourse is provisionally identified as a stream (SSE1) and classified as Type 3, based on the presence of a 2-foot-wide channel and a gradient less than 16 percent. A formal determination of whether the watercourse is a stream (and if so, how it is classified) will occur through the process of project permitting with the City of Seattle.

Anthropogenic Factors

Overall, approximately 59 percent of the Thornton Creek basin is covered by impervious surfaces such as roads, buildings, and parking lots (City of Seattle 2007). In portions of the basin north of the Seattle city limits, the City of Shoreline calculated existing impervious area values ranging between 45 and 48 percent (Tetra Tech/KCM 2004a). Kerwin (2001) estimated the effective impervious area in the basin at 31.9 percent. The City of Seattle (2007) identified the following problematic conditions in the system, due primarily to urban development in the basin:

- Altered hydrology, with high and flashy flows
- Degraded water quality, with temperatures and fecal coliform bacteria frequently at levels above state standards
- Excess nutrients under non-storm flow conditions

- Channel incision and degraded in-stream habitat, due to restricted channel width and loss of hydrologic connectivity to the floodplain
- Depressed levels of coarse sediment, in-stream wood, and riparian forest
- Fish passage barriers that limit anadromous fish to 30 percent of the watercourse length
- High pre-spawn mortality rates of coho salmon

Fish Use

The lower reaches of Thornton Creek support spawning anadromous salmonids. Chinook, coho, and sockeye salmon redds have been observed in the North Branch as far upstream as 35th Avenue NE and NE 115th Street, approximately 2.5 miles downstream of the study area (City of Seattle 2007; WDFW 2014a). Individual chum salmon (likely strays from other basins [Kerwin 2001]) have also been sighted in the lower portions of the stream (McMillan 2007 *in* City of Seattle 2007), and steelhead have been observed throughout much of the system (WDFW 2014a).

The City of Seattle (2007) identified at least 4 total barriers and 10 partial barriers to fish passage between the study area and the downstream reaches that support anadromous spawning. However, the observation in 2004 of an adult steelhead trout upstream of Twin Ponds suggests that none of these structures, including the culvert under I-5, may present an absolute barrier to fish passage (Tetra Tech/KCM 2004a). Notably, steelhead are renowned for their ability to negotiate what would be considered barriers for most other salmonids (Tetra Tech/KCM 2004a). Moving upstream from the study area, WDFW (2014c) characterized the culvert under I-5 as a partial barrier to fish passage.

Resident salmonids are also present in the system, including reaches that are within or upstream of the study area. Cutthroat trout have been observed as far upstream as the Jackson Park Golf Course, and rainbow trout have been observed another mile upstream, near Twin Ponds (City of Seattle 2007). According to WDFW (2014b), resident cutthroat trout are expected to be present in Thornton Creek all the way up to Ronald Bog. Native non-salmonid species that use Thornton Creek include threespine stickleback (*Gasterosteus aculeatus*), prickly sculpin (*Cottus asper*), coast-range sculpin (*Cottus aleuticus*), and lamprey (*Lampetra* sp.) (Tabor et al. 2010). Non-native fish species that have been introduced to Thornton Creek, either intentionally or unintentionally, include rock bass (*Ambloplites rupestris*), pumpkinseed (*Lepomis gibbosus*), largemouth bass (*Micropterus salmoides*), and oriental weatherfish (*Misgurnus anguillicaudatus*) (Tabor et al. 2010).

Migratory cutthroat trout are the most abundant salmonid in Thornton Creek, with an average annual adult count of more than 200 live fish on spawning grounds (City of Seattle 2007). Based on carcass counts from 1999 through 2005, the average annual anadromous run size in Thornton Creek is 33 coho, 7 sockeye, and 4 Chinook salmon (City of Seattle 2007). No fish are known or expected to use the watercourse (SSE1) along 5th Avenue NE south of Thornton Creek (WDFW 2014a, 2014b). That watercourse has not been identified as a stream (fish-bearing or otherwise) by WDFW (2014a) or Washington DNR (2014).

Water Quality

No portions of Thornton Creek within the study area are listed as impaired water bodies under CWA Section 303(d) (Ecology 2012a). The main stem and the lower portions of the North and South Branches are listed as impaired, based on demonstrated exceedances of state water quality standards for temperature and dissolved oxygen (Ecology 2012a). The lowest reaches of the main stem are also listed for fecal coliform bacteria. In addition, Ecology (2012a) has identified portions of Thornton Creek as a water of concern for both pH and mercury.

Since 1971, King County has monitored water quality in Thornton Creek at a station located near the stream's mouth. Results from a trend analysis of water quality data from 1971 to 2007 indicated that water quality might have declined during that 37-year analysis period, with statistically significant increases in water temperatures, total phosphorus, turbidity, and conductivity, as well as decreased concentrations dissolved oxygen (King County 2014a). Decreased levels of ortho-phosphorus, nitrate-nitrogen, and total nitrogen indicate some improvements in water quality during that period. In its most recent (2013) water quality report for Thornton Creek, King County assigned the stream a water quality index score of 45, indicating a moderate level of concern for water quality (King County 2014b). In general, scores between 40 and 80 indicate a moderate level of concern and scores below 40 indicate a high level of concern. The water quality index score for Thornton Creek was greater than 40 in only 2 of the 14 years from 2000 to 2013 (King County 2014b).

In-stream Habitat

In-stream habitat quality of Thornton Creek within the study area is rated as low, based on channel morphology, sediment regime, and existing physical habitat conditions (City of Seattle 2007). The stream valley in most of this reach has been modified by grading, fill, and excavation, particularly near I-5, where the stream has been straightened and confined. The channel has more sinuosity within the golf course (downstream of the study area), but the banks in many areas are hardened by riprap and the stream cannot migrate. Note that this description is based on surveys that were completed between 1999 and 2004, before stream restoration work was completed within the Jackson Park Golf Course. The habitat benefits of that effort are not reflected in this description (City of Seattle 2007).

Throughout this segment, the channel is mostly eroding and degrading or has been locked into place through bank armoring. Gradients range between 1 and 2 percent. Gravel and sand are the dominant sediment types, and riffles and glides are the dominant habitat types; little in-stream structure is present to contribute to pool formation. This dearth of in-stream structure also reduces the channel's capacity to trap and store sediment (City of Seattle 2007). Based on the predominance of fine sediments, spawning habitat quality is considered poor. Because of the presence of overhanging vegetation and relatively deep water, portions of the stream within the study area likely provide suitable rearing habitat for juvenile fish (Tetra Tech/KCM 2004a).

Upstream of the I-5 culvert, Thornton Creek runs alongside the western boundary of the study area. The stream is outside of the study area and on the opposite side of I-5 from the proposed

alignments, however, and therefore does not have the potential to be affected by construction of any of the light rail alternatives.

Riparian Habitat

Riparian habitat quality of Thornton Creek within the study area is rated low, based on riparian area width, connectivity, understory and canopy composition, canopy density, and the percentage of the stream shaded by vegetation (City of Seattle 2007). Stream banks in most portions of the study area are dominated by Himalayan blackberry (*Rubus armeniacus*), particularly along the segment that parallels 5th Avenue NE.

On the opposite side of 5th Avenue NE from the alternative light rail alignments, there is a 50- to 70-foot-wide strip of vegetation beside the stream. Vegetation in this strip includes red alder (*Alnus rubra*), black cottonwood (*Populus balsamifera*), and scattered patches of immature western redcedar (*Thuja plicata*). This overstory canopy provides shade for the stream during spring and summer (when the trees have leaves), as well as the potential for contributing some woody debris. Within the golf course, the dominant riparian vegetation in the study area consists of non-native plants, turf, and landscaping.

Riparian habitat for the surface-flowing segment of the watercourse (SSE1) along 5th Avenue NE south of Thornton Creek consists of a strip of red alder and Himalayan blackberry in the I-5 right-of-way between 5th Avenue NE and the off-ramp from I-5 northbound to NE 145th Street.

McAleer Creek

McAleer Creek (WRIA No. 08.0049) originates at Lake Ballinger and flows roughly 6 miles to the northeast corner of Lake Washington. The 5,300-acre drainage basin includes portions of Lynnwood, Edmonds, Mountlake Terrace, Shoreline, and Lake Forest Park. Land elevations range from 18 feet at the stream's mouth in Lake Washington to more than 500 feet north of the Mountlake Terrace Transit Center. Most of the northern portion of the study area (from NE 185th Street in Shoreline, north to about 208th Street SW in Lynnwood) drains to the McAleer Creek system. Areas north of 224th Street SW drain to Lake Ballinger, which empties to McAleer Creek.

Much of McAleer Creek and its tributaries within the study area are contained within culverts. The main stem enters the study area from an open channel through the Nile Golf Course west of I-5. The main stem stream segments in the study area are as follows, progressing from upstream to downstream:

- Culvert under I-5 (440 feet)
- Open channel adjacent to the on-ramp from State Route (SR) 104 westbound to I-5 northbound (240 feet)
- Culvert under the cloverleaf interchange between I-5 northbound and SR 104 westbound (280 feet)
- Open channel in the area enclosed by the cloverleaf off-ramp from I-5 northbound to SR 104 westbound (200 feet)
- 4-foot by 6-foot box culvert under SR 104 (320 feet)

- Channelized open water course in the area enclosed by the cloverleaf on-ramp from SR 104 eastbound to I-5 northbound (200 feet)
- 66-inch-diameter culvert beneath the off-ramp from I-5 northbound to SR 104 (280 feet)

The stream is within the culvert as it exits the study area, briefly resurfacing before entering a 72-inch culvert under Forest Park Drive NE shortly thereafter.

Approximately 1,800 feet south of the I-5/SR 104 interchange, a tributary to McAleer Creek (Stream SSH2) has been identified as passing under I-5 (Tetra Tech/KCM 2004b). This tributary was not catalogued by Williams et al. (1975). After entering a culvert just west of I-5, the stream remains piped for approximately 1,500 feet, resurfacing shortly before its confluence with the main stem near a wastewater pumping station upstream of 15th Avenue NE (Tetra Tech/KCM 2004b). The open-water portions of the stream within the study area, west of I-5, are within concrete-lined ditches along NE 200th Street. During site visits conducted for this analysis, flowing water was observed in this watercourse only during and immediately after rainfall.

Within the cloverleaf interchange between eastbound SR 104 and northbound I-5, a watercourse emerges from a culvert under the roadway, flows approximately 30 feet, and then joins McAleer Creek. The watercourse was not catalogued as a stream by Williams et al. (1975), the source of the water is not known, and historical maps of the area do not indicate the presence of a tributary to McAleer Creek at this location. However, field observations of flowing water during the summer months suggest the possibility that some flow may be derived from groundwater. For this analysis, this watercourse is provisionally identified as a stream (SSH4) and classified as Type III, based on the presence of a 2-foot-wide channel and a gradient less than 16 percent. A formal determination of whether the watercourse is a stream (and if so, how it is classified) will occur through the process of project permitting with the City of Shoreline. If the watercourse is classified as a Type III stream, its regulatory buffer will be contained entirely within the larger regulatory buffer for McAleer Creek. Riparian habitat conditions for Stream SSH4 are therefore as described for McAleer Creek, above.

North of the I-5/SR 104 interchange, a tributary (WRIA No. 08.0050; Stream SMT1) joins McAleer Creek in the wooded area adjacent to the on-ramp from SR 104 westbound to I-5 northbound. The tributary originates in Veterans Memorial Park northeast of the Mountlake Terrace Transit Center, then flows south through a series of open watercourses and culverts east of I-5. During site visits conducted for this analysis, flowing water was observed in this watercourse only during and immediately after rainfall. Farther downstream, along the eastern border of the Edmonds School District property south of 236th Street SW, water from a culvert under the school property contributes flow on a more regular basis. The City of Mountlake Terrace has identified the uppermost reaches of this watercourse in the study area as a Class V (seasonal, non-fish-bearing) stream that does not require a regulatory buffer. It is possible that the City may determine that the downstream reaches meet the criteria for a Class IV (requiring a 50-foot buffer) or Class III stream (requiring a 65-foot buffer). The segment that is crossed by the proposed light rail alignments is upstream of the water source in the Edmonds School District property and is therefore likely to be considered a Class V stream.

Anthropogenic Factors

In addition to the extensive portions of the stream that are contained within culverts, McAleer Creek has been affected by urban development throughout its basin. Kerwin (2001) estimated the effective impervious area in the basin at 30.5 percent. Tetra Tech/KCM (2004b) calculated the total impervious area for portions of the McAleer Creek basin within the city of Shoreline to be 46 percent. Forested areas provide shade and other vital functions in some areas; in most of the basin, however, riparian habitat includes single-family homes, apartments, and lawns.

Fish Use

McAleer Creek supports anadromous fish as far upstream as Lake Ballinger. Within the study area, portions of McAleer Creek downstream of the confluence with Stream SMT1 provide spawning habitat for coho salmon, while those upstream of that point provide rearing habitat (WDFW 2014a). WDFW (2014a) has documented the presence of steelhead as far upstream as the mouth of Stream SMT1. Tetra Tech/KCM (2004b) reported observations of steelhead spawning in McAleer Creek approximately 200 feet downstream of the study area, although WDFW (2014a) does not identify any parts of McAleer Creek as spawning habitat for steelhead. Resident cutthroat trout are present throughout the stream, even upstream of Lake Ballinger (WDFW 2014b), and have been observed spawning in McAleer Creek immediately outside of the study area (Tetra Tech/KCM 2004b).

The presence of Chinook salmon has been documented approximately 1,000 feet downstream of the study area, and spawning has been documented approximately 4,800 feet farther downstream (Tetra Tech/KCM 2004b; WDFW 2014a). King County (2014a) reported that volunteers with the Salmon Watcher Program have consistently seen Chinook, coho, and sockeye salmon in the stream but did not specify the upstream extent of observations or whether any spawning activity was observed. Kokanee salmon and rainbow trout have also been observed in McAleer Creek, but locations for those observations have not been specified (Kerwin 2001).

WDFW (2014c) classified four culverts in McAleer Creek downstream of the study area as partial barriers to fish passage, and one culvert as a possible barrier. Within the study area, the culverts under I-5 and under the off-ramp from I-5 northbound to SR 104 westbound are also partial barriers (WDFW 2014c). The culvert under I-5 may be a migration barrier to juvenile salmonids, thus preventing the use of Lake Ballinger for rearing (Kerwin 2001; WDFW 2014c).

Based on intermittent flows and the presence of human-created barriers to fish passage, neither SSH2 nor SMT1 is known or expected to support fish under current conditions (WDFW 2014a, 2014b). However, the basin sizes, channel widths, and stream gradients of both tributaries indicate the potential to support fish in the future. The surface-flowing segment of SSH4 is connected to McAleer Creek and is accessible to fish that use habitats in McAleer Creek in the study area.

Water Quality

No portions of McAleer Creek within the study area are listed as impaired or waters of concern under CWA Section 303(d). The lower portions of McAleer Creek are listed as impaired water bodies, based on demonstrated exceedances of state water quality standards for fecal coliform and dissolved

oxygen (Ecology 2012a). Lake Ballinger, upstream of the study area, is on the list for contaminants, including polychlorinated biphenyls (PCBs), dieldrin, and 2,3,7,8-TCDD in tissue samples (Ecology 2012a).

Sediment samples collected at a site approximately 1 mile upstream of the study area had chemical compounds at concentrations likely to cause adverse effects in aquatic animals living in the sediments (King County 2014a). Sediment samples from a site approximately 0.25 mile downstream of the study area contained pyrene and nickel, but the potential for chemical effects is uncertain due to the contaminant levels (King County 2014a).

Since 1976, King County has monitored water quality in McAleer Creek at a station located near the stream's mouth. Results from a trend analysis of water quality data from 1979 to 2004 did not indicate any significant changes in temperature, concentration of dissolved oxygen, or levels of bacteria, nitrogen, and total phosphorus (King County 2014a). However, conductivity increased significantly during the analysis period, suggesting the presence of dissolved charged substances in the water, possibly related to metal concentrations in sediments (King County 2014a). Decreasing levels of total suspended solids and decreased concentrations of ortho-phosphorus indicate some improvements in water quality during that 25-year period. In its most recent (2008) water quality report for McAleer Creek, King County assigned the stream a water quality index score of 74, indicating a moderate level of concern for water quality (King County 2014c). In general, scores between 40 and 80 indicate a moderate level of concern and scores above 80 indicate a low level of concern. Water quality index scores for McAleer Creek generally ranged between 50 and 60 from 2000 to 2008, dropping below 40 in 2 years (King County 2014c).

In-stream Habitat

Immediately downstream of the study area, the in-stream habitat of McAleer Creek has been rated as poor, based on the preponderance of fine sediments, as well as scouring and incision resulting from bank hardening (Tetra Tech/KCM 2004b). The channel provides poorly defined pool-riffle complexes; the only pool habitat consists of step-pools formed by weirs. The gravel/cobble stream substrate is heavily cemented with sediment, reducing its spawning suitability (Tetra Tech/KCM 2004b). Based on benthic invertebrate samples collected in 2002 and 2003, King County (2014a) rated conditions in McAleer Creek as poor for benthic invertebrates.

The tributary (Stream SSH2) that passes under I-5 south of SR 104 is entirely within culverts in the study area. In addition, the tributary originating in Veterans Memorial Park (Stream SMT1) is partially piped in the study area. The quality of habitat in portions of the stream that are not contained in culverts is generally low. The reach of Stream SMT1 that is crossed by the proposed light rail alignments is contained within an ill-defined channel that shows minimal traces of surface flow. As noted above, however, the basin sizes, channel widths, and stream gradients of both tributaries indicate the potential to support fish in the future.

Riparian Habitat

Riparian habitat quality along the open-channel segments of McAleer Creek, Stream SSH4, and Stream SMT1 in the study area is generally good, dominated by forest canopy that provides shade and the potential for recruitment of woody debris that contributes to channel complexity. The value of the riparian habitat is limited, however, by a lack of connectivity. The open-channel habitat and associated riparian areas of McAleer Creek occur in four discrete segments in the study area, separated by segments that are contained within culverts. If Stream SSH4 is classified as a Type III stream by the City of Shoreline, its regulatory buffer will be contained entirely within the larger regulatory buffer for McAleer Creek. Riparian habitat conditions for Stream SSH4 are therefore as described for McAleer Creek.

Scriber Creek

Scriber Creek (WRIA No. 08.0061) drains an area of approximately 4,250 acres, including the extreme northern portion of the study area. Land elevations range from approximately 200 feet at the stream's confluence with Swamp Creek to more than 600 feet at the northwestern watershed divide. The stream flows southeast, joining Swamp Creek approximately 2.5 miles downstream of the study area. Swamp Creek flows into the Sammamish River, which empties into the northern end of Lake Washington.

The study area includes approximately 2,000 feet of the main stem of Scriber Creek. For much of its length in the study area, the stream channel is braided and indistinct as it flows through the large wetland complex (Wetland WLY4) south and west of the Lynnwood Transit Center. The stream forms a defined channel as it exits the study area, flowing southeast and under I-5. Based on input provided by Ecology staff who collaborated on field delineations in July 2014, the OHWM of Scriber Creek through the wetland complex is defined as encompassing the entire breadth of the complex. At most times of year, flowing water is confined to a few channels that make up a small portion of the total wetland complex area. The locations of these channels likely change from year to year.

Also present in the study area is an unnamed, intermittent tributary (WRIA No. 08.0064; Stream SLY1) that flows southward along the eastern edge of the Lynnwood Transit Center. The channel flows through a small patch of forest vegetation (the upper part has been recently planted) before it enters a culvert under the I-5 on-ramp and joins Scriber Creek southeast of I-5.

Anthropogenic Factors

Scriber Creek subbasin is the most highly developed of the Swamp Creek subbasins. Commercial development and transportation corridors account for approximately 40 percent of the subbasin, and medium-density single-family development covers another approximately 30 percent (Snohomish County 2002). The effective impervious area in the subbasin is approximately 40 percent (Snohomish County 2002). Jones and Stokes (2000) identified untreated runoff from roads and new construction as a likely source of excessive fine sediment in the portion of Scriber

Creek that falls within the study area. Street runoff from roads upstream of the study area also conveys oil and other pollutants to the stream system.

Fish Use

Anadromous salmonids have been observed in Scriber Creek, but sources differ about their habitat use as far upstream as the study area. WDFW (2014a) reported that coho salmon occur in Scriber Creek approximately 500 feet downstream of the study area, below the culvert under I-5. Access by other salmonid species to reaches of Scriber Creek in the study area is impeded by the I-5 culvert (which is characterized as a partial barrier to fish passage) and by a beaver dam approximately 0.5 mile downstream of the study area. WDFW (2014c) classifies the dam as a total barrier to fish passage but also indicates that coho salmon have been observed approximately 2,000 feet upstream of the dam, at the outlet of the I-5 culvert. The picture is further complicated by reports from the City of Lynnwood (2004) of adult coho salmon in Scriber Creek as far upstream as Highway 99, approximately 1 mile above the study area.

Stream reaches approximately 1,500 feet downstream of the study area provide spawning habitat for coho salmon (WDFW 2014a). Chinook salmon have been observed approximately 3,000 feet downstream of the study area; the nearest stream reaches that provide spawning habitat for Chinook salmon are in Swamp Creek, approximately 2.5 miles downstream. Winter-run steelhead have been observed in Swamp Creek but not in Scriber Creek (Snohomish County 2002; WDFW 2014a). There are no reports of kokanee above the mouth of Swamp Creek and no recent validated reports of bull trout in the Swamp Creek subbasins (Snohomish County 2002).

Resident fish species in Scriber Creek include cutthroat trout, which have been documented throughout the study area, as far upstream as Scriber Lake Park (WDFW 2014b). Largemouth bass and yellow perch have been observed in Scriber Lake upstream of the study area (Jones and Stokes 2000).

The tributary east of the Lynnwood Transit Center (Stream SLY1) is non-fish-bearing (Snohomish County 2002; WDFW 2014a, 2014b).

Water Quality

Scriber Creek is not on the 303(d) list of impaired waters in the State of Washington. Possible water quality problems may be indicated, however, by evidence of hydrocarbon pollution (oily sheen and odor) and the abundance of pollutant-tolerant stream invertebrates (Jones and Stokes 2000). Stream temperatures measured in the study area fall within the acceptable range for salmonid fish use, but the lack of shade-producing vegetation increases the risk of elevated temperatures (Jones and Stokes 2000).

In-stream Habitat

The main stem reach in the study area is dominated by the large scrub/shrub wetland adjacent to the park-and-ride lot. Salmon spawning habitat conditions within this reach are poor due to limited canopy and vegetative cover, the presence of bank armoring, and the abundance of silt and other fine

substrates (Jones and Stokes 2000). Side channels and other low-velocity areas may provide good rearing habitat, however (City of Lynnwood 2004).

The tributary east of the Lynnwood Transit Center (Stream SLY1) is highly channelized and does not flow at the surface for most of its length. The surface-flowing sections are the short segments within and downstream of the study area, and a segment on the Lynnwood Civic Center campus approximately 0.6 mile north of the study area. The primary source of flow in the tributary is urban runoff, and habitat quality is generally poor. Stormwater runoff from impervious surfaces likely contributes to a flashy flow regime (i.e., peaking abruptly and falling off rapidly after rain events) during fall and winter (City of Lynnwood 2004).

The portion of Stream SLY1 in the study area is separated from known fish-bearing waters by culverts under the off-ramp from I-5 northbound to 44th Avenue W, I-5 itself, and the on-ramp from 44th Avenue W to I-5 southbound. WDFW (2014c) has not evaluated the fish passage potential of these culverts because Stream SLY1 is considered a non-fish-bearing stream. Based on the presence of human-created barriers to fish passage, Stream SLY1 is not currently known or expected to support fish. Based on its basin size, channel width, and stream gradient, however, Stream SLY1 may have the potential to support fish in the future.

Riparian Habitat

Riparian vegetation for Scriber Creek in the study area generally consists of the surrounding wetland complex (Wetland WLY4). Vegetation in Wetland WLY4 is dominated by black cottonwood, Pacific willow (*Salix lucida*), red-osier dogwood (*Cornus sericea*), and reed canarygrass (*Phalaris arundinacea*). Areas with dense growth of salmonberry (*Rubus spectabilis*) and Himalayan blackberry are also present, along with red alder, western redcedar, bigleaf maple (*Acer macrophyllum*), and Pacific flowering dogwood (*Cornus nuttallii*). Jones and Stokes (2000) found little to no large woody debris in the stream and determined that the potential for large woody debris recruitment is low.

3.1.3 Threatened, Endangered, and Candidate Species

Four aquatic species that have federal or state listing status, or that are candidates for listing, may use habitats in the study area. In accord with the ESA, the FTA (as the federal lead agency) must ensure that any actions it approves will not jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of their designated critical habitat. To meet this requirement, FTA initiated consultation with USFWS and NOAA Fisheries concerning the potential effects of the Preferred Alternative on ESA-listed species and critical habitat. Sound Transit prepared a Biological Assessment to serve as the basis for the consultation (Sound Transit 2014). Based on the analysis in that document, and on the implementation of proposed mitigation measures, FTA determined that construction of the Lynnwood Link Extension may affect, but is not likely to adversely affect, ESA-listed species and critical habitat. The Biological Assessment also included a proposed determination of "no adverse effect" on essential fish habitat protected under the Magnuson-Stevens Fishery Conservation and Management Act. NOAA Fisheries concurred with these determinations on January 27, 2015, and USFWS concurred on ___, 2015. The

discussions below summarize information from that document about the presence of ESA-listed species in the study area.

Puget Sound Chinook Salmon

The Puget Sound evolutionarily significant unit of Chinook salmon is listed as threatened under the ESA and is a State Candidate species. Chinook salmon are present in the lower reaches of Thornton, McAleer, and Scriber creeks. In all three streams, the reaches where Chinook salmon have been observed are separated from the study area by total or partial fish passage barriers. It is possible, however, that Chinook salmon may use habitat in McAleer Creek within the study area. The known distribution of Puget Sound Chinook salmon in the project vicinity is as follows:

- Thornton Creek: Chinook salmon have been documented approximately 2.5 miles downstream of the study area and observed spawning approximately 3 miles downstream of the study area (City of Seattle 2007; WDFW 2014a); there are at least 3 total barriers and 15 partial barriers to fish passage between the study area and the downstream reaches where the presence of Chinook salmon has been documented (WDFW 2014c).
- McAleer Creek: Chinook salmon are present up to 1,000 feet downstream of the study area, and spawning habitat is present approximately 1.1 miles downstream (WDFW 2014a). Partial barriers to fish passage at I-5 (within the study area) and Forest Park Drive NE (immediately downstream of the study area) likely impede access into the study area by Chinook salmon, but they cannot be considered absolute barriers.
- Scriber Creek: Chinook salmon are present up to 3,000 feet downstream of the study area, and spawning habitat is present in in Swamp Creek, approximately 2.5 miles downstream (WDFW 2014a). A total barrier to anadromous fish passage approximately 0.5 mile downstream of the study area likely prevents Chinook access to the study area.

Based on the lack of suitable habitat and the presence of fish passage barriers downstream of the study area, Chinook salmon are not expected to use habitat in Thornton Creek or Scriber Creek in the study area. Although habitat conditions in McAleer Creek are unfavorable for Chinook salmon, and none have been documented in the study area, their presence in the lower reaches of the stream suggests the possibility that Chinook salmon could use McAleer Creek in the study area (Sound Transit 2014). None of the tributaries to Thornton, McAleer, and Scriber creeks in the study area are known or expected to support use by any fish species, including Chinook salmon. No designated critical habitat for Chinook salmon is present in the study area.

Puget Sound Steelhead

The Puget Sound evolutionarily significant unit of steelhead trout is listed as threatened under the ESA, but has no listing status at the state level. Winter-run steelhead trout are present in Thornton and McAleer creeks, but they have not been observed in Scriber Creek. Compared to other salmonids, steelhead appear to have a greater ability to pass features and structures that are partial fish passage barriers. Therefore, steelhead have a greater likelihood than Chinook salmon of using

stream habitat in the study area. The known distribution of Puget Sound steelhead in the project vicinity is as follows:

- Thornton Creek: Steelhead are present in the North Branch of Thornton Creek as far upstream as the Jackson Park Golf Course, approximately 2,100 feet downstream of the study area (WDFW 2014a). Based on the observation of an adult steelhead near Twin Ponds upstream of the study area (Tetra Tech/KCM 2004a), however, it is possible that steelhead may use stream habitats in the study area.
- McAleer Creek: Steelhead are present in McAleer Creek as far upstream as the mouth of the Stream SMT1 (WDFW 2014a). Tetra Tech/KCM (2004b) reported observations of steelhead spawning in McAleer Creek approximately 200 feet downstream of the study area, below a partial barrier to fish passage
- Scriber Creek: Present in Swamp Creek (approximately 2.5 miles downstream of the study area) but not in Scriber Creek (Snohomish County 2002; WDFW 2014a). A total barrier to anadromous fish passage approximately 0.5 mile downstream of the study area likely prevents access to the study area (WDFW 2014c).

Based on this information, adult steelhead spawning in downstream reaches of Thornton Creek and McAleer Creek may venture upstream into the study area in both streams. No other stream reaches in the study area are accessible to steelhead. Designation of critical habitat for steelhead has been proposed, but no proposed critical habitat is present in the study area.

Bull Trout

All bull trout in the coterminous United States, including the Coastal-Puget Sound distinct population segment, are listed as threatened under the ESA. Bull trout is also a State Candidate species. Bull trout have been observed entering Lake Washington in small numbers. None of the streams in the study area has been documented as supporting spawning or early rearing. Water temperatures in the study area streams are likely too high to support bull trout spawning or rearing. WDFW (1999) determined that successful spawning by bull trout occurs only upstream of the winter snow line (i.e., the elevation at which snow is present on the ground for much of the winter). Such areas are not found in the Thornton Creek, McAleer Creek, and Scriber Creek basins but may be present in other tributaries to Lake Washington. No designated critical habitat for bull trout is present in the study area.

River Lamprey

The river lamprey (*Lampetra ayresii*) has no listing status at the federal level but is a State Candidate species. Although there are no direct observations of river lamprey in the study area, their presence is likely. They are known to exist in tributaries to Lake Washington and Lake Sammamish, such as the Cedar River and Issaquah Creek.

3.1.4 Tribal Fishing

Judicial decisions have affirmed that federally recognized tribes have treaty rights which 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. Lake Washington is among the usual and accustomed fishing areas of the federally recognized Muckleshoot Indian Tribe. Project impacts to Lake Washington's tributaries 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 effects on fish and fish habitat in this report and coordinating with the Muckleshoot Indian Tribe Fisheries Division regarding these potential effects.

3.2 Vegetation, Terrestrial Wildlife, and Wildlife Habitat

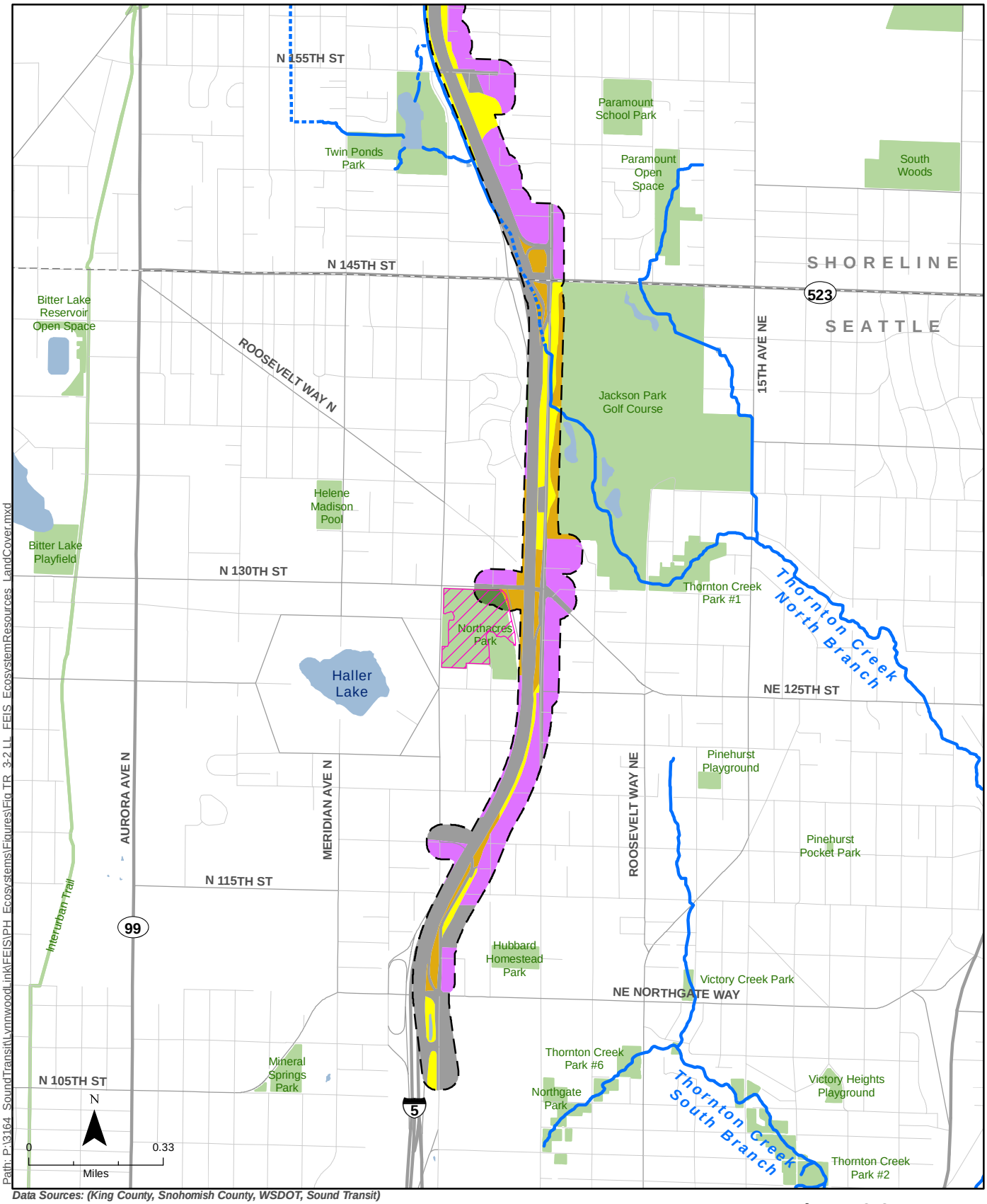
The Lynnwood Link Extension would be constructed in an urban area where terrestrial habitats have already been subjected to a moderate to high degree of alteration. The degree of alteration varies from site to site, with the greatest alteration occurring where urban development is the greatest. Most of the study area is within or immediately adjacent to the I-5 corridor and, as such, has been substantially modified from pre-settlement conditions. Some areas of less-developed habitat remain, however, most notably near the Mountlake Terrace Transit Center and in the Scriber Creek wetland complex near the northern extreme of the study area.

3.2.1 Land Cover Types

Based on the structural categories defined by Johnson and O'Neil (2001) and on observations during field reconnaissance, six land cover types have been identified in the study area: Forest, Shrub, Maintained Vegetation, Residential Areas, Urban Areas, and Open Water. Table 3-2 provides brief descriptions of these cover types, with examples of where they occur in the study area. Figure 3-2a through Figure 3-2c show the mapped locations of the cover types within the study area.

Most of the study area is dominated by land cover types (Urban Areas, Residential Areas, Maintained Vegetation) where reduced structural complexity and high levels of human activity result in low habitat quality for wildlife. More than 70 percent of the study area consists of the Urban and Residential Areas cover types, which cover approximately 476 acres combined (Table 3-2). Forest is the next most common cover type (13 percent of the study area), with 88 acres. Shrub and Maintained Vegetation cover roughly equivalent amounts of area, with 58 and 61 acres, respectively. Less than 0.5 acre of the study area consists of the Open Water cover type.

The area of Forest habitat east of I-5 near the Mountlake Terrace Transit Center has been identified by WDFW (2014b) as a priority habitat area based on the presence of high-quality habitat features. In addition, the study area includes a portion of Northacres Park in Seattle. Stands of coniferous and deciduous trees in that park have been identified as priority habitats, as these stands have snags and downed logs (WDFW 2014b).



Data Sources: (King County, Snohomish County, WSDOT, Sound Transit)

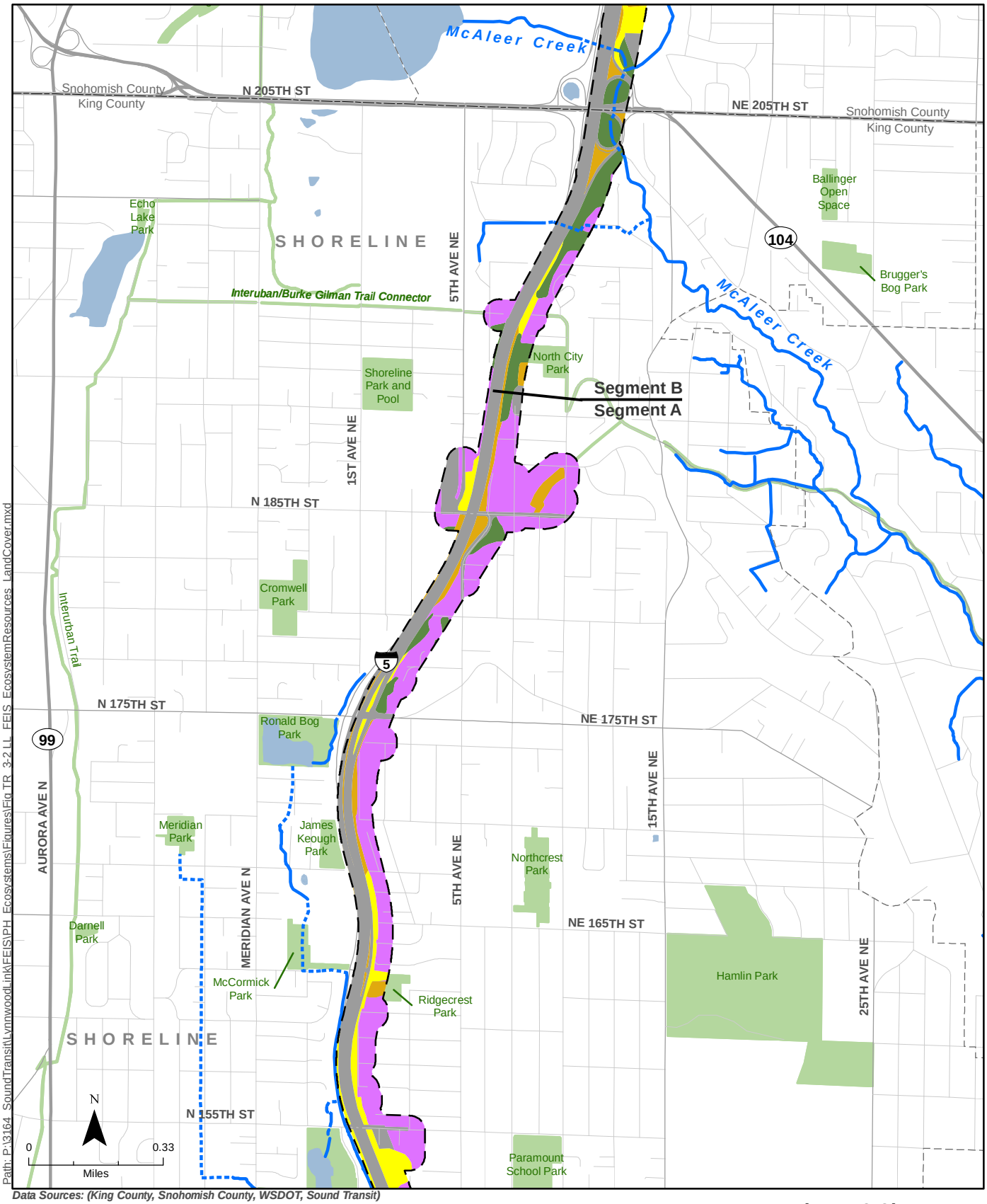
Study Area
City Boundary
County Boundary
Park
Open Stream
Piped Stream
Waterbody
WDFW Priority Habitat Area

Land Cover Types in the Study Area

Forest
Shrub
Maintained Vegetation
Residential
Urban
Open Water

Figure 3-2a
Land Cover Types

Lynnwood Link Extension



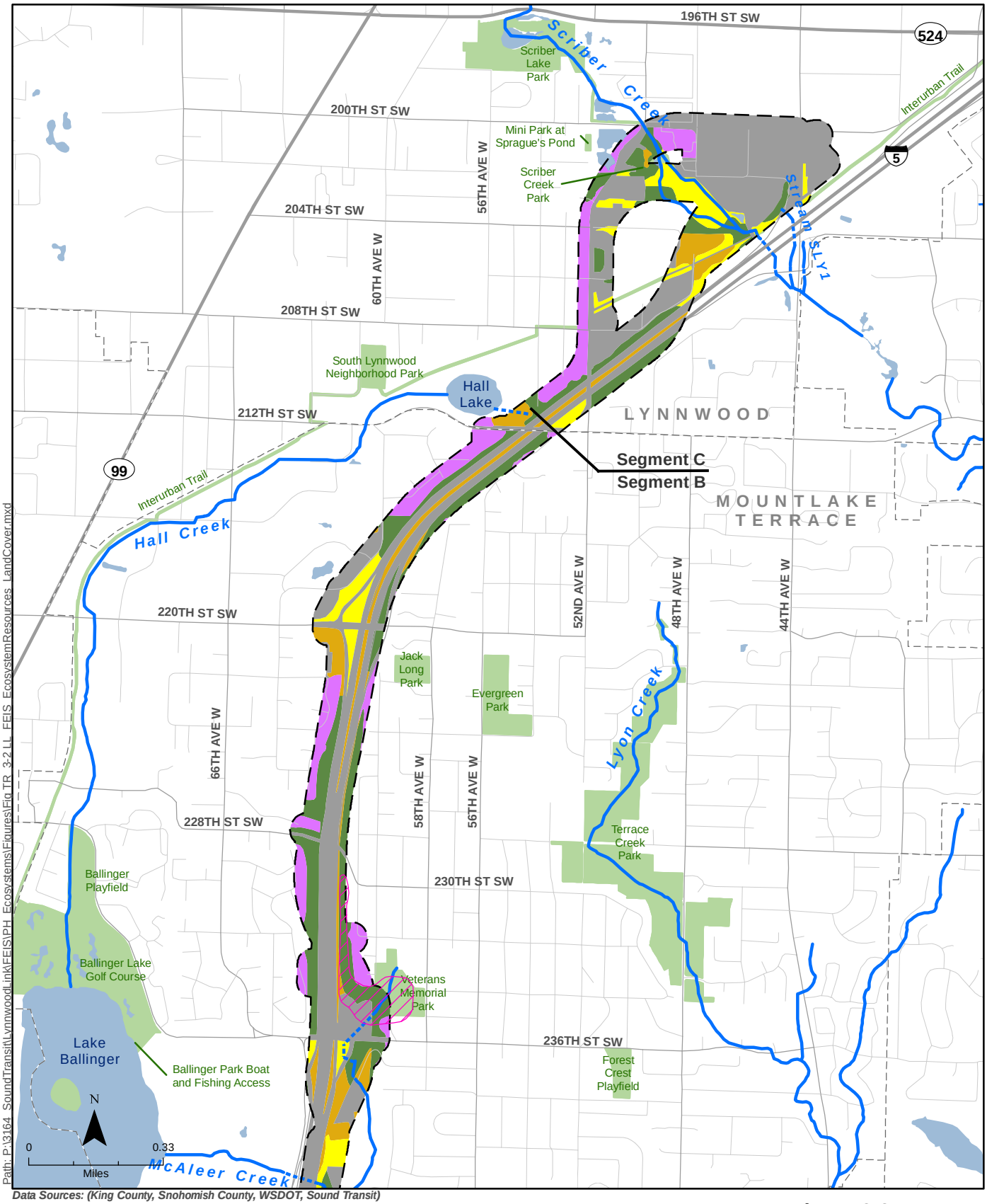
Study Area
City Boundary
County Boundary
Park
Open Stream
Piped Stream
Waterbody
WDFW Priority Habitat Area

Land Cover Types in the Study Area

Forest
Shrub
Maintained Vegetation
Residential
Urban
Open Water

Figure 3-2b
Land Cover Types

Lynnwood Link Extension



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Data Sources: (King County, Snohomish County, WSDOT, Sound Transit)

- Study Area
- City Boundary
- County Boundary
- Park
- Open Stream
- Piped Stream
- Waterbody
- WDFW Priority Habitat Area

Land Cover Types in the Study Area

- Forest
- Shrub
- Maintained Vegetation
- Residential
- Urban
- Open Water

Figure 3-2c
Land Cover Types

Lynnwood Link Extension

3.2.2 Terrestrial Wildlife Species

Wildlife use of habitats in urban landscapes depends on the general location of the habitat, the size and type of undisturbed habitats, the degree of connectivity and extent of travel corridors between and among these habitats, and the types and levels of human activity. Much of the Lynnwood Link Extension study area falls within commercial, industrial, and residential areas that provide habitat only for adaptable species such as sparrows, starlings, doves, rats, mice, raccoons, opossums, and squirrels. Birds such as common pigeons (*Columba livia*) and cliff swallows (*Petrochelidon pyrrhonota*) commonly build nests on bridges and road overpasses, and many bat species use such structures as temporary roosting sites. Animals that use habitats in the study area are also exposed to high noise levels associated with traffic on I-5 and major arterial roadways.

Table 3-2. Land Cover Types in the Lynnwood Link Extension Study Area

Land Cover Type	Description	Examples of Occurrence	Acres in Study Area
Forest	Areas dominated by evergreen conifers, deciduous broadleaf trees, or a mixture of both, generally greater than 20 feet tall. Canopy cover variable but typically greater than 40 percent. Typical tree species include Douglas fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), madrone (*Arbutus menziesii*), red alder, black cottonwood, and bigleaf maple. Understories include shrubs, forbs, and/or grasses.	Northacres Park Veterans Memorial Park Scriber Creek wetland complex	89
Shrub	Areas dominated by native or non-native shrubs. May include trees (particularly red alder) singly or in patches. Common shrub species within the study area include salmonberry, salal (*Gaultheria shallon*), Himalayan blackberry, and snowberry (*Symphoricarpos albus*).	Slopes adjacent to I-5 Scriber Creek wetland complex	59
Maintained Vegetation	Typically, exotic grasses or annuals, such as mown grasses and other low vegetation, most of which are rarely allowed to go to seed. Includes stormwater detention areas.	I-5 median	62
Residential Areas	Houses and yards, including lawns, ornamental plantings, and pruned trees. Tree and shrub canopy cover generally less than 30 percent. Moderate to high levels of human disturbance. Snags, woody debris, and other natural structures are essentially non-existent.	South Lynnwood Pinehurst	171
Urban Areas	Roadways, parking lots, and other areas dominated by impervious surfaces. Little or no vegetation present.	I-5, parking lots, commercial developments	309
Open Water	Areas of ponding, including natural lakes, streams, and stormwater ponds. All open water in the study area is fresh water.	Ponds near Scriber Creek	<1

Larger habitat patches and those connected to other natural areas or heavily vegetated residential neighborhoods support a larger variety of species, such as songbirds, raptors, small mammals, coyotes, and black-tailed deer (*Odocoileus hemionus columbianus*). Songbird species commonly found in habitats similar to those found in the study area include American robin (*Turdus migratorius*), song sparrow (*Melospiza melodia*), Steller's jay (*Cyanocitta stelleri*), American crow (*Corvus brachyrhynchos*), spotted towhee (*Pipilo maculates*), black-capped chickadee (*Poecile atricapillus*), white-crowned sparrow (*Zonotrichia leucophrys*), northern flicker (*Colaptes auratus*), Bewick's wren (*Thryomanes bewickii*), and red-

breasted nuthatches (*Sitta canadensis*). Raptors include American kestrel (*Falco sparverius*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*A. cooperii*), red-tailed hawk (*Buteo jamaicensis*), and great horned owl (*Bubo virginianus*). Red-tailed hawks and other raptors prey on voles (*Microtus* spp.) that are found in abundance in the grassy vegetation in the I-5 right-of-way.

The largest area of native habitat in the study area is the Scriber Creek wetland complex. Waterfowl use areas of slow-moving water, and snags throughout the complex show evidence of recent excavation by woodpeckers. Biologists conducting field visits in 2014 observed an osprey nest on a power pole near the southern edge of the wetland complex. Vegetation and other features in the complex provide habitat for songbirds, small mammals, and amphibians. Mammals identified in nearby Scriber Creek Park included black-tailed deer, Eastern gray squirrel (*Scirurus carolinensis*), and river otter (*Lontra canadensis*). Evidence of beavers (*Castor canadensis*), including dams and lodges, has been observed nearby. The complex is surrounded on all sides, however, by residential and commercial developments, roads, and highways, limiting its value for wildlife species that require large, undisturbed areas and undeveloped travel corridors. The presence of invasive plant species, including Himalayan blackberry and reed canarygrass (*Phalaris arundinacea*), diminishes the value of habitats in the wetland complex.

Most patches of forest cover in the study area are fragmented and separated from surrounding habitat areas by commercial, urban, and residential developments and roads. Despite their isolation, these areas still provide habitat for forest-associated resident and migratory songbirds, as well as for hawks, owls, woodpeckers, and small mammals.

Based on breeding bird survey reports (Opperman et al. 2006), 26 bird species are known or expected to nest in the 9-square-mile survey block located near the southern terminus of the project (Northgate). Based on data from the Audubon Society (2011), additional species commonly seen in the area outside of the breeding season include American wigeon (*Anas americana*), northern pintail (*Anas acuta*), bufflehead (*Bucephala albeola*), western grebe (*Aechmophorus occidentalis*), and glaucous-winged gull (*Larus glaucescens*).

Rivers and streams are used as travel corridors by many wildlife species, including semi-aquatic species such as muskrat, mink, otter, frogs, stream salamanders, turtles, and snakes (Jackson 2003). Despite the widespread urbanization of the I-5 corridor, riparian areas along the streams may serve as a connective corridor between pockets of wildlife habitat. In general, however, patches of forest and other native habitat types in the study area are isolated from other areas of similar habitat and do not serve as connective corridors to other areas of habitat outside of the study area.

3.2.3 Threatened, Endangered, and Candidate Species

Based on reviews of Natural Heritage Program data from DNR and PHS data from WDFW, no terrestrial ESA-listed or state-listed threatened or endangered plant or wildlife species are known or expected to occur in the study area. The USFWS species lists for King County and Snohomish County identify five ESA-listed wildlife species (Canada lynx [*Lynx canadensis*], gray wolf [*Canis lupus*], grizzly bear [*Ursus arctos horribilis*], marbled murrelet [*Brachyramphus marmoratus*], and northern spotted owl [*Strix occidentalis caurina*]), two species that are proposed for listing (North American wolverine

[*Gulo gulo luscus*] and Oregon spotted frog [*Rana pretiosa*]), and two candidates for listing (Pacific fisher [*Martes pennanti pacifica*] and yellow-billed cuckoo [*Coccycus americanus*]) that may occur in the two counties (USFWS 2014). Based on their habitat requirements and known distribution, none of these species is known or expected to use habitats in the study area. These species will not be addressed further in this document.

Several species that are state-listed as sensitive species, or that are candidates for state listing, are known or likely to be present in the study (Table 3-3). For this analysis, these species are referred to as species of concern. Site-specific distribution data are available for only a few of these species, and no species-specific surveys or habitat assessments were conducted for this project. The known or expected occurrence of these species in the study area is based on observations and the presence of potentially suitable habitat (Table 3-3).

The Migratory Bird Treaty Act, administered by USFWS, makes it unlawful to take, import, export, possess, sell, purchase, or barter any migratory bird, with the exception of the taking of game birds during established hunting seasons. The law also applies to feathers, eggs, nests, and products made from migratory birds. Nearly all bird species that may occur in the study area are protected under the Migratory Bird Treaty Act. All habitats in the study area support migratory birds of some type at some time in their life cycle; therefore, all habitats identified above would be considered habitat for migratory birds.

Table 3-3. Species of Concern That May Occur in the Lynnwood Link Extension Study Area

Common Name	Scientific Name	Federal Status[a]	State Status[b]	Expected Occurrence in Study Area		Preferred Habitat
				Likely Present	Possibly Present	
Townsend's Big-eared Bat	*Corynorhinus townsendii*	FCo	SC		X	Forages over and near forested habitat; bridge abutments occasionally used by individual male bats as day roosts.
Western Toad	*Anaxyrus boreas*	FCo	SC	X		Breeds and develops in wetland habitats. Adult toads regularly use forested upland habitat.
Bald Eagle	*Haliaeetus leucocephalus*	FCo	SS		X	Nests in wooded areas with larger trees within 0.5 mile of large bodies of water. May forage near the study area.
Peregrine Falcon	*Falco peregrinus*	FCo	SS		X	Typically nests in cliffs that are at least 150 feet high; may also use buildings and bridges. Open habitats, including wetland areas, provide foraging habitat.
Pileated Woodpecker	*Dryocopus pileatus*	None	SC	X		Mature and old-growth forests, second-growth forests with large snags and fallen trees. Evidence of recent excavations observed in Nile Golf Course, near study area.
Vaux's Swift	*Chaetura vauxi*	None	SC		X	Breeds in mountains and foothills. Forages over wooded areas and open habitats, including towns.

[a] FCo = Federal species of concern

[b] SC = State Candidate; SS = State Sensitive species

3.3 Wetlands

Sound Transit identified 37 wetlands in the study area. On public rights-of-way and parcels where rights of entry were available, wetlands within 100 feet of the footprint of the Preferred Alternative were formally delineated and rated according to local regulations and the *Washington State Wetland Rating System for Western Washington*. Other wetlands, including those within public rights-of-way near any of the light rail alternatives, were mapped and rated as well. Table 3-4 summarizes classification and rating information for the delineated and other field-identified wetlands in the study area.

Table 3-4. Summary of Field-Identified Wetlands within the Lynnwood Link Extension Study Area

Wetland[a]	Size (acres)	USFWS Class[b]	HGM Class[c]	Ecology Rating[d]	Local Rating[e]	Buffer Width[f] (feet)
WSE1	0.42	PFO	Riv	III	III	60
WSE3	0.05	PEM	Dep	III	III	60
WSE4	0.12	PFO	Dep	III	III	60
WSE5	0.26	PFO	Dep	III	III	60
WSE6	0.08	PSS	Dep	III	III	60
WSE7	0.19	PSS, PEM	Dep	III	III	60
WSE8	0.66	PFO, PSS	Dep	III	III	60
WSH1	0.06	PEM	Dep	IV	III	65
WSH2	0.37	PFO, PEM	Dep	III	III	65
WSH3	0.09	PEM	Dep	III	III	65
WSH4	0.10	PFO, PEM	Dep	III	III	65
WSH5	0.48	PFO	Dep	III	III	65
WMT1	0.49	PFO	Dep	III	III	65
WMT2	0.17	PFO	Riv, Slope	III	III	65
WMT3	0.07	PFO	Dep	III	III	65
WMT4	0.43	PSS	Dep	III	III	65
WMT5	0.34	PFO, PEM	Dep	III	III	65
WMT6	1.12	PFO	Dep	III	III	65
WMT7	0.42	PFO	Dep	III	III	65
WMT8	0.01	PFO	Slope	IV	IV	50
WMT9	0.03	PEM	Dep	IV	IV	50
WMT10	0.03	PSS	Dep	IV	IV	50
WMT11	0.07	PSS	Dep	III	III	65
WLY3	0.26	PSS, PEM, PUB	Dep	III	III	75
WLY4	16.54	PFO, PSS, PEM	Riv, Dep	II	II	110
WLY6	0.04	PFO	Dep	III	III	75
WLY7	0.15	PSS	Dep	III	III	75
WLY8	0.08	PEM	Dep	III	III	75

[a] Wetlands are identified with alphanumeric codes: WYYn. W = wetland; YY = two-letter code for local jurisdiction (SE = Seattle, SH = Shoreline, MT = Mountlake Terrace, LY = Lynnwood); n = sequential identification number.

[b] Cowardin et al. (1979). USFWS = U.S. Fish and Wildlife Service. PEM = palustrine emergent; PFO = palustrine forested; PSS = palustrine scrub-shrub

[c] Brinson (1993). HGM = Hydrogeomorphic; Dep = Depressional; Riv = Riverine; Slope = Slope

[d] Hruby (2004)

[e] Seattle Municipal Code 25.09.160.A , only applicable to development on publicly or privately owned parcels (Wetlands WSE1, and WSE3-WSE8), Shoreline Municipal Code 20.80.320 (Wetlands WSH1-WSH5), Mountlake Terrace Municipal Code 16.15.080 (Wetlands WMT1-WMT8), Lynnwood Municipal Code 17.10.050 (WLY3, WLY4, and WLY6-WLY8)

[f] Seattle Municipal Code 25.09.160.C, only applicable to development on publicly or privately owned parcels (Wetlands WSE1, and WSE3-WSE8), Shoreline Municipal Code 20.80.330 (Wetlands WSH1-WSH5), Mountlake Terrace Municipal Code 16.15.090 (Wetlands WMT1-WMT8), Lynnwood Municipal Code 17.10.051 (WLY3, WLY4, and WLY6-WLY8)

Wetlands outside of public rights-of-way and more than 100 feet from the footprint of the Preferred Alternative were identified via existing documentation and public vantage points (Table 3-5).

Table 3-5. Summary of Potential Wetlands within the Lynnwood Link Extension Study Area

Wetland[a]	Size (acres)	USFWS Class[b]	HGM Class[c]	Ecology Rating[d]	Local Rating[e]	Buffer Width[f] (feet)
PWSH3	0.10	PFO,PEM	Dep	unknown	III	65
PWSH4	0.19	PFO	Slope	unknown	III	65
PWSH5	0.07	PEM	Slope	unknown	III	65
PWMT2	0.02	PFO	Dep	III	III	65
PWLY1	0.07	PSS	Dep	III	III	75
PWLY2	0.26	PFO	Dep	III	III	75
PWLY3	0.07	PEM	Dep	III	III	75
PWLY4	0.03	PFO	Dep	III	III	75
PWLY5	0.03	PUB	Dep	III	III	75

[a] Potential wetlands are identified with alphanumeric codes: PWYYn. PW = potential wetland; YY = two-letter code for local jurisdiction (SE = Seattle, SH = Shoreline, MT = Mountlake Terrace, LY = Lynnwood); n = sequential identification number.

[b] Cowardin et al. (1979). USFWS = U.S. Fish and Wildlife Service. PEM = palustrine emergent; PFO = palustrine forested; PSS = palustrine scrub-shrub; PUB = palustrine unconsolidated bottom

[c] Brinson (1993). HGM = Hydrogeomorphic; Dep = Depressional; Riv = Riverine; Slope = Slope

[d] Hruby (2004)

[e] Shoreline Municipal Code 20.80.320 (Wetlands PWSH3-PWSH5), Mountlake Terrace Municipal Code 16.15.080 (Wetland PWMT2), Lynnwood Municipal Code 17.10.050 (PWLY1-PWLY5)

[f] Shoreline Municipal Code 20.80.330 (Wetlands PWSH3-PWSH5), Mountlake Terrace Municipal Code 16.15.090 (Wetland PWMT2), Lynnwood Municipal Code 17.10.051 (PWLY1-PWLY5)

Detailed wetland descriptions, wetland determination data forms, wetland rating forms, and photographs are provided in the Wetland and Stream Delineation Report (Appendix B). Figure 3-1 in Appendix B presents an overview of mapped locations of field-identified and potential wetlands within the study area. Potential wetlands include portions of field-identified wetlands that extend beyond the field reconnaissance survey area, as well as areas that appear to meet the wetland criteria that fall entirely outside of this survey area, but could not be ground-truthed. Appendix D presents detailed locations of individual wetlands and buffers. One of the field-identified wetlands (Wetland WSH1) contains a ditched swale. Of the field-identified wetlands, 1 is rated as Category II according to the Ecology rating system, 23 are rated as Category III, and 4 are rated as Category IV. The majority of wetlands are smaller than 0.5 acre, except Wetlands WSE8 (0.66 acre), WMT6 (1.12 acres), and WLY4 (16.59 acres). All wetlands in the study area are in areas characterized by urban and residential land use where the natural environment has been altered.

3.3.1 Hydrology

Signs of altered hydrology were evident in most wetlands, due to the urbanization and development throughout the study area. Historically, wetlands have been altered in several ways, such as filling, ditching, bisecting, and clearing. Human alterations, such as excavation and stormwater runoff, have also created or enlarged wetlands. Many study area wetlands are within maintained rights-of-way where they receive stormwater runoff from pipes, ditches, or overland flow. Other sources of hydrology include a shallow groundwater table, precipitation, and overbank flow from adjacent streams.

3.3.2 Soils

Soil survey data from the NRCS Web site are not available for the portions of the study area within King County (cities of Seattle and Shoreline). Because of urbanization and development, most of the study area in Snohomish County (cities of Mountlake Terrace and Lynnwood) is mapped as Urban land.

3.3.3 Vegetation

Most wetlands in the study area contain forested, scrub-shrub, or emergent habitat (see USFWS classes for each wetland in Tables 3-4 and 3-5). One wetland (Wetland PWLY5) lacks vegetation (i.e., unconsolidated bottom). Vegetation in the study area wetlands is a mix of native and non-native species, many of which are disturbance-tolerant. Surrounding buffers range from forested to herbaceous cover; disturbance-tolerant species are common.

3.3.4 Jurisdictional Determination

Sound Transit will request jurisdictional determinations of those wetlands that are likely to be affected along the Preferred Alternative during the permitting phase of this project.

4 ENVIRONMENTAL CONSEQUENCES

This chapter describes the potential impacts of the Lynnwood Link Extension on aquatic species and habitat; vegetation, terrestrial wildlife, and wildlife habitat; and wetlands. The discussion of project impacts assumes that the BMPs described in Appendix A would be implemented and performed as expected to avoid and minimize certain impacts during construction.

Sound Transit prepared a Biological Assessment to serve as the basis for consultation with USFWS and NOAA Fisheries concerning the potential effects of the Preferred Alternative on ESA-listed species and critical habitat (Sound Transit 2014). Based on the analysis in that document, and on the implementation of proposed mitigation measures, FTA determined that construction of the Lynnwood Link Extension may affect, but is not likely to adversely affect, ESA-listed species and critical habitat. The Biological Assessment also included a proposed determination of "no adverse effect" on essential fish habitat protected under the Magnuson-Stevens Fishery Conservation and Management Act.

4.1 Aquatic Species and Habitat

Construction of the Lynnwood Link Extension could affect aquatic species and habitat in the study area. Analyses in this subsection address the potential long-term, construction-related, and indirect impacts of each alternative. These impacts are defined as follows:

- Long-term impacts include permanent loss or degradation of in-stream or riparian habitat, altered hydrology, degradation of water quality, or changes in habitat connectivity (e.g., fish passage).
- Construction-related impacts include temporary loss or degradation of in-stream or riparian habitat (including hydrology or water quality), or disturbance from in-water work.
- Indirect and secondary impacts include those related to residential and commercial development near stations, or impacts on other resources from mitigation measures.

Analyses in this subsection focus on salmonid fish species and their habitat because salmonids include the species of greatest concern in Pacific Northwest freshwater environments. Because the habitat requirements and mode of potential impacts are so similar for the salmonid species present, the analysis is combined for all salmonid species; however, species-specific impacts are identified where appropriate. All federally listed threatened and endangered aquatic species that may occur in the study area are all salmonids and are, therefore, addressed in the combined analysis. The discussion herein is thus limited to the potential for project impacts on all species based on the proximity of their known habitat in the project vicinity. Impacts on essential fish habitat are similarly included in the generic analysis and are not discussed separately.

Discussions of long-term and construction-related impacts include assessing the range of impacts that could occur for each project segment and alternative. Actual impacts would depend on final alternative selection and design, construction footprint and methods, BMPs implemented during

construction, and performance of post-construction restoration, including revegetation of disturbed areas and mitigation for impacts on areas protected under local Critical Areas Ordinances.

4.1.1 Long-Term Impacts

Direct long-term impacts could occur where the project limits cross streams or stream buffers. The project limits include the guideway, station footprints (including parking), roadway improvements, storm drainage ponds, ancillary features, and analytical buffer (Section 1.4.1, Impact Assessment). In addition, a 15-foot clear zone would be maintained on either side of the guideway to prevent damage to catenary wires from falling vegetation. Existing trees in this zone would be cleared and no trees would be planted. For this analysis, all impacts within these areas are considered long-term (see explanation in Section 1.4, Assumptions). Sound Transit will re-evaluate this assumption and identify temporary construction limits during the permitting phase. As noted in Section 1.4, Assumptions, some trees in areas adjacent to the analytical buffer may need to be removed to protect light rail safety and reliability. Removal of such hazard trees may accompany construction of any of the light rail alternatives, and it may continue as a maintenance activity during the operational life of project facilities.

Under the Preferred Alternative or any of the other light rail alternatives, construction and operation of guideways, stations, and ancillary features would not directly affect in-stream habitat in most streams in the study area because all streams would be spanned by elevated structures. No structures would be placed below the OHWM of any streams except for Stream SMT1 in Mountlake Terrace and Scriber Creek in Lynnwood. Construction of elevated crossings at Stream SMT1 and Scriber Creek would entail the placement of support columns in areas that receive seasonal or intermittent flow, thus reducing the availability of aquatic habitat and potentially modifying channel morphology and flow dynamics. Conversely, the presence of elevated guideways over stream habitat could have a beneficial effect, creating shade that helps keep water temperatures low. Additional information about the potential long-term impacts of structures below the OHWM of these streams is provided in the discussions of Segment B (Stream SMT1) and Segment C (Scriber Creek), below. Any work below the OHWM of any streams in the study area would be conducted in accordance with the terms of the Hydraulic Project Approval (HPA) and other applicable permits obtained for this project.

Operation of the light rail system would not be expected to result in any increases in 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. Under the Preferred Alternative, lighting at light rail stations would not result in any adverse effects because no stations would be located within 200 feet of any fish-bearing streams. The same would be true of all other light rail alternatives with the possible exception of Alternative C2, under which the Lynnwood Transit Center Station would be approximately 100 feet from the northeastern margin of the Scriber Creek wetland complex. If that alternative were to be selected, light from the station could reach fish-bearing waters in Scriber Creek, although the dense wetland vegetation would provide substantial screening.

No impacts on fish passage are anticipated under any of the alternatives because the construction of elevated structures at all surface-flowing stream crossings would preclude the need to add new culverts or extend existing culverts. Construction of at-grade or elevated guideways, stations, and ancillary features above piped streams (e.g., Stream SSH2, a tributary to McAleer Creek in Shoreline) would not affect stream habitat. The potential for the construction of guideways, stations, and other facilities to interfere with possible future fish habitat restoration projects is addressed in Section 4.4, Indirect and Secondary Impacts.

No construction of at-grade guideways, stations, or ancillary features would occur within the regulatory buffers of any surface-flowing streams in the study area. This would not necessarily preclude all potential adverse effects on stream habitat, however. The loss of forest habitat at considerable distances from streams—even up to 200 feet—can reduce the amount of wood available for recruitment to those streams (Knutson and Naef 1997). Notably, studies conducted in western Washington, western Oregon, and southeast Alaska indicate that more than 90 percent of large woody debris input to streams from riparian areas is recruited from the areas within one-half of a site potential tree height[3] (Murphy and Koski 1989; McDade et al. 1990; McKinley 1997; Martin et al. 1998). Based on an estimated site potential tree height of 200 feet, most potential recruitment of large woody debris to study area streams would be expected to come from the areas within regulatory buffers, and nearly all recruitment would come from within 100 feet. Construction of at-grade facilities outside of regulatory buffers, therefore, would likely result in minimal reductions in wood recruitment to study area streams.

Permanent impacts on riparian habitat may also occur where elevated guideways span areas of riparian vegetation. Construction of elevated guideways above vegetation would reduce the amount of water the vegetation receives from precipitation. In addition, guideways with low clearance (generally, less than 15 feet) would also limit sunlight. In some areas, vegetation cleared from beneath elevated guideways may not grow back. The presence of elevated guideways would preclude the development of mature forest habitat in such areas, reducing the potential for the recruitment of large woody debris to nearby streams. Because the elevated guideway structures would be relatively narrow (31 feet wide) and generally more than 15 feet above the ground surface, shading impacts on riparian vegetation would be limited in most areas, although some impacts would result from shading and water interception. As observed on the Sound Transit Central Link project, herbaceous plants and shrubs are generally able to grow beneath narrow guideways that are at least 15 feet above the ground (Sound Transit 2011) as long as there is a source of water.

Based on the nature and location of buffer impacts, as well as the current condition of the buffers themselves, no substantial degradation of riparian functions (e.g., fish and wildlife habitat, food chain support, or water temperature maintenance) or processes would likely result from project-related clearing under any of the alternatives. The riparian processes that would likely not be affected include water flow; erosion and accretion; infiltration; groundwater recharge and discharge;

[3] Site potential tree height is the average maximum height of the tallest dominant trees (200 years or older) at a given location, based on the soil and climatic conditions at that site. Site potential tree heights of 200 feet are not uncommon in the Puget Sound lowlands.

sediment delivery, transport, and storage; organic matter input; nutrient and pathogen removal; and stream channel formation and maintenance. Under the Preferred Alternative or any of the other light rail alternatives, Sound Transit would use native vegetation when replanting areas disturbed by construction. At sites where riparian zones are currently dominated by non-native species, the reintroduction of native vegetation could lead to long-term improvements in riparian habitat conditions.

Long-term impacts could be caused by increases in the amount of impervious surface in the study area, which can increase stormwater runoff rates, volumes, and pollutant loads. These, in turn, can lead to higher peak flows and degrade water quality in streams. New impervious areas would include new tracks and guideways, stations, park-and-ride lots, and roads. In general, elevated segments would result in less new impervious area than at-grade segments because the pervious ground would be retained underneath elevated segments in most areas. Project features that do not receive motor vehicle traffic, such as guideways (both elevated and at-grade) and stations, would not be pollution-generating impervious surfaces (PGIS). Project-related parking lots (including new park-and-ride facilities) and road realignments would receive motor vehicle traffic and would, therefore, be PGIS.

Conceptual engineering has been completed for the major stormwater detention and treatment facilities necessary for the Preferred Alternative. Sound Transit used a conservative approach in developing drainage concepts. Sound Transit applied the Western Washington Hydrology Model, Version 3.0, to analyze project hydrology and to determine sizing of the facilities. Detention facilities were designed to achieve post-project stormwater flows equivalent to forested conditions, as required by Ecology. Most stormwater is expected to be discharged to existing city drainage facilities that discharge to water bodies from existing permitted municipal discharge locations. The amount of area detained would be sufficient to offset any increase in impervious surface area under any of the alternatives. Based on the implementation of these BMPs, peak flows would not be expected to increase in any of the streams in the study area as a result of the project; moreover, base flows would be expected to remain similar to current conditions. Stormwater from all project-related impervious surfaces would receive appropriate flow control. In addition, stormwater from PGIS associated with the project would also receive water quality treatment.

In some areas, especially in Segment C, existing pollution-generating segments of I-5 and commercial parking areas would be spanned by elevated portions of light rail. In these areas, precipitation that might otherwise have fallen on pollution-generating surfaces would fall instead on the non-pollution-generating surface of the elevated guideway. The result would, in effect, be a conversion from pollution-generating to non-pollution-generating impervious surface, potentially reducing the overall amount of PGIS in the study area. Based on the water resources impact analysis, none of the alternatives would degrade existing water quality. In addition, the light rail system could reduce future increases in traffic volume in the study area, which would indicate the likelihood of lower levels of pollutant increases associated with motor vehicle traffic.

The light rail alternatives would be designed to comply with the following local design manuals:

- WSDOT 2014 *Highway Runoff Manual*
- City of Seattle: *City of Seattle Flow Control and Water Quality Treatment Technical Requirements Manual*, Volume 3
- City of Shoreline: *Stormwater Management Manual for Western Washington* (Ecology 2012b); *City of Shoreline 2012 Engineering Development Manual*; *Low Impact Development, Technical Guidance for Puget Sound* (Hinman 2012)
- City of Mountlake Terrace: *Stormwater Management Manual for Western Washington* (Ecology 2012b)
- City of Lynnwood: *Stormwater Management Manual for Western Washington* (the City currently uses the 2005 manual but is expected to adopt the 2012 manual by the time project design is underway.)

The light rail alternatives would be designed to meet standards of the applicable jurisdiction and Ecology's *Stormwater Management Manual for Western Washington*. If a local jurisdiction has more stringent design requirements than those in the Stormwater Management Manual, then Sound Transit would apply the local requirements in the applicable areas.

Sound Transit's preliminary engineering for the Lynnwood Link Extension includes development of a conceptual layout for major stormwater facilities that are sized to comply with Sound Transit's *Design Criteria Manual* (Sound Transit 2012), which requires stormwater facilities for its projects to conform to the requirements of local jurisdictions. These facilities include stormwater ponds and underground vaults. Additional measures to reduce stormwater runoff, such as low-impact development or other on-site measures, would be considered at a more advanced phase of project development. Given Sound Transit's commitment to design the project to meet the stormwater management requirements of each jurisdiction, the light rail alternatives are not expected to adversely affect surface waters.

Peak stream flows in the study area would not be expected to increase substantially under any of the alternatives because the stormwater systems built for the project would be designed to simulate pre-development hydrology. As stated in the *Stormwater Management Manual for Western Washington,* "The Manual is intended to provide project proponents, regulatory agencies and others with technically sound stormwater management practices which are presumed to protect water quality and in-stream habitat – and meet the stated environmental objectives of the regulations described in this chapter." It is possible, however, that discharges from stormwater detention facilities could result in increased water velocities and durations in receiving waters, potentially reducing the availability of prey and displacing juvenile salmonids from cover (Tschaplinski and Hartman 1983).

In addition, impervious surfaces preclude natural infiltration of precipitation into the ground, decreasing groundwater recharge. Less precipitation entering groundwater aquifers might decrease dry-season base flows by decreasing water inputs to streams from groundwater sources such as springs. Dry-season base flows have been identified as one of the most important natural limiting factors controlling salmonid production in lowland Puget Sound streams.

Where low-impact development measures are implemented, some stormwater runoff from project-related impervious surfaces would be collected and infiltrated into the ground. In some areas, this could result in increased groundwater recharge compared to existing conditions (under which stormwater runoff is managed mainly through vaults and ponds that do not infiltrate). However, some soil types in the project area are not conducive to infiltration of precipitation into the ground.

It is assumed for this analysis that the risk of adverse effects on peak and base flows would correspond with the amount of proposed new impervious surface. The less impervious surface in an alternative, the lower the potential for adverse effects in a given basin. Alternatives with longer elevated guideways or more elevated stations would likely have less impact on base flows compared to alternatives with more at-grade guideway and/or road widening. Even the alternative with the highest increase in impervious surface would only have a minor impact at a basin-wide level because the light rail alternatives would affect a small proportion of the basin relative to the existing impervious surfaces within the basin. Additional analysis of potential stormwater-related effects can be found in the Biological Assessment for this project (Sound Transit 2014).

No Build Alternative

The No Build Alternative would not have any direct long-term impacts on aquatic species or habitat. Conversely, implementing the No Build Alternative would not have potential beneficial environmental effects over the long term, such as reducing increases in motor vehicle traffic in the region, facilitating the concentration of residential and commercial growth in planned growth centers, or implementing compensatory mitigation for impacts on wetlands, streams, and their required buffers.

Segment A: Seattle to Shoreline

Table 4-1 summarizes the amount of stream (in linear feet of open [i.e., not piped] stream channel) and stream buffer area (in acres, based on the width of the regulatory stream buffer in the local jurisdiction) that would be affected by each alternative in each segment. The Preferred Alternative and all other Segment A alternatives would cross Thornton Creek at the same location and would, therefore, affect equal amounts of Thornton Creek and its regulatory buffer[4]. Similarly, all of the alternatives would follow the same route in the vicinity of the watercourse (SSE1) along 5th Avenue NE south of Thornton Creek, affecting equal amounts of the regulatory buffer for that watercourse[5]. Based on the condition of the riparian habitat in the analysis buffers for both watercourses, the potential for adverse effects would be minimal.

Segment B: Shoreline to Mountlake Terrace

Elevated portions of the guideway of the Preferred Alternative would cross a piped portion of the main stem of McAleer Creek immediately east of I-5 and would pass through the regulatory buffers

[4] The segments of Thornton Creek and SSE1 that would be affected are in the Seattle city limits within the road right-of-way (not on a publicly or privately owned parcel) and may not be subject to the City of Seattle Critical Areas Ordinance (Seattle Municipal Code 25.09).

of surface-flowing segments of that stream at the I 5/SR 104 interchange, affecting approximately 0.5 acre of regulatory buffer. In addition, an elevated portion of the Preferred Alternative would pass over a segment of Stream SMT1 south of the Mountlake Terrace Transit Center, affecting approximately 0.5 acre of that stream's regulatory buffer.

Table 4-1. Long-Term Impacts on Streams and Buffers by Project Alternative

Segment/Alternative	Stream Channel Affected (linear feet)	Stream Buffer Area Affected[a] (acres)
Segment A: Seattle to Shoreline		
Preferred Alternative: At-grade/elevated with NE 145th and NE 185th Stations	All Alternatives: Thornton Creek (94)	All Alternatives: Thornton Creek (0.5)[b] SSE1 (0.2)[b]
A1: At-grade/Elevated with NE 145th and NE 185th Stations		
A3: Mostly Elevated with NE 145th and NE 185th Stations		
A5: At-grade/Elevated with NE 130th, NE 155th, and NE 185th Stations		
A7: Mostly Elevated with NE 130th, NE 155th, and NE 185th Stations		
A10: At-grade/Elevated with NE 130th, NE 145th, and NE 185th Stations		
A11: Mostly Elevated with NE 130th, NE 145th, and NE 185th Stations		
Segment B: Shoreline to Mountlake Terrace		
Preferred Alternative (B2 Modified): East Side to Mountlake Terrace Transit Center to West Side (with or without 220th Street SW Station option)	SMT1 (208)	McAleer Creek (0.5) SMT1 (0.5) SSH2 (<0.1) SSH4 (<0.1)
B1: East Side to Mountlake Terrace Transit Center to Median	SMT1 (231)	McAleer Creek (0.5) SMT1 (0.5) SSH2 (<0.1) SSH4 (<0.1)
B2A: East Side to Mountlake Terrace Transit Center to West Side with Optional 220th Street SW Station	SMT1 (231)	McAleer Creek (0.5) SMT1 (0.5) SSH2 (<0.1) SSH4 (<0.1)
B4: East Side to Mountlake Terrace Freeway Station to Median	McAleer Creek (40)	McAleer Creek (0.7) SSH2 (<0.1) SSH4 (<0.1)
Segment C: Mountlake Terrace to Lynnwood		
Preferred Alternative (C3 Modified): Along I-5 to Lynnwood Park-and-Ride Station	Scriber Creek (147)	Scriber Creek (0.5)[c]
C1: 52nd Avenue West to 200th Street SW	Scriber Creek (51)	Scriber Creek (0.2)
C2: 52nd Avenue West to Lynnwood Transit Center	Scriber Creek (143) SLY1 (58)	Scriber Creek (0.9)[c] SLY1 (0.1)
C3: Along I-5 to Lynnwood Park-and-Ride	Scriber Creek (131) SLY1 (81)	Scriber Creek (0.1)[c] SLY1 (0.1)

[a] Values presented in this table represent all affected areas inside the regulatory stream buffers within each local jurisdiction, including areas that overlap with wetlands or wetland buffers. Note that all values are preliminary estimates and most impacts would likely be temporary; see discussion in Section 1.4, Assumptions.

[b] Buffer impacts are not on publicly or privately owned parcels and may not be subject to the City of Seattle Critical Areas Ordinance (Seattle Municipal Code 25.09).

[c] The portions of Scriber Creek that would be crossed by the Preferred Alternative and Alternatives C2 and C3 are within the Scriber Creek wetland complex. Based on the preliminary determination that the OHWM of the stream coincides with the outer boundary of the wetland complex, potential impacts to aquatic resources under those alternatives in Scriber Creek are calculated as the area of the project footprint overlapping the wetland complex. Stream buffer impacts are described qualitatively in the accompanying text.

At the elevated crossing of the Preferred Alternative over Stream SMT1, a portion of one guideway support column would be below the OHWM of that watercourse. Stream SMT1 at that location flows intermittently and is not known or expected to support fish. Therefore, the presence of a guideway support column in a portion of the stream channel would not be expected to affect the amount or quality of fish habitat in Stream SMT1. However, the design of any future stream habitat restoration projects could be complicated by the presence of the structure.

The Preferred Alternative would also affect less than 0.1 acre apiece of the regulatory buffers for Streams SSH2 and SSH4. No streams are present in the study area near 220th Street SW, so the design options for the 220th Street SW Station would not be expected to differ in their impacts on stream buffers.

Alternatives B1 and B2A would cross a piped portion of the main stem of McAleer Creek at the same location as the Preferred Alternative, immediately east of I-5. Both alternatives would pass through regulatory buffers surrounding open segments of McAleer Creek and Stream SSH4 in the cities of Mountlake Terrace and Shoreline, affecting equal amounts of those buffer areas (Table 4-1).

Alternative B4 would cross an open segment of McAleer Creek where it exits the culvert under I-5, spanning approximately 39 linear feet of the stream (Table 4-1). Also, because it would pass closer to the stream, this alternative would affect more of the stream buffer than Alternatives B1 and B2A. Alternative B4 would also pass closer to Stream SSH4, but would still affect a similarly small portion of that stream's regulatory buffer.

Alternatives B1 and B2A would cross Stream SMT1 at or near the same location as the Preferred Alternative and would affect approximately equal amounts of the stream and its regulatory buffer. The designs of the Alternatives B1 and B2A have not been developed to the same level of detail as for the Preferred Alternative, and the locations of guideway support columns have not been established. However, based on the similarities in the alignments, it is probable that a support column could be placed below the OHWM for Stream SMT1 under Alternative B1 or Alternative B2A, with effects similar to those described for the Preferred Alternative. Alternative B4 would enter the I-5 median south of the Mountlake Terrace Park-and-Ride facility and would not affect Stream SMT1 or any of its buffer areas.

All alternatives for Segment B would cross a piped segment of the southern tributary to McAleer Creek (Stream SSH2) at the same location and would, therefore, affect equal amounts of its regulatory buffer (Table 4-1).

Segment C: Mountlake Terrace to Lynnwood

Each of the Segment C alternatives includes one option that begins in the I-5 median before crossing north to the west side of the freeway near 52nd Avenue West (Option 1) and another option that begins on the west side of the freeway (Option 2). Neither of these options would cross streams or pass through stream buffers, so comparisons of the alternatives do not distinguish between the options.

Under all of the Segment C alternatives, habitats in Scriber Creek and the associated wetland complex would be spanned by elevated guideways, minimizing the potential for direct adverse effects. Each alternative would cross Scriber Creek at a different location, with the elevated guideway passing over slightly different lengths of the stream and affecting slightly different areas of stream buffer (Table 4-1). The amount of Scriber Creek's regulatory buffer affected by the Preferred Alternative would be approximately 0.5 acre. Among the other light rail alternatives, Alternatives C1 and C3 would have the least impact (ranging from 0.1 to 0.2 acre) because they would cross small portions along either the northern (Alternative C1) or southern (Alternative C3) edges of the wetland complex. Alternative C2 (both Options 1 and 2) would have the greatest impact, crossing through the middle of the wetland complex and affecting approximately 0.9 acre of Scriber Creek's regulatory buffer.

Although the amount of area affected by the Segment C alternatives would differ, the overall effects (described under Long-term Impacts, above) would be essentially the same. The guideway would be more than 15 feet above the ground surface in this area, and shading and other impacts on vegetation would likely be minimal. Direct impacts would be limited to the areas occupied by support columns for the guideway.

The construction of support columns for the elevated guideway in the Scriber Creek wetland complex could affect aquatic habitat within Scriber Creek and would result in the permanent loss of some riparian habitat for that stream. In addition to potential direct impacts on the stream, impacts to the wetland complex could adversely affect juvenile salmonids that rear and overwinter in wetland habitats adjacent to Scriber Creek. None of the other wetlands identified in the study area is accessible to juvenile fish. The potential for project construction and operation to adversely affect aquatic species or habitats would be avoided or minimized through the implementation of conservation measures necessary for permit compliance.

Under the Preferred Alternative, the guideway would require 3 pairs of columns to cross the Scriber Creek wetland complex. The designs of the other light rail alternatives have not been developed to the same level of detail as for the Preferred Alternative. However, based on the length of elevated guideway that would pass over the Scriber Creek wetland complex, it is probable that Alternative C2 would require the placement of more than 3 pairs of columns below the OHWM of Scriber Creek, and that Alternative C3 may require as few as 1. It is possible that Alternative C1 could be built without placing any columns below the OHWM of Scriber Creek. Under any of the light rail alternatives, the placement of any structures below the OHWM of any streams in the study area would be done in accordance with the terms of the HPA and other applicable permits obtained for this project.

Under Alternative C2, the tail track of the elevated guideway would extend over a portion of the northern tributary to Scriber Creek (Stream SLY1), crossing both the stream and its regulatory buffer. The Alternative C3 tail track would cross the same stream in a slightly different location and at an oblique angle, and would thus affect slightly more of the stream (Table 4-1). The Preferred Alternative and Alternative C1 would not cross Stream SLY1 or affect any of the stream's regulatory buffer area.

4.1.2 Construction Impacts

Similar to long-term impacts, construction-related impacts would occur where the project limits cross streams or stream buffers. Construction impacts would be temporary, however, and would be limited to the period during and immediately following project construction. The construction period would last 6 years (from beginning of construction to beginning of operation). At most locations, ground-disturbing activities would be expected to last a year or two. Temporarily disturbed sites would be replanted immediately following construction in each project segment, and vegetation would likely become reestablished within a year or two at most sites.

Under the Preferred Alternative or any of the other light rail alternatives, construction of guideways, stations, and ancillary features would take place above the OHWM of all but two streams in the study area. As such, project construction would not cause disturbance of in-stream habitat in most streams. Construction of elevated crossings at SMT1 and Scriber Creek would entail some work below the OHWM of those two streams. Additional information about the potential impacts of project construction below the OHWM of these streams is provided in the discussions of Segment B (Stream SMT1) and Segment C (Scriber Creek), below. Any work below the OHWM of any streams in the study area would be conducted in accordance with the terms of the HPA and other applicable permits obtained for this project.

The use of artificial lighting in association with nighttime construction could affect fish in study area streams. Research suggests that changes in ambient light may alter migratory behavior or affect predation rates on juvenile salmonids (Tabor et al. 2004).

Any earthwork conducted within a basin has the potential to cause sedimentation that would adversely affect the streams in the basin downstream of the work activity. The most obvious situation in which sedimentation could occur is where earthwork construction occurs in or next to a stream channel. However, any earthwork in a basin might contribute to the already serious sedimentation problems that exist in the streams in the project vicinity. This is because most stormwater in urban settings is collected in a system of pipes or ditches and conveyed directly to the nearest stream. An exception to this practice is in newer developments, where stormwater detention facilities trap much of the sediment carried by upstream sources before discharging into streams. But even in these developments, some of the finer sediments might be discharged to streams as the ponds fill with stormwater and overflow.

The types of adverse impacts from excessive sediment in streams are well documented, and salmonid ecosystems experience a wide range of adverse impacts. For example, excessive sediment might preclude salmonid spawning or successful egg incubation, or it might lower egg survival. The production and diversity of benthic invertebrates—the primary food source of juvenile salmon and resident trout—are reduced as sediment loading increases. Shelter for juvenile salmonids is decreased as the voids between rocks are filled with sediment. Pools may also become full of sediment if loading is high.

Erosion control BMPs are designed to avoid or minimize sediment delivery to streams (Appendix A). The degree to which they are effective depends on correct installation but also on

unpredictable circumstances. For instance, conventional BMPs may fail when subjected to extreme rainfall or rain-on-snow events.

Any time heavy equipment is fueled or hydraulic systems are used during construction, fuel or hydraulic fluid has the potential to be spilled. Even though a Spill Prevention, Control, and Countermeasures Plan would be implemented, there is still a possibility that some of this material could be carried by stormwater and enter a stream. Because stormwater throughout a basin ends up in a stream, stormwater entering a storm drain far from a stream is eventually carried to it. Spill prevention BMPs are designed to avoid or minimize construction-related pollutants from entering streams; however, despite precautions, a low risk still exists for release of pollutants to streams in the study area.

Within each project segment, the risk of construction impacts would be a product of the total amount of ground-disturbing activity within each basin. Construction adjacent to or within streams, wetlands, or their buffers, including work on elevated guideways that pass over these features, would have the highest risk of delivering sediment and pollutants to downstream waters. As noted in Section 1.4, Assumptions, detailed construction limits are not defined at this phase in the project design. For this analysis, potential construction limits have been estimated, identifying areas where temporary impacts on streams and stream buffers could extend beyond the analytical buffer defined for the analysis of long-term impacts.

No Build Alternative

The No Build Alternative would not have any temporary, construction-related impacts on aquatic species or habitat.

Segment A: Seattle to Shoreline

The Preferred Alternative and all other light rail alternatives in Segment A would cross Thornton Creek at the same location and would, therefore, pose equal risks of construction-related impacts to the stream. The analysis of potential construction impacts did not identify any areas where temporary impacts on Thornton Creek or its buffer could extend beyond the analytical buffer defined for the analysis of long-term impacts.

Segment B: Shoreline to Mountlake Terrace

At the elevated crossing of the Preferred Alternative over Stream SMT1, a portion of one guideway support column would be below the OHWM of that watercourse. Based on the similarities in the alignments, Alternatives B1 and B2A would likely require support columns at the same location. Stream SMT1 at that location flows intermittently and is neither known nor expected to support fish. In addition, work below the OHWM would take place in accordance with federal and state permits, which typically limit such work to periods when water levels are lowest. During such periods, water is present in the SMT1 stream channel at that location only during and immediately following measurable rainfall. It is unlikely, therefore, that any construction work would take place within the channel of SMT1 when water is present, largely eliminating the potential for sediment or

pollutants from construction areas to be carried downstream to fish-bearing waters. This potential would be further reduced by the implementation of BMPs that impose requirements for the stabilization of disturbed soil and that restrict machinery use below the OHWM. Lastly, Sound Transit would comply with water quality mixing zone requirements established by Ecology. For streams with flows of 10 cubic feet per second or less during construction, the water quality mixing zone is 100 feet downstream of project activities (WAC 173-201A-200-1[e]). Summer-season flows at the mouth of perennially flowing McAleer Creek (several miles downstream of the study area) are consistently less than 10 cubic feet per second (Sound Transit 2014), meaning any flows in Stream SMT1—an intermittently flowing tributary to McAleer Creek—would remain well below that rate. The nearest fish-bearing waters are more than 2,000 feet downstream from the proposed crossing location, well beyond the water quality mixing zone. For all of the reasons listed above, construction activities below the OHWM of Stream SMT1 would not be expected to result in elevated levels of sediment or pollutants in fish-bearing waters downstream.

Based on the amount of stream buffer area affected, the Preferred Alternative and Alternatives B1 and B2A would pose equal risks of delivering sediment or pollutants to the main stem of McAleer Creek and to the surface-flowing tributaries in the study area (Streams SSH4 and SMT1) (Table 4-1). In addition to the areas subject to long-term effects, 0.4 acre of the stream buffer for McAleer Creek could be subject to temporary, construction-related impacts under those three alternatives, as would 0.2 acre of the buffer for Stream SMT1. The buffer for Stream SSH4 would not be subject to temporary, construction-related impacts under any of the Segment B alternatives.

Although a larger area of the McAleer Creek buffer would be subject to potential long-term impacts under Alternative B4 compared to the other Segment B alternatives (Table 4-1), the analysis of potential construction impacts did not identify any areas where the temporary impacts of Alternative B4 on the McAleer Creek buffer would extend beyond the analytical buffer defined for the analysis of long-term impacts. Similarly, Alternative B4 would subject a smaller portion of the buffer on Stream SMT1 to potential long-term impacts, compared to the other Segment B alternatives (Table 4-1), and none of that buffer would be subject to potential additional construction impacts. As a result, the risk of construction-related impacts to McAleer Creek, Stream SSH4, and Stream SMT1 would likely be less under Alternative B4 than under the other alternatives. Because the southern tributary to McAleer Creek (Stream SSH2) is entirely within culverts in the study area, none of the alternatives would have the potential to deliver sediment or pollutants to that watercourse.

Segment C: Mountlake Terrace to Lynnwood

Based on the amount of wetlands, wetland buffers, and stream buffers that would fall within the project footprint along the northern tributary to Scriber Creek (Stream SLY1) and in the Scriber Creek wetland complex, Alternatives C1 and C3 would have the lowest risk of construction-related impacts. The risk for the Preferred Alternative would be slightly higher, and that for Alternative C2 would be highest.

To minimize the potential for impacts on ecosystem resources in Scriber Creek and the associated wetland complex, temporary work trestles would be used for equipment access during construction of

the elevated guideway for the light rail alternatives that cross substantial portions of the Scriber Creek wetland complex (i.e., the Preferred Alternative and Alternative C2; it is unlikely that a temporary work trestle would be needed under Alternative C1 and a trestle may be needed under Alternative C3). The trestles would be supported by steel piles and would remain in position only as long as needed for the completion of project construction. Any in-water work for trestle construction (including pile driving and pile removal) would be conducted in accordance with the terms of the HPA and other applicable permits obtained for the project. Such permits typically place restrictions on the time of year when work can be conducted below the OHWM of any streams. These permits also typically include numerous provisions aimed at avoiding or minimizing the potential for adverse effects on fish and aquatic habitat (discussed in Section 4.6, Potential Mitigation Measures).

The temporary work trestles would consist of pile-supported platforms, about 30 feet wide, with heavy timber decking supported by steel beams. Pile bents (lateral rows of three to four piles) would be spaced at 30- to 50-foot intervals, with each pile driven below the mudline to a depth sufficient to support the large cranes and other equipment needed for construction of the elevated guideway. The spacing of the pile bents will be optimized to reduce the number of piles needed while providing sufficient structural support. A vibratory hammer would be used for initial installation of most piles. If substrates preclude the use of a vibratory hammer, an impact hammer would be used. For all piles, an impact hammer would be used to complete the installation and to confirm the load-bearing capacity of each pile.

Work below the OHWM would take place in accordance with federal and state permits that typically limit such work to periods when water levels are lowest. During these periods, surface water in the wetland complex is generally found only in the actively flowing stream channels of Scriber Creek, which make up only a small portion of total wetland complex area. Most work below the OHWM would take place in areas where no standing or flowing water is present. Any work areas where surface water is present would be isolated from other surface waters with a coffer dam or similar system to prevent suspended sediment or pollutants from leaving the work area. For these reasons, in-water work in Scriber Creek, if it occurs, would not be expected to contribute to elevated levels of sediment or pollutants in fish-bearing waters.

4.2 Vegetation, Terrestrial Wildlife, and Wildlife Habitat

Construction of the Lynnwood Link Extension could affect vegetation in the study area, including terrestrial wildlife species associated with those habitats. Analyses in this subsection address the potential long-term, construction-related, and indirect impacts of each alternative on vegetation and wildlife. These impacts are defined as follows:

- Long-term impacts include permanent loss or degradation of terrestrial habitat (including habitat connectivity); disturbance due to increased human access, noise, and light; impacts on rare plant populations; or contributions to the spread of noxious or invasive plant species.

- Construction-related impacts include temporary loss or degradation of terrestrial habitat, or disturbance due to construction-related noise and light.
- Indirect and secondary impacts include those related to residential and commercial development near stations, or mitigation measures for other resources.

As noted in Section 3.2.3, no terrestrial ESA-listed or state-listed threatened or endangered plant or wildlife species are known or expected to occur in the study area. Analyses in this section, therefore, address plant and wildlife species collectively, basing the anticipated impacts on the relationships between habitats and individual species or species groups. The following subsections describe the potential impacts on vegetation and wildlife that could result from construction and operation of the Preferred Alternative or any of the other light rail alternatives. Discussions of long-term and construction-related impacts include assessments of the range of impacts that could occur for each segment and alternative. Actual impacts would depend on final alternative selection and design, construction footprint and methods, BMPs implemented during construction, and performance of post-construction restoration, including revegetation of disturbed areas and mitigation measures for areas protected under local Critical Areas Ordinances.

4.2.1 Long-Term Impacts

Direct long-term impacts would occur where the project limits cross land cover types that support vegetation or other wildlife habitat features. Clearing for project construction would also increase the risk of contributing to the spread of noxious or invasive weed species. Noise and human activity associated with operation of the light rail system may also result in long-term impacts. The project limits include the guideway, station footprints (including parking), roadway improvements, storm drainage ponds, ancillary features, and analytical buffer (Section 1.4.1, Impact Assessment). For this analysis, all impacts within these areas are considered long-term. As explained in Section 1.4 (Assumptions), analyses in this report treat the construction of both at-grade and elevated guideways and other structures as long-term impacts on vegetation and other resources within the structure's footprint. Sound Transit will re-evaluate this assumption and identify temporary construction limits during the permitting phase.

Vegetation and Wildlife Habitat Loss

Under the Preferred Alternative or any of the other light rail alternatives, the effects of project construction on vegetation and wildlife habitat would depend on the land cover type within the project clearing limits. The effects on the Urban cover type, for example, would be minimal. Little or no vegetation is present in areas classified as Urban; therefore, the replacement of existing cover with guideways or other facilities would constitute a minimal change in the characteristics of such areas or their ability to support wildlife. Similarly, areas classified as Residential or Maintained Vegetation are highly modified from pre-development conditions and typically occur alongside roads and other areas with low habitat value. In addition, invasive species are common in such areas. Although project construction in most Residential or Maintained Vegetation areas would constitute a change from a vegetated area to impervious surface, the effects of such construction on

vegetation and wildlife would, therefore, be minimal. (The effects of increases in impervious surface are discussed in Section 4.1.1). No areas classified as Open Water fall within the footprint of any of the project alternatives.

Although the potential for adverse effects would be low, operation of any of the light rail alternatives could result in some adverse effects on vegetation and wildlife over the long term. For example, maintenance activities that involve the removal of vegetation or structures that support bird nests (e.g., bridges, overpasses) during the breeding season could destroy nests, eggs, or birds protected under the Migratory Bird Treaty Act. At-grade guideways and other facilities in grassy areas (e.g., along the margins of I-5) would reduce the amount of habitat for voles and other species that are prey for raptors. In addition, disturbance of comparatively natural land cover types in the study area could have some adverse effects, as discussed below.

The two cover types in which project construction could cause changes in habitat quality are Shrub and Forest. The following subsections focus on assessing the range of impacts that could occur on these two land cover types for each segment and alternative. In both cover types, replacement of existing vegetation with project features would represent a loss of structural and biotic diversity associated with the variety of plant and wildlife species previously present in the cleared areas. In areas classified as Shrub, the potential for adverse effects would vary with site-specific conditions. For example, areas dominated by dense growth of invasive species (e.g., Himalayan blackberry, Japanese knotweed [*Polygonum cuspidatum*]) typically do not support diverse and abundant communities of vegetation and wildlife. Conversely, areas with more native species (e.g., salal, salmonberry, or red alder) typically support a greater number and variety of species.

For this analysis, the amount of Forest cover affected by each alternative is used to indicate the potential for long-term adverse effects on vegetation and wildlife. Construction of project features would have a greater likelihood of reducing the habitat quality of forested areas than other cover types. The removal of trees, snags, and understory vegetation would remove potential nesting sites, foraging sites, and hiding cover for many species of birds and small mammals. The introduction of cleared areas through patches of contiguous forest cover would result in the fragmentation of the forested habitat. By increasing the amount of edge habitat (where sensitive wildlife species are less protected from weather extremes and are more susceptible to predation from species that are adapted to open habitats), fragmentation compounds the effects of habitat loss by reducing the quality of the remaining habitat. Vegetation clearing would contribute to habitat fragmentation within the study area. However, because the Preferred Alternative or other light rail alternatives would be built alongside the I-5 corridor (an existing impediment to migration by terrestrial species), they would not affect areas that serve as connective corridors to other areas of habitat outside of the study area.

Noxious Weeds

Noxious weeds and exotic plants rapidly colonize disturbed sites such as construction areas. They prevent native species from becoming re-established following ground disturbance, spread into undisturbed areas where they can affect habitat value on additional lands, and provide very poor

wildlife habitat or forage. Several of the BMPs that would be implemented during project construction are intended to avoid, reduce, and control new infestations of noxious weeds (see Appendix A). Consistent and successful application of these measures would reduce potential habitat disturbance and improve existing habitats that are already disturbed.

Despite the implementation of BMPs, it is likely that some especially invasive weeds such as Himalayan blackberry could become established in some areas disturbed during construction. However, the Lynnwood Link Extension could also improve conditions where existing noxious weeds such as Himalayan blackberry, reed canarygrass, or Japanese knotweed dominate vegetated areas within the study area. Because of project construction, such areas would either be replaced with project features or disturbed and replanted with native species, increasing the potential for re-establishment of native vegetation.

Noise and Human Activity

Both noise and human activity have been demonstrated to displace wildlife from occupied habitats, interfere with the ability to hear territorial songs in birds, interfere with mating and alarm calls of amphibians and small mammals, and interfere with raptor foraging activities. Numerous studies document the avoidance of roads and similar facilities by wildlife and the disturbance of wildlife by human activity at varying distances. However, most of these studies have considered the impacts of new construction or facilities and human activities in areas where none or few of these facilities or human activities previously existed. This is not the case in the Lynnwood Link Extension study area, which is within or immediately adjacent to the I-5 corridor for nearly its entire length. In addition to the noise and vehicle traffic on the highway, regular human activity associated with residential and commercial development is a common feature of the landscape throughout the study area. Wildlife that use habitats adjacent to the project alternatives are more or less accustomed to some level of human activity and noise. Impacts would be related to changes in noise levels and the types of human activities.

In areas where the project alternatives pass through areas outside of the I-5 corridor, the construction of guideways, stations, or other facilities could constitute the introduction of a new source of disturbance in areas where wildlife species are less accustomed to noise and human activity. Animals that are sensitive to noise, light, or other human-related disturbance may be displaced from otherwise suitable habitat, potentially leading to competition with animals that occupy suitable habitat at other, less developed sites. Such competition may produce increased stress and decreased reproductive success for affected individuals. Animals displaced from areas of suitable habitat may also be exposed to an elevated risk of predation or vehicle collisions while they are seeking new areas of suitable habitat. The degree of displacement would generally be proportionate to the change in noise levels over background conditions (which would be a product of the distance between noise sources and areas of occupied habitat), as well as the frequency, duration, and types of noise and human activity. Based on the limited amount of area that would be affected under any of the alternatives, such effects would not be expected to cause changes in the regional populations of any wildlife species.

No Build Alternative

The No Build Alternative would not have any direct long-term impacts on vegetation or wildlife. Conversely, implementing the No Build Alternative would not have potential beneficial environmental effects over the long term, such as concentrating residential and commercial development in planned growth centers. Land development in areas away from such centers could result in the degradation or loss of high-value habitat in outlying and rural areas.

Segment A: Seattle to Shoreline

As a result of the construction of guideways and stations in areas of Shrub along I-5, more of this cover type would be affected by project construction in Segment A than in either of the other two segments (Table 4-2). All six alternatives would affect approximately 10 to 11 acres of this cover type. The alternatives would also affect similar amounts of Forest cover, ranging between 1 and 2 acres. All affected areas of these two cover types would be immediately adjacent to the I-5 corridor. Impacts on these areas, therefore, are not expected to have substantial adverse effects on vegetation or wildlife resources in the study area. Most of the affected area in Segment A would consist of the Residential, Maintained Vegetation, and Urban cover types. None of the Segment A alternatives would affect any forested habitat within the priority habitat area at Northacres Park.

Segment B: Shoreline to Mountlake Terrace

Elevated portions of the guideway for the Preferred Alternative and Alternatives B1 and B2A would pass through the patch of Forest cover (which WDFW [2014b] has identified as a priority habitat area) immediately north of the Mountlake Terrace Transit Center. Construction of a stormwater detention facility on the west side of I-5 near the Mountlake Terrace Station under the Preferred Alternative and Alternative B2A would affect additional Forest cover. As a result of construction in these and other portions of Segment B, the Preferred Alternative and Alternative B2A would each affect approximately 11 acres of Forest, compared to 5 acres under Alternative B1 (Table 4-2). Potential adverse effects of alignment construction in forested areas under these alternatives would include habitat fragmentation and loss and an elevated risk of introducing invasive species, as well as disturbance of sensitive species, as described above. Less Forest cover would be affected under Alternative B4, which would enter the I-5 median south of the Mountlake Terrace Transit Center, thereby avoiding the patch of forested habitat north of the facility (Table 4-2). The design options for the 220th Street SW Station would not differ in their impacts on Forest cover.

A portion of the 11 acres of Forest habitat that would be affected by the Preferred Alternative and Alternative B2A consists of a strip of Forest cover along I-5 in south Lynnwood, north of 220th Street SW. Construction of at-grade portions of the guideway in this area would remove the existing cover altogether. The current habitat value of this strip is limited by its narrow, linear shape and by its location between I-5 and adjacent residential development.

Table 4-2. Long-Term Impacts on Land Cover Types by Project Alternative

	Acres within Project Footprint, by Land Cover Type				
Segment/Alternative	**Forest**	**Shrub**	**Residential**	**Maintained Vegetation**	**Urban**
Segment A: Seattle to Shoreline					
Preferred Alternative: At-grade/elevated with NE 145th and NE 185th Stations	2	10	15	8	13
A1: At-grade/Elevated with NE 145th and NE 185th Street Stations	2	10	13	9	11
A3: Mostly Elevated with NE 145th and NE 185th Street Stations	1	10	13	7	4
A5: At-grade/Elevated with NE 130th, NE 155th, and NE 185th Street Stations	2	11	14	9	7
A7: Mostly Elevated with NE 130th, NE 155th, and NE 185th Street Stations	1	11	13	6	3
A10: At-grade/Elevated with NE 130th, NE 145th, and NE 185th Street Stations	2	10	15	10	8
A11: Mostly Elevated with NE 130th, NE 145th, and NE 185th Street Stations	2	10	13	7	4
Segment B: Shoreline to Mountlake Terrace					
Preferred Alternative (B2 Modified): East Side to Mountlake Terrace Transit Center to West Side	11	3	1	2	8
Preferred Alternative (B2 Modified): East Side to Mountlake Terrace Transit Center to West Side with 220th Street SW Station option	11	4	2	4	9
B1: East Side to Mountlake Terrace Transit Center to Median	5	1	<1	6	7
B2A: East Side to Mountlake Terrace Transit Center to West Side with Optional 220th Street SW Station	11	7	1	3	7
B4: East Side to Mountlake Terrace Freeway Station to Median	3	1	<1	6	5
Segment C: Mountlake Terrace to Lynnwood					
Preferred Alternative (C3 Modified): Along I-5 to Lynnwood Park-and-Ride Station	2	1	<1	1	14
C1: 52nd Avenue West to 200th Street SW, Option 1 (Median)	1	<1	1	1	9
C1: 52nd Avenue West to 200th Street SW, Option 2 (West of I-5)	1	<1	1	0	8

Table 4-2. Long-Term Impacts on Land Cover Types by Project Alternative

	Acres within Project Footprint, by Land Cover Type				
Segment/Alternative	Forest	Shrub	Residential	Maintained Vegetation	Urban
C2: 52nd Avenue West to Lynnwood Transit Center, Option 1 (Median)	<1	2	<1	1	8
C2: 52nd Avenue West to Lynnwood Transit Center, Option 2 (West of I-5)	1	2	<1	0	8
C3: Along I-5 to Lynnwood Park-and-Ride, Option 1 (Median)	1	1	0	2	16
C3: Along I-5 to Lynnwood Park-and-Ride, Option 2 (West of I-5)	2	1	<1	<1	15

The Preferred Alternative and Alternatives B1 and B4 would affect similar amounts of Shrub cover, ranging from 1 to 4 acres. Construction of the 220th Street SW Station and associated parking lot under Alternative B2A would affect a patch of Shrub habitat north of 220th, with a total of 7 acres of this habitat type in the project footprint. Under the Preferred Alternative, the station option would affect slightly greater amounts of Shrub, Residential, Maintained, and Urban cover types than the option with no station (Table 4-2).

Segment C: Mountlake Terrace to Lynnwood

Although the Preferred Alternative and the other Segment C alternatives and options would cross the Scriber Creek wetland complex at different locations, they would not differ substantially in the amounts of Forest and Shrub they would affect (Table 4-2). The west of I-5 option (Option 2) of Alternative C3 would affect more Forest cover than the other alternatives and options. Most of the affected area would consist of a strip of Forest and Shrub along I-5 east of 52nd Avenue West. The guideway would be elevated in this area, limiting the potential for adverse effects on vegetation and wildlife in the area. In addition, the current habitat value of this strip is limited by its narrow, linear shape and its location between I-5 and adjacent commercial development. The two options of Alternative C2, which would pass through the center of the wetland complex, would affect more Shrub than the other alternatives (Table 4-2).

Notably, under all three alternatives, habitats in the Scriber Creek wetland complex would be spanned by elevated guideways. No construction of at-grade facilities would occur in the complex. Construction of elevated guideways can reduce the amount of water and sunlight reaching the vegetation underneath. Because the guideway structure would be relatively narrow (31 feet wide) and generally more than 15 feet above the ground surface, shading impacts on vegetation would be minimal. Constructing any of the Segment C alternatives would not substantially modify the vegetation types beneath the elevated facilities or adversely affect the wildlife communities that use those habitats.

4.2.2 Construction Impacts

Similar to long-term impacts, construction-related impacts would occur where the project limits cross land cover types that support vegetation or other wildlife habitat features. Construction impacts would be temporary, however, and would be limited to the period during and immediately following project construction. The construction period would last 6 years (from beginning of construction to beginning of operation). At most locations, ground-disturbing activities would be expected to last a year or two. Temporarily disturbed sites would be replanted immediately following construction in each project segment, and vegetation would likely become reestablished within a year or two at most sites.

Construction activities under the light rail alternatives would temporarily affect vegetation and wildlife in the study area. Vegetation and wildlife habitat would be temporarily affected by clearing beyond the boundaries of the project footprint (e.g., for access roads or equipment storage areas), as well as clearing beneath elevated structures. Impacts would include the loss of vegetation and habitat, disturbance by noise and construction activity, and displacement of wildlife into potentially less suitable habitats. Construction activities involving the removal of vegetation or structures that support bird nests (e.g., bridges, overpasses) during the breeding season could destroy nests, eggs, or birds protected under the Migratory Bird Treaty Act.

Under any of the light rail alternatives, noise from construction equipment would exceed background noise levels, even in areas where the acoustic environment is currently dominated by traffic noise from I-5. Noise sources would include trucks, cranes, backhoes, loaders, compactors, excavators, grading and paving equipment, vibratory equipment, drilling rigs, forklifts, jackhammers, pumps, compressors, generators, welding equipment, and demolition equipment. The loudest noise levels would result from pile driving required for the construction of temporary work trestles across the Scriber Creek wetland complex under the Preferred Alternative and Alternative C2 (and possibly Alternative C3). Most construction-related noise would be audible up to 650 feet from the project footprint, and pile driving noise would be audible up to 3,100 feet away (Sound Transit 2014).

Wildlife would likely be displaced when construction begins. In areas of temporary vegetation clearance, wildlife species displaced by construction noise would likely return after construction is complete, provided human activity levels return to pre-construction levels. Any such return to pre-construction conditions would depend in part on the re-establishment of vegetation, however, and would not occur immediately. Herbaceous vegetation and some fast-growing shrubs would require 2 to 5 years to return to pre-project conditions. Areas of mature forest would require several decades. Species that forage on or near the ground, such as urban-dwelling small mammals or birds such as juncos and song sparrows, could return to their preferred habitats first. Species that require mature vegetation—especially those that use large shrubs and trees (e.g., wrens, chickadees, and woodpeckers)—would recolonize their preferred habitats last.

Although detailed construction limits are not defined at this phase in the project design, potential construction limits have been estimated near streams, stream buffers, wetlands, and wetland buffers. These consist of areas where temporary impacts could extend beyond the analytical buffer defined

for the analysis of long-term impacts. Additional staging areas could be identified later by the contractor, if needed. Direct construction impacts will be identified during and permitting phase. For the analyses in this document, it is assumed that the level of temporary construction impacts would be commensurate with the level of long-term impacts for each alternative. As with those analyses, the impact assessments focus on the Forest and Shrub land cover types, which would have the greatest potential to be adversely affected by construction of light rail facilities.

No Build Alternative

Implementation of the No Build Alternative would not have any temporary, construction-related impacts on vegetation or wildlife.

Segment A: Seattle to Shoreline

Because of the scarcity of the Forest and Shrub cover types in this portion of the study area, the alternatives would not differ substantially in their construction-related effects on vegetation and wildlife in Segment A.

Segment B: Shoreline to Mountlake Terrace

Based on the amount of Forest and Shrub cover that would fall within the project footprint, construction of the Preferred Alternative and Alternative B2A would have the greatest potential for construction-related impacts on vegetation and wildlife in the study area, followed by Alternative B1. Alternative B4 would enter the I-5 median south of the Mountlake Terrace Transit Center and would, therefore, avoid impacts on most existing vegetated land cover, resulting in a lower potential for construction-related impacts than the other light rail alternatives.

Segment C: Mountlake Terrace to Lynnwood

Based on the amount of the Scriber Creek wetland complex that would fall within the project footprint, construction of Alternative C2 would have the greatest potential for construction-related impacts on vegetation and wildlife in the study area. Alternative C3, which would cross near the southern end of the wetland complex, would affect slightly more of that area than Alternative C1. The effects of the Preferred Alternative would be intermediate between those of Alternative C2 and those of Alternatives C3 and C1. Based on the current habitat value of the strip of Forest and Shrub along I-5 east of 52nd Avenue West, the potential for the west of I-5 option (Option 2) of Alternative C3 to cause substantial construction-related effects on that patch of habitat would be minimal. Pile driving required for the construction of temporary work trestles across the Scriber Creek wetland complex under the Preferred Alternative and Alternative C2 (and possibly Alternative C3) could cause disturbance of wildlife up to 3,100 feet away from work areas.

4.3 Wetlands

Construction of the Lynnwood Link Extension could have impacts on wetlands in the study area. These impacts can be direct (long term), indirect (long term), and temporary (construction):

- Long-term, direct impacts occur when all or a portion of a wetland is filled or excavated so that it becomes a non-wetland.
- Long-term, indirect impacts are typically disturbances that reduce or eliminate wetland functions without directly filling or excavating wetland soils. Indirect impacts occur when permanent wetland impacts result in reduction or elimination of wetland functions in the remaining wetland area, or when alterations to surface water flows separates the remnant wetland from its hydrologic source and prevents it from maintaining wetland hydrology. Reduction of wetland functions occurs when the wetland area is reduced to an extent that it is unable to provide some or all of its pre-disturbance functions. A wetland may become a complete loss when the majority of a wetland is directly affected, leaving the remaining wetland area with altered hydrologic sources and/or reduced pre-project functions.
- Impacts are considered temporary when wetland area and functions are lost for a period of time but are subsequently restored to existing conditions or better.

The following subsections describe the potential impacts on wetlands that could result from the light rail alternatives. The potential for wetland-related impacts to affect fish species is addressed in Section 4.1, Aquatic Species and Habitat. Notably, only one wetland in the study area is accessible to fish. That is Wetland WLY4, the Scriber Creek wetland complex. Discussions of long-term and construction-related impacts include assessing the range of impacts that could occur for each segment and alternative. Actual impacts would depend on the final alternative selection and design, construction footprint and methods, BMPs implemented during construction, performance of post-construction restoration of temporarily disturbed wetlands and buffers, and performance of compensatory mitigation for impacts on areas protected under local Critical Areas Ordinances.

If the impact to any individual wetland or interconnected wetlands exceeds 0.5 acre (i.e., the maximum impact that can be permitted through a Clean Water Act Section 404 Nationwide Permit 14), a Section 404 Individual Permit would be required, likely necessitating the consideration of reasonable avoidance measures to reduce the impacts to less than 0.5 acre. If an Individual Permit applies, the necessary analyses would be conducted as part of project permitting with the U.S. Army Corps of Engineers. Determination of permitting requirements would be based in part on whether a particular wetland would be affected by elevated or at-grade features. Although the analyses in this document conservatively assume all areas underneath the guideway to be affected, the wetland permit process may not necessarily consider these areas as temporary or permanent fill.

4.3.1 Long-Term Impacts

Direct long-term (i.e., permanent) impacts would occur where the project limits cross wetlands or buffers. The project limits include the guideway, station footprints (including parking), roadway improvements, storm drainage ponds, ancillary features, and analytical buffer (Section 1.4.1, Impact

Assessment). For this analysis, all impacts within these areas are considered long term. As explained in Section 1.4 (Assumptions), analyses in this document treat the construction of both at-grade and elevated guideways (including the area underneath) and other structures as long-term impacts on wetlands and other resources within the structure's footprint. However, based on factors such as the width and height of the elevated guideway, some of these areas may not experience long-term impacts. During the permitting phase, Sound Transit will re-evaluate these assumptions to provide a more detailed assessment of long-term impacts and identify detailed temporary construction limits to distinguish which wetlands and buffers could be restored.

Indirect long-term impacts might also occur due to construction and operation activities. Potential indirect long-term impacts for each project alternative include the following:

- Modification of wetland and wetland buffer vegetation (e.g., conversion of forest-dominated areas to shrub-dominated area due to vegetation maintenance intended to prevent trees and branches from interfering with operation of the light rail)
- Partial shading of wetlands and buffers from shadows cast beyond the elevated structure footprint
- Water quality degradation due to runoff from paved areas to surface waters or wetlands
- Alteration of wetland hydrology (disconnection, disruption, or change in water quantity)

Potential long-term impacts on wetlands and buffers for each segment and project alternative are summarized in Table 4-3 and shown on figures in Appendix D. Tables D-1, D-2, and D-3 in Appendix D present estimates of the area of individual wetlands and wetland buffers that would be subjected to long-term impacts each project alternative.

No Build Alternative

The No Build Alternative would not have any long-term impacts on wetlands or buffers in the study area. Conversely, implementing the No Build Alternative would not have potential beneficial environmental effects over the long term, such as implementing compensatory mitigation for impacts to wetlands, streams, and the regulatory buffers, or concentrating residential and commercial development in planned growth centers. Potential improvements in water quality would not be realized because stormwater runoff that would receive water quality treatment under the light rail alternatives would not receive water quality treatment under the No Build Alternative. Land development in areas away from such centers could cause degradation or loss of wetlands in outlying and rural areas.

Under the No Build Alternative, as well as all light rail alternatives, public agencies would continue current management practices within rights-of-way such as clearing for maintenance of vegetation and stormwater conveyance. Management activities would include periodic mowing, removal of dead or dying trees and tree limbs that could fall on the roadway, and clearing of brush that encroaches on the roadway. These activities would affect wetland vegetation and habitat by preventing trees and shrubs from becoming established in mowed areas, and preventing forested areas in the proposed right-of-way from developing natural features such as snags and downed wood.

Segment A: Seattle to Shoreline

The Preferred Alternative and all other light rail alternatives in Segment A are all located on the east side of I-5 from Northgate in Seattle to NE 185th Street in Shoreline, with the potential to affect seven wetlands totaling 0.9 acre (Table 4-3). Buffer impacts would range from 0.3 to 0.8 acre; the alternatives that include a station at NE 155th Street (Alternatives A5 and A7) would affect more wetland buffer area than the other alternatives. Impact quantities show slight variations based on the rail alignment and location of stations and detention ponds. Most affected wetland and buffer areas are within the WSDOT right-of-way; they are degraded, vegetated by invasive species, and disconnected from other habitats by roadways and development.

Table 4-3. Long-Term Impacts on Wetlands and Buffers by Project Alternative

Segment/Alternative	Wetland Area Affected (acres)	Wetland Buffer Area Affected[a] (acres)
Segment A: Seattle to Shoreline		
Preferred Alternative: At-grade/Elevated with NE 145th and NE 185th Street Stations A1: At-grade/Elevated with NE 145th and NE 185th Street Stations A3: Mostly Elevated with NE 145th and NE 185th Street Stations A10: At-grade/Elevated with NE 130th, NE 145th, and NE 185th Street Stations A11: Mostly Elevated with NE 130th, NE 145th, and NE 185th Street Stations	0.9[b]	0.3[b]
A5: At-grade/Elevated with NE 130th, NE 155th, and NE 185th Street Stations A7: Mostly Elevated with NE 130th, NE 155th, and NE 185th Street Stations	0.9[b]	0.8[b]
Segment B: Shoreline to Mountlake Terrace		
Preferred Alternative (B2 Modified): East Side to Mountlake Terrace Transit Center to West Side	0.8	1.6
Preferred Alternative (B2 Modified): East Side to Mountlake Terrace Transit Center to West Side with 220th Street SW Station option	0.5	1.6
B1: East Side to Mountlake Terrace Transit Center to Median	<0.1	0.9
B2A: East Side to Mountlake Terrace Transit Center to West Side with Optional 220th Street SW Station	1.6	1.3
B4: East Side to Mountlake Terrace Freeway Station to Median	0.2	0.7
Segment C: Mountlake Terrace to Lynnwood		
Preferred Alternative (C3 Modified): Along I-5 to Lynnwood Park-and-Ride Station	0.7	1.0
C1: 52nd Avenue West to 200th Street SW, Option 1 (Median) and Option 2 (West of I-5)	<0.1 / 0.2	0.7 / 1.1
C2: 52nd Avenue West to Lynnwood Transit Center, Option 1 (Median) and Option 2 (West of I-5)	0.9 / 1.1	0.6 / 1.1
C3: Along I-5 to Lynnwood Park-and-Ride, Option 1 (Median) and Option 2 (West of I-5)	0.2 / 0.3	1.0 / 1.7

[a] Wetland buffer impacts are based on local jurisdiction regulatory buffer widths (Seattle Municipal Code 25.09.160.C, Shoreline Municipal Code 20.80.330, Mountlake Terrace Municipal Code 16.15.090, and Lynnwood Municipal Code 17.10.051). Note that some impacts on wetlands and wetland buffers classified as long term would likely be temporary; see discussion in Section 1.4, Assumptions.

[b] The Seattle Municipal Code applies development restrictions and specifies mitigation requirements only within environmentally critical areas or buffers on publicly or privately held parcels. Five of the wetlands potentially affected by the proposed alignments (Wetlands WSE1, WSE3, WSE5, WSE6, and WSE7) are within the right- of- way for I-5 and are therefore not subject to City of Seattle buffer requirements. Actual wetland and wetland buffer impacts would be identified and mitigation requirements would be developed through local and other permitting processes.

Preferred Alternative: At-grade/Elevated with NE 145th and NE 185th Street Stations

The Preferred Alternative would result in 0.9 acre of wetland impact. Six wetlands would be considered a complete loss. The majority of each of these wetlands would be directly affected, leaving the remaining wetland area with altered hydrologic sources and/or reduced pre-project functions (although this could be considered an indirect impact, this analysis considers it likely to be concurrent with the project and therefore would be a direct impact). Four of these wetlands are located where the guideway is elevated (Wetlands WSE3, WSE5, WSE6, and WSH3), one occurs where the guideway is at-grade (Wetland WSH2), and one is at the NE 145th Street Station (Wetland WSH1). The NE 185th Street Station would not affect any wetlands. A portion of one potential wetland (PWSH4) would be affected by at-grade guideway.

The buffers of four wetlands (Wetlands WSE1, WSE4, WSE7, and WSE8) and one potential wetland (Wetland PWSH4) would be affected, totaling 0.3 acre[5]. Impacts to buffers of other wetlands mentioned above were not included in this calculation because those wetlands were considered to be complete losses. The guideway over the buffers of Wetlands WSE1, WSE4, WSE7, and WSE8 would be elevated, and the guideway would be at-grade through the buffer of Wetland PWSH4.

A1: At-grade/Elevated with NE 145th and NE 185th Street Stations

The wetland and wetland buffer impacts of Alternative A1 would be as described for the Preferred Alternative.

A3: Mostly Elevated with NE 145th and NE 185th Street Stations

The project limits and guideway alignment of Alternative A3 would be similar to the Preferred Alternative using the same station locations; however, most of the guideway would be elevated.

Alternative A3 would result in 0.9 acre of wetland impact. Similar to the Preferred Alternative, six wetlands would be considered a complete loss. Five of these wetlands are located where the guideway would be elevated (Wetlands WSE3, WSE5, WSE6, WSH2, and WSH3) and one (Wetland WSH1) is where the NE 145th Street Station and associated detention ponds would be located. The NE 185th Street Station would not affect any wetlands. A portion of one potential wetland (Wetland PWSH4) would be affected by the elevated guideway.

This alternative would affect the same wetland buffers as described for the Preferred Alternative. The amount of area affected in some individual buffers would differ slightly from that alternative (on the scale of 0.01 to 0.02 acre), but not enough to affect the total area of wetland buffer impacts. In contrast to the Preferred Alternative, the guideway would be elevated where it intersects all wetland buffers.

[5] The impacted buffers of Wetlands WSE1, WSE4, WSE7, and WSE8 (totaling 0.2 acre) are within road rights-of-way (i.e., not on publicly or privately owned parcels) in the city of Seattle and may not be subject to the City of Seattle Critical Areas Ordinance (Seattle Municipal Code 25.09).

A5: At-grade/Elevated with NE 130th, NE 155th, and NE 185th Street Stations

The alignment for Alternative A5 would be similar to that of the Preferred Alternative, but Alternative A5 would include stations at NE 130th Street and NE 155th Street instead of at NE 145th Street. Alternative A5 would result in 0.9 acre of wetland impact. Five wetlands would be considered a complete loss with four of these located where the guideway is elevated (Wetlands WSE3, WSE5, WSE6, and WSH3) and one where the guideway is at-grade (Wetland WSH2). The 130th Street, NE 155th Street, and NE 185th Street Stations would not affect any additional wetlands. Wetland WSH1 would not be a complete loss because no station is proposed at NE 145th Street. Only a small portion of the wetland would be crossed by elevated guideway. A portion of one potential wetland would be affected by elevated guideway (Wetland PWSH4).

This alternative (similar to Alternative A7) would affect buffers the most. The buffers of five wetlands (Wetlands WSE1, WSE4, WSE7, WSE8, and WSH1) and two potential wetlands (Wetlands PWSH4 and PWSH5) would be affected, totaling 0.8 acre[6]. The majority (0.6 acre) of buffer impacts would be associated with the elevated guideway. The other 0.2 acre of impacts would occur at the NE 155th Street Station.

A7: Mostly Elevated with NE 130th, NE 155th, and NE 185th Street Stations

Alternative A7 has a mostly elevated guideway similar to A3, but similar station choices as Alternative A5. As such, Alternative A7 would affect the same amount of wetland and wetland buffer area as Alternative A5, with impacts to the same wetlands and wetland buffers. In addition, as under Alternative A5, the only wetland affected by at-grade guideway would be Wetland WSH2.

A10: At-grade/Elevated with NE 130th, NE 145th, and NE 185th Street Stations

The project limits and guideway alignment of Alternative A10 would combine elements from Alternatives A1 and A5. Similar to those two alternatives, Alternative A10 would result in 0.9 acre of wetland impact. Six wetlands would be considered a complete loss with four of these located where the guideway is elevated (Wetlands WSE3, WSE5, WSE6, and WSH3), one where the guideway is at-grade (Wetland WSH2), and one at the NE 145th Street Station (Wetland WSH1). The NE 130th Street and NE 185th Street Stations would not affect any additional wetlands. A portion of one potential wetland would also be affected by elevated guideway (Wetland PWSH4).

This alternative would affect the same wetland buffers as described for the Preferred Alternative. The amount of area affected in some individual buffers would differ slightly from that alternative (on the scale of 0.01 to 0.02 acre), but not enough to affect the total area of wetland buffer impacts. In contrast to the Preferred Alternative, the guideway would be elevated where it intersects all wetland buffers.

A11: Mostly Elevated with NE 130th, NE 145th, and NE 185th Street Stations

The project limits and guideway alignment of Alternative A11 would be similar to A7 except that a station is proposed at NE 145th Street instead of at NE 155th Street (similar to Alternative A3).

Alternative A11 would result in 0.9 acre of wetland impact. Similar to the Preferred Alternative, six wetlands would be considered a complete loss. Five of these are located where the guideway would be elevated (Wetlands WSE3, WSE5, WSE6, WSH2, and WSH3) and one (Wetland WSH1) is where the NE 145th Street Station and associated detention ponds would be located. The NE 130th Street and NE 185th Street Stations would not affect any additional wetlands. A portion of one potential wetland would be affected by elevated guideway (Wetland PWSH4).

This alternative would affect the same wetland buffers as described for the Preferred Alternative. The amount of area affected in some individual buffers would differ slightly from that alternative (on the scale of 0.01 to 0.02 acre), but not enough to affect the total area of wetland buffer impacts. In contrast to the Preferred Alternative, the guideway would be elevated where it intersects all wetland buffers.

Segment B: Shoreline to Mountlake Terrace

Wetland impacts in Segment B would range from less than 0.1 acre (Alternative B1) to 1.6 acres (Alternative B2A). Buffer impacts would range from 0.7 acre (Alternative B4) to 1.6 acres (Preferred Alternative) (Table 4-3). All of the wetlands affected by the Segment B alternatives have relatively low quality ratings, based on habitat degradation, the presence of invasive species, and lack of connectivity with other wetlands.

Preferred Alternative (B2 Modified): East Side to Mountlake Terrace Transit Center to West Side with 220th Street SW Station option

The Preferred Alternative would result in 0.8 acre of wetland impact. Portions of four wetlands would be affected by elevated guideway (Wetlands WSH5, WMT5, WMT6, and WMT7). Reconstruction of the interchange ramps between I-5 southbound and 220th Street SW would result in the total loss of one wetland (WMT5). Implementation of the 220th Street SW Station Option under the Preferred Alternative would eliminate the need for reconstructing the interchange ramps between I-5 southbound and 220th Street SW, thereby avoiding Wetland WMT5 and reducing total wetland impacts to 0.5 acre (Table 4-3).

The buffers of eight wetlands (Wetlands WSH5, WMT1, WMT2, WMT3, WMT6, WMT7, WMT10, and WMT11) and one potential wetland (Wetland PWLY3) would be affected, totaling 1.6 acres. All buffer impacts would be associated with elevated guideway. In addition, a portion of the buffer associated with Wetland WMT3 would be affected by the construction of stairs associated with the Mountlake Terrace Transit Center Station.

B1: East Side to Mountlake Terrace Transit Center to Median

Among the Segment B alternatives, Alternative B1 would affect wetlands the least (less than 0.1 acre). Buffer impacts would total 0.9 acre. The elevated guideway would pass over a small portion of Wetland WSH5. The buffers of six wetlands (Wetlands WSH5, WMT1, WMT2, WMT3, WMT10, and WMT11) would be affected by elevated guideway and a portion of the buffer associated with Wetland WMT3 would be affected by the construction of stairs associated with the Mountlake Terrace Transit Center Station.

B2A: East Side to Mountlake Terrace Transit Center to West Side with Optional 220th Street SW Station

Alternative B2A would result in the greatest amount of wetland impacts among the Segment B alternatives (1.6 acres). Construction of the 220th Street SW Station, I-5 ramp relocations, and associated stormwater ponds would affect Wetlands WMT5 and WMT6 in their entirety. Similar to the Preferred Alternative, the Alternative B2A elevated guideway would also affect portions of Wetlands WSH5 and WMT7.

The buffers of seven wetlands (Wetlands WSH5, WMT1, WMT2, WMT3, WMT7, WMT10, and WMT11) and one potential wetland (Wetland PWLY3) would be affected, totaling 1.3 acres. All buffer impacts would be associated with elevated guideway. In addition, a portion of the buffer associated with Wetland WMT3 would be affected by the construction of stairs associated with the Mountlake Terrace Transit Center Station.

B4: East Side to Mountlake Terrace Freeway Station to Median

Alternative B4 would affect four wetlands (Wetlands WSH5, WMT1, WMT2, and WMT10), totaling 0.2 acre. Alternative B4 would affect a total of 0.7 acre of wetland buffers, associated with three of these four wetlands (Wetlands WSH5, WMT1, and WMT2). All wetland and buffer impacts would be associated with elevated guideway.

Segment C: Mountlake Terrace to Lynnwood

The Segment C alternatives include the Preferred Alternative and three other light rail alternatives. The Preferred Alternative would follow a route along the west side of I-5 before crossing over the Scriber Creek wetland complex to the Lynnwood Transit Center. Each of the other alternatives includes an option to start in the median (Option 1), or west of I-5 (Option 2), depending on the Segment B alternative. Wetland impacts range from less than 0.1 to 1.1 acres and buffer impacts range from 0.6 to 1.7 acres (Table 4-3). For each alternative, Option 1 would have less impact than Option 2 because Option 2 would affect a small (0.1 to 0.2 acre) portion of Wetland WLY3 that would not be affected by Option 1.

All Segment C wetland and buffer impacts are associated with elevated guideway. As a result, the amount of wetland and wetland buffer subject to long-term ground alteration would be less than reported in Table 4-3 because the alignment would be elevated through all areas where wetlands are present. The elevated guideway would span the smaller wetlands; in Wetland WLY4, only guideway support columns would be constructed in the wetland.

Preferred Alternative (C3 Modified): Along I-5 to Lynnwood Park-and-Ride Station

The Preferred Alternative would affect the wetland and buffer of three wetlands (Wetlands WLY3, WLY4, and WLY7), resulting in 0.7 acre of wetland impact and 1.0 acre of buffer impact. Most of the affected area would be associated with Wetlands WLY4 and WLY3.

C1: 52nd Avenue West to 200th Street SW

Among the light rail alternatives, Alternative C1 would affect the wetlands the least. Alternative C1 (Option 1) would result in less than 0.1 acre of impact to a single wetland (Wetland WLY4), affecting only a small area along the northern edge of the wetland complex. Alternative C1 (Option 1) would impact the buffers of two wetlands (Wetlands WLY3 and WLY4) and one potential wetland (Wetland PWLY5), for a total of 0.7 acre of buffer impact.

Alternative C1 (Option 2) would affect the same area of Wetland WLY4 as Option 1, and it would also affect approximately 0.1 acre of Wetland WLY3, totaling less than 0.2 acre of wetland impact. The buffers of these wetlands would be affected along with the buffers of Wetlands PWLY3 and PWLY5, resulting in 1.1 acre of wetland buffer impacts.

C2: 52nd Avenue West to Lynnwood Transit Center

Alternative C2 (both Options 1 and 2) would have the greatest wetland impacts among the Segment C alternatives, primarily because it would cross through the middle of Wetland WLY4. Similar to Alternative C1 (Option 1), Alternative C2 (Option 1) would affect only wetland (Wetland WLY4), resulting in 0.9 acre of wetland impact. Alternative C2 (Option 1) would impact the buffers of two wetlands (Wetlands WLY3 and WLY4), for a total of 0.6 acre of buffer impact.

Alternative C2 (Option 2) would affect the same area of Wetland WLY4 as Option 1, in addition to a small portion of Wetland WLY3, totaling 1.1 acres of impact. Buffers of these two wetlands along with the buffer of Wetland PWLY3 would be affected, resulting in 1.1 acre of wetland buffer impacts.

C3: Along I-5 to Lynnwood Park-and-Ride

Alternative C3 (Option 1) would affect one wetland (Wetland WLY4) and one potential wetland (Wetland PWLY1) resulting in 0.2 acre of wetland impact. Alternative C3 would cross a small portion along the southern edge of Wetland WLY4, affecting only slightly more area than Alternative C1. Alternative C3 (Option 1) would impact the buffers of three wetlands (Wetlands WLY4, WLY7, and WLY8) and one potential wetland (Wetland PWLY1), for a total of 1.0 acre of buffer impact.

Alternative C3 (Option 2) would affect the same areas of Wetlands WLY4 and PWLY1 as Option 1, in addition to a small portion of Wetland WLY3, totaling 0.3 acre of impact. Buffers of these three wetlands, along with the buffers of Wetlands WLY7, WLY8, and PWLY3 would be affected, resulting in 1.7 acres of wetland buffer impacts.

4.3.2 Construction Impacts

Similar to long-term impacts, construction-related impacts would occur where the project limits cross project limits cross wetlands or buffers. Construction impacts would be temporary, however, and would be limited to the period during and immediately following project construction. The construction period would last 6 years (from beginning of construction to beginning of operation). At most locations, ground-disturbing activities would be expected to last a year or two. Temporarily

disturbed sites would be replanted immediately following construction in each project segment, and vegetation would likely become reestablished within a year or two at most sites.

Wetlands could incur long-term temporary and short-term temporary impacts associated with construction:

- Long-term temporary impacts on wetlands occur when functions are affected in such a way that they can be restored to pre-impact performance, or will eventually be restored over time, but not within a year or so.
- Short-term temporary impacts last for a limited time, and functions return to pre-impact performance fairly soon (about 1 year or within one growing season of the impact).

The duration of construction impacts on emergent wetlands is generally short term while the impact duration on forested and scrub-shrub wetlands is typically long term. The amount of area that would be subject to long-term temporary versus short-term temporary impacts was not determined for this analysis because the boundaries of wetland vegetation types (emergent, scrub-shrub, and forested) have not yet been delineated. Such delineations would occur during the permitting phase of this project. It is assumed that areas temporarily affected during construction (access roads, staging areas, etc.) would be restored to pre-project conditions after construction.

Potential construction impacts include vegetation clearing and temporary site grading and filling for site access. Although detailed construction limits are not defined at this phase in the project design, potential construction limits have been estimated near streams, stream buffers, wetlands, and wetland buffers. Temporary impacts on wetlands and wetland buffers are summarized in Table 4-4. Tables D-4 and D-5 in Appendix D present estimates of the area of individual wetlands and wetland buffers that would be subjected to temporary, construction-related impacts under the project alternatives. In addition, some impacts on wetlands and wetland buffers that are categorized as long term would likely be temporary; see the discussion in Section 1.4, Assumptions. Construction impacts would be re-evaluated during the permitting phase.

Table 4-4. Construction Impacts on Wetlands and Buffers by Project Alternative

Segment/Alternative	Wetland Area Affected (acres)	Wetland Buffer Area Affected[a] (acres)
Segment A: Seattle to Shoreline		
All alternatives, including the Preferred Alternative[b]	0.0	0.0
Segment B: Shoreline to Mountlake Terrace		
Preferred Alternative	0.1	0.4
Preferred Alternative with 220th Street SW Station Option	0.1	0.4
B1: East Side to Mountlake Terrace Transit Center to Median	0.0	0.1
B2A: East Side to Mountlake Terrace Transit Center to West Side with Optional 220th Street SW Station	0.0	0.1
B4: East Side to Mountlake Terrace Freeway Station to Median	0.0	0.1

Table 4-4. Construction Impacts on Wetlands and Buffers by Project Alternative

Segment/Alternative	Wetland Area Affected (acres)	Wetland Buffer Area Affected[a] (acres)
Segment C: Mountlake Terrace to Lynnwood		
Preferred Alternative	0.3	0.2
C1: 52nd Avenue West to 200th Street SW, Option 1 (Median) and Option 2 (West of I-5)	0.0 / 0.0	<0.1 / <0.1
C2: 52nd Avenue West to Lynnwood Transit Center, Option 1 (Median) and Option 2 (West of I-5)	0.0 / <0.1	0.2 / 0.3
C3: Along I-5 to Lynnwood Park-and-Ride Option 1 (Median) and Option 2 (West of I-5)	0.0 / <0.1	<0.1 / 0.1

[a] Based on local jurisdiction regulatory buffer widths (Seattle Municipal Code 25.09.160.C, Shoreline Municipal Code 20.80.330, Mountlake Terrace Municipal Code 16.15.090, and Lynnwood Municipal Code 17.10.051).

[b] See Table 4-3 for permanent impacts, which include construction.

Temporary construction impacts could affect the functioning of wetlands within or adjacent to the construction limits for all light rail alternatives. Such impacts would be qualitative in nature and cannot be quantified. Potential adverse effects on wetlands and their functions would be minimized by the installation, monitoring, and maintenance of appropriate BMPs for the duration of construction. Wetland functions could be affected by soil compaction, accidental spills, noise and anthropogenic disturbance, potential increase of sediment input, and introduction of invasive species.

No Build Alternative

The No Build Alternative would not have any construction impacts on wetlands or buffers in the project vicinity. However, under the No Build Alternative as well as all light rail alternatives, public agencies would continue current management practices within rights-of-way such as clearing associated with maintenance of vegetation and stormwater conveyance (see long-term impacts discussion).

Segment A: Seattle to Shoreline

General construction limits beyond the project footprint were not identified for Segment A due to the alignment's location. It is assumed that because most of the alignment and associated features for the Segment A alternatives are situated on or adjacent to currently developed areas, no additional construction areas in wetlands or buffers would be required outside of the analytical buffer that was used to estimate long-term impacts. As noted in Section 1.4, Assumptions, not all areas within that analytical buffer would be subject to long-term impacts; some areas would be subject only to temporary impacts during construction. It was assumed for this analysis that the level of temporary construction impacts on vegetation would be commensurate with the level of long-term impacts. A similar assumption applies to impacts to wetlands and wetland buffers in Segment A. Based on that assumption, the construction-related effects of all Segment A alternatives, including the Preferred

Alternative, on wetlands would likely be the same, given that the long-term impacts would be the same for all six alternatives (Table 4-3). As for effects on wetland buffers, the long-term impacts of Alternatives A5 and A7 on buffers would be greater than those of the other alternatives, so the construction-related effects of those two alternatives would similarly be greater than those of the other alternatives. The impacts of the Preferred Alternative and Alternatives A1, A3, A10, and A11 on wetland buffers would all be similar (Table 4-3).

Segment B: Shoreline to Mountlake Terrace

The temporary, construction-related impacts of the Preferred Alternative on wetlands and wetland buffers would be greater than those of the other Segment B alternatives (Table 4-4). Alternatives B1, B2A, and B4 would all have no construction impacts on wetlands and similar acreages of construction impacts on buffers.

Segment C: Mountlake Terrace to Lynnwood

Alternative C1 would likely affect the wetlands the least during construction and the Preferred Alternative would have the most impact. This is due, in large part, to the construction of a temporary roadway or placement of fill in the wetland area for the alternative, which could increase the impacts beyond the levels assumed for the permanent facility. Options 1 and 2 for the Segment C alternatives would have similar construction-related impacts on wetlands and buffers.

To minimize the potential for impacts on ecosystem resources at the Scriber Creek wetland complex (Wetland WLY4) under the Preferred Alternative and Alternatives C2 and C3, temporary work trestles would be used for equipment access during construction of the elevated guideway across the wetland complex. The trestles would be supported by steel piles and would remain in position only as long as needed for the completion of projection construction. Any in-water work for trestle construction (including pile driving and pile removal) would be conducted in accordance with the terms of the HPA and other applicable permits obtained for the project.

4.4 Indirect and Secondary Impacts

Indirect and secondary impacts include those related to residential and commercial development near stations, or impacts on other resources from mitigation measures. Indirect impacts also include potential interference with possible future habitat restoration projects. For example, the presence of guideways, stations, or other facilities near streams could affect the potential replacement of existing fish passage barriers by limiting options for locations and types of fish-passable crossing structures.

Under any of the light rail alternatives, several factors would limit the potential for development near stations to adversely affect ecosystem resources. First, all proposed stations would be located in areas that are already densely developed. Second, any new development in these areas would be subject to review under local Critical Areas Ordinances, which would trigger the implementation of mitigation measures and practices aimed at avoiding or minimizing the potential for adverse effects on wetlands, aquatic species and habitat, and other natural resources such as fish and wildlife habitat conservation areas.

In most locations, the potential for construction of the light rail alternatives to interfere with possible future fish habitat restoration projects would be minimal because project features would be designed and located to avoid streams. Construction would occur above stream OHWMs and the guideways would be elevated at open stream crossings. As noted in Section 4.1.1, Long-Term Impacts, no culverts would be added or extended in any streams. Moreover, construction and operation of any of the light rail alternatives would not interfere with any anticipated culvert replacement projects in the I-5 right-of-way.

Exceptions could occur at two stream crossings. First, as discussed in Section 4.1.1, Long-Term Impacts, the construction of an elevated crossing of Scriber Creek under any of the light rail alternatives would entail the placement of support columns in areas that receive seasonal or intermittent flow. Based on the absence of human-made fish passage barriers within the wetland complex, however, it is unlikely that any fish passage improvement projects would be planned in that area.

The other location where construction of the light rail alternatives could interfere with possible future fish habitat restoration projects is at the crossing of Stream SMT1. The stream at this location is currently categorized as non-fish-bearing and is approximately 2,000 feet upstream of a culvert identified as a fish passage barrier in the I-5 right-of-way. . The alternatives that cross SMT1 (the Preferred Alternative and Alternatives B1 and B2A) would be elevated at this location. If the barrier culvert is removed and fish access to SMT1 is restored in the future, and if fish habitat improvement projects are subsequently planned for the stream reach crossed by the elevated guideway, it is possible that a guideway support column at this location could complicate the design of such habitat restoration projects. Such interference is unlikely to occur, however, because the stream channel at this location is poorly defined and the local topography offers ample opportunities for the creation of a channel that would avoid support columns or other structures..

During the permitting phase, Sound Transit will review available GIS data from local municipalities and identify culverts along documented and potential fish-bearing streams in the study area. That assessment will be used to further inventory locations where fish access improvement projects may occur in the future.

Actions taken to mitigate for impacts on other resources may have beneficial impacts on wetlands and aquatic species and habitats. For example, many jurisdictional wetlands in the study area are surrounded by heavily developed areas or are otherwise isolated from stream networks. Some mitigation measures for these wetlands could take the form of wetland habitat improvement or restoration in areas that contribute more directly to the functioning of stream systems, including those that support fish. To the extent that this occurs, such mitigation efforts could have a beneficial effect on aquatic species and habitats.

Additional long-term environmental benefits may result from the conversion of existing PGIS to non-PGIS (e.g., where elevated guideways intercept precipitation that would otherwise fall on high-traffic roadways). Such conversions would reduce the amount of untreated stormwater that drains from PGIS to watercourses in the study area, thereby decreasing pollutant loadings in receiving

waters. In addition, use of the Lynnwood Link Extension light rail system would be expected to reduce vehicle miles traveled by approximately 270,000 to 290,000 miles per day by 2035, with corresponding reductions in energy use, emissions, and related pollutants from vehicular traffic.

4.5 Cumulative Impacts

NEPA defines cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). Past actions and development have greatly changed the landscape in the study area and surrounding vicinity. Present and reasonably foreseeable future actions, including other transportation or infrastructure projects and other planned or pending land use actions or developments in the project vicinity could contribute to cumulative impacts on ecosystem resources in the study area. Impacts could include habitat loss, filling or clearing, altering hydrologic sources, or increasing pollutants and sedimentation in wetlands and streams. Not all reasonably foreseeable actions have the potential to result in adverse effects on the environment. For example, WSDOT and WDFW formed a cooperative program in 1991 to inventory and assess fish passage barriers on WSDOT facilities statewide. Culvert replacement and retrofitting projects through that program may improve fish access to streams in study area.

Several proposed site development projects could have some effect on ecosystem resources in the study area. These include a site in Mountlake Terrace, across 236th Street SW from the Mountlake Terrace Transit Center, that is envisioned by the City of Mountlake Terrace to accommodate higher-density development. The Edmonds School District master plan includes developing a bus base and administration center north of I-5 and east of 52nd Avenue West in Lynnwood. Construction of this facility could affect ecosystem resources such the Scriber Creek wetland complex. Sound Transit is considering a Link Operations and Maintenance Satellite Facility alternative in the same area, although a Bellevue site was identified as the Preferred Alternative. The Lynnwood site alternative would largely be built on previously developed parcels but a portion would extend into the Scriber Creek wetland complex. The impacts of these projects may include loss or degradation of vegetation, wildlife habitat, streams, wetlands, and associated buffer areas. These impacts would be both short term (e.g., temporary disturbance during construction) and long term (e.g., conversion of vegetated areas to impervious surface).

Future projects would generally have limited potential to adversely affect ecosystem resources. Any projects or land use actions would be subject to regulatory review and/or permitting under federal, state, and local regulations. The review and permitting processes would trigger implementation of measures to avoid or minimize impacts on ecosystem resources. Such processes would also result in compensatory mitigation for any unavoidable impacts to streams or stream buffers, wetlands, or wetland buffers. If combined with the effects of the Lynnwood Link Extension, there would be higher cumulative effects on ecosystem resources than if the impacts of each project were considered on its own. However, if avoidance and mitigation measures such as those described

below are applied for all projects, the effects would be reduced. Coordination among the project proponents could also help reduce impacts.

4.6 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 Lynnwood Link Extension would mitigate impacts on ecosystem resources in accordance with the mitigation sequencing requirements established by NEPA, the CWA, and local Critical Areas Ordinances.

According to NEPA (40 Code of Federal Regulations [CFR] paragraphs 1508.20), the sequence of mitigation is as follows:

a) Avoiding the impact altogether by not taking a certain action or parts of an action

b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation

c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment

d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action

e) Compensating for the impact by replacing or providing substitute resources or environments

Avoidance and Minimization

The avoidance and minimization of impacts was a guiding principle in the preliminary design of project alternatives; further avoidance and minimization measures would continue to be pursued as the project enters final design and permitting stages. Under any of the light rail alternatives, Sound Transit would comply with standard specifications, BMPs, and applicable federal, state, and local mitigation requirements during design, construction, and post-construction activities. A summary of BMPs that would be implemented to avoid and minimize impacts on ecosystem resources is provided in Appendix A.

Restoration of Construction Impacts

Immediately following construction in each project segment, Sound Transit would begin restoring temporarily disturbed wetlands, streams (if any work occurs below the OHWM of any streams), and buffer areas. The length of time that would be required for site restoration to effectively replace habitat functions would vary. Temporarily disturbed wetlands, streams, and their buffers would be restored to pre-construction conditions where feasible and planted with appropriate native species when construction activities are finished.

Compensatory Mitigation

For any wetland, stream, and buffer impacts that could not be avoided or adequately minimized, Sound Transit would replace the area and functions lost through compensatory mitigation. As appropriate, Sound Transit would apply the federal Final Compensatory Mitigation Rule (40 CFR Part 230); appropriate current available agency regulations; guidelines established jointly by Ecology, the U.S. Army Corps of Engineers, and U.S. Environmental Protection Agency in *Wetland Mitigation in Washington State* (Ecology et al. 2006); and local Critical Areas Ordinances for the cities of Seattle, Shoreline, Mountlake Terrace, and Lynnwood.

Mitigation for unavoidable impacts to streams, stream buffers, and wildlife habitat would be provided in accordance with the requirements of local critical areas ordinances. In general, those ordinances state that mitigation should prevent the net loss of ecological function; the means of achieving that goal are determined through individual permitting processes. Sound Transit's actions to mitigate for impacts on wetlands and wetland buffers (e.g., planting native trees and shrubs near wetland areas) would help offset the loss of some habitat for wildlife and contribute to improved ecological function of nearby streams and stream buffers. Tree planting required for compliance with WSDOT's and local jurisdictions' tree protection rules would also help mitigate impacts to streams, stream buffers, and wildlife habitat. Lastly, planting of trees and shrubs to mitigate visual impacts (including in replacement lands for affected WSDOT beautification areas along I-5) would also provide ecological benefits.

Sound Transit has committed to achieving no net loss of ecosystem function and acreage on a project-wide basis. This includes a commitment to no net loss of wetland functions and wetland areas. Long-term impacts on wetlands and buffers could be mitigated by one or more of the following approaches:

- Approved mitigation bank
- King County in-lieu fee program
- Project-specific mitigation developed by Sound Transit

Also, Sound Transit would consider opportunities to establish mitigation in advance of the impacts from future construction of the Lynnwood Link Extension.

Approved Mitigation Bank

Currently, there are no existing approved mitigation banks in the project area basins. Although it is possible that a bank could become certified with service in the project area in the future, mitigation banking projects take considerable lead time for planning and approval.

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 the U.S. Army Corps of Engineers in March 2012 (King County 2012). The program includes service areas within King County for the Thornton Creek basin and McAleer Creek basin in the Cedar River/Lake Washington watershed. Sound Transit would discuss this

program with the Cities of Seattle and Shoreline to determine whether this program could be applicable to the Lynnwood Link Extension.

Project-specific Mitigation Developed by Sound Transit

Both the *Wetland Mitigation in Washington State* guidance and local 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) (Tables 4-5 through 4-9). These replacement ratios are guidelines from which case-by-case consideration start. To determine the appropriate mitigation ratios for this project, the project team may propose adjustments to these guidelines to consider unique project circumstances.

Table 4-5. Recommended Wetland Mitigation Ratios for Projects in Western Washington [a]

Category of Wetland Impacts	Re-establishment or Creation	Rehabilitation Only	Re-establishment or Creation (R/C) and Rehabilitation (RH)	Re-establishment or Creation (R/C) and Enhancement (E)	Enhancement Only
Category II	3:1	6:1	1:1 R/C and 4:1 RH	1:1 R/C and 8:1 E	12:1
Category III	2:1	4:1	1:1 R/C and 2:1 RH	1:1 R/C and 4:1 E	8:1
Category 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] Ecology et al. (2006)

Table 4-6. City of Seattle Wetland Mitigation Ratios[a]

Category of Wetland Impacts	Restoration or Creation	Enhancement
Category II	3:1	16:1
Category III	2:1	8:1
Category IV	1.5:1	6:1

[a] Seattle Municipal Code 25.09.160.E.5. Only applicable to development on publicly or privately owned parcels.

Table 4-7. City of Shoreline Wetland Mitigation Ratios[a]

Category of Wetland Impacts	Creation	Enhancement
Type II	3:1	12:1
Type III	2:1	8:1
Type IV	1.5:1	6:1

[a] Shoreline Municipal Code, Table 20.80.350D

Table 4-8. City of Mountlake Terrace Wetland Mitigation Ratios[a]

Category of Wetland Impacts	Creation	Enhancement
Category II	Forested 3:1	6:1
	Scrub/Shrub 2:1	4:1
	Emergent 2:1	4:1
Category III	Forested 3:1	6:1
	Scrub/Shrub 2:1	4:1
	Emergent 2:1	4:1
Category IV	1.25:1	2.5:1

[a] Mountlake Terrace Municipal Code 16.15.110.C.2

Table 4-9. City of Lynnwood Wetland Mitigation Ratios[a]

Category of Wetland Impacts	Creation or Restoration	Enhancement[b]
Category II	3:1	-
Category III	2:1	-
Category IV	1.5:1	-

[a] Lynnwood Municipal Code 17.10.055
[b] Ratios not specified for enhancement

Compensatory mitigation would also be provided for long-term temporary impacts and conversion of wetlands from one type to another (e.g., forested wetland to emergent or scrub-shrub wetland). Generally, compensation for long-term temporary impacts is one-quarter of the typical ratios for long-term (permanent) impacts and one-half for conversion of wetlands. Impacts on buffers would generally be replaced at a minimum ratio of 1:1 using buffer enhancement.

The mitigation approach to compensate for unavoidable impacts caused by the project may consist of on-site mitigation, off-site mitigation, or a combination of the two. Opportunities for wetland mitigation 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 is environmentally and economically desirable to maximize the ecological functions at sites by consolidating as many mitigation requirements as possible at the least number of mitigation sites. It may be necessary to use several sites and approaches to mitigation given the size of this light rail project, the variety of impacts, complexity of identifying mitigation opportunities, and satisfying 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, the U.S. Army Corps of Engineers, and the U.S. Environmental Protection Agency (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 on-site mitigation. Potential sites currently under consideration for project-specific mitigation for impacts on wetlands and wetland buffers are described below.

North Seattle Community College Campus

Various opportunities for wetland restoration and enhancement may be present on the North Seattle Community College Campus, although other projects proposed in the vicinity may reduce the area available.

Jackson Park Golf Course/5th Avenue NE

Potential wetland and riparian mitigation could be accomplished along the east side of the 5th Avenue NE right-of-way and the Jackson Park Golf Course, particularly along Thornton Creek.

NE 145th Street Vicinity

Two potentially available parcels near Paramount Park in Shoreline may provide opportunities for wetland protection and restoration.

NE 155th Street Station Vicinity

Wetland creation may be possible south of the NE 155th Street Station (proposed under Alternatives A5 and A7) near the locations of Wetlands PWSH4 and PWSH5.

Ballinger Lake Golf Course

The City of Mountlake Terrace will be transitioning the Ballinger Lake Golf Course to a passive park/open space, which could create wetland restoration opportunities.

Scriber Creek Wetland Complex (Wetland WLY4)

Wetland and stream mitigation opportunities are present in the Scriber Creek vicinity near the Lynnwood Transit Center. These parcels are under both public and private ownership, including parcels that could be acquired by Sound Transit because they intersect with areas needed for the light rail right-of-way. A private parcel on Cedar Valley Road, along the western edge of the wetland complex, could also provide an opportunity for mitigation. These mitigation opportunities may include wetland creation, restoration, or enhancement.

5 REFERENCES

Audubon Society. 2011. Database search of Christmas Bird Count data for the Seattle survey area, 2000-2010. Available at: http://birds.audubon.org/historical-results. Database accessed September 19, 2011.

Brinson, M.M. 1993. A Hydrogeomorphic Classification for Wetlands. Wetlands Research Program Technical Report WRP-DE-4. U.S. Army Corps of Engineers Waterways Experiment Station. Vicksburg, MS.

Celedonia, M. T., R. A. Tabor, S. Sanders, D. W. Lantz, and I. Grettenberger. 2008. Movement and Habitat Use of Chinook Salmon Smolts and Two Predatory Fishes in Lake Washington and the Lake Washington Ship Canal - 2004-2005 Acoustic Tracking Studies. U.S. Fish and Wildlife Service. Lacey, WA. 116 pages.

City of Lynnwood. 2004. Final Supplemental Environmental Impact Statement for the Lynnwood City Center Sub-area Plan. September 9, 2004. Available at: http://www.lynnwoodeconomicdevelopment.org/CityCenter.ashx?p=1489.

City of Seattle. 2007. State of the Waters 2007. Volume I: Seattle Watercourses. Available at: http://www.ci.seattle.wa.us/util/Services/Drainage_&_Sewer/Keep_Water_Safe_&_Clean/RestoreOurWaters/ProgramDocuments/index.htm. Accessed March 13, 2012.

Corps (U.S. Army Corps of Engineers). 1987. *Corps of Engineers Wetland Delineation Manual.*

Corps (U.S. Army Corps of Engineers). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). U.S. Army Engineer Research and Development Center. Vicksburg, MS.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS-70/31, U.S. Fish and Wildlife Service. Washington, D.C.

Ecology (Washington State Department of Ecology), U.S. Army Corps of Engineers Seattle District, and U.S. Environmental Protection Agency Region 10. 2006. Wetland Mitigation in Washington State – Part 1: Agency Polices and Guidance (Version 1) and Part 2: Developing Mitigation Plans (Version 1). Washington State Department of Ecology Publication #06-06-011a and b. Olympia, WA. March 2006.

DeVries, P., F. Goetz, K. L. Fresh, and D. E. Seiler. 2004. Evidence of a lunar gravitation cue on timing of estuarine entry by Pacific salmon smolts. Transactions of the American Fisheries Society 133:1379–1395.

Ecology (Washington State Department of Ecology). 2012a. 2012 Washington State Water Quality Assessment (305[b] report and 303[d] list). Available at http://www.ecy.wa.gov/programs/wq/303d/currentassessmt.html. Accessed March 21, 2014.

Ecology (Washington State Department of Ecology). 2012b. Stormwater Management Manual for Western Washington, Volumes I – V. Publication Number 12-10-030. Prepared by

Washington State Department of Ecology Water Quality Program. Olympia, Washington. August 2012.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, Environmental Laboratory, Department of the Army, Waterways Experiment Station. Vicksburg, MS.

ESA Adolfson. 2010. Sound Transit 2 Mitigation: Impact Summary and Analysis Memorandum. December 3, 2010. Prepared for Sound Transit. Seattle, WA.

Sound Transit. 2011. East Link Light Rail Project, Seattle, Washington: Final Environmental Impact Statement. Appendix H3, Ecosystems Technical Report. Prepared by CH2M HILL. Seattle, WA.

Hendry, A.P., T.P. Quinn, and F.M. Utter. 1996. Genetic Evidence for the Persistence and Divergence of Native and Introduced Sockeye Salmon (*Oncorhynchus nerka*) within Lake Washington, Washington. Canadian Journal of Fisheries and Aquatic Sciences 53:823-832.

Hinman, C. 2012. Low-Impact Development: Technical Guidance Manual for Puget Sound. December 2012. Puget Sound Partnership and WSU Extension Service. Publication No. PSP 2012-3.

Hruby, T. 2004. Washington State Wetland Rating System for Western Washington – Revised. Washington State Department of Ecology Publication #04-06-025. Olympia, WA.

Hruby, T., K. Harper, and S. Stanley. 2009. Selecting Wetland Mitigation Sites Using a Watershed Approach. Washington State Department of Ecology Publication #09-06-032. Olympia, WA.

Jackson, S.D. 2003. Ecological Considerations in the Design of River and Stream Crossings. In: Proceedings of the International Conference on Ecology and Transportation, edited by C. Leroy Irwin, Paul Garrett, and K.P. McDermott. Raleigh, NC: Center for Transportation and the Environment, North Carolina State University. 10 pp.

Johnson, D.H. and T.A. O'Neil (managing directors). 2001. Wildlife-habitat Relationships in Oregon and Washington. Oregon State University Press. Corvallis, OR.

Jones and Stokes. 2000. Stream Habitat Analysis. Report 2 – Salmonid Habitat Assessment. Report prepared for the City of Lynnwood, WA. October 2000.

Kerwin, J. 2001. Salmon and Steelhead Habitat Limiting Factors Report for the Cedar-Sammamish Basin (Water Resource Inventory Area 8). Report prepared for the Washington Conservation Commission. Olympia, WA. September 2001.

King County Department of Natural Resources. 2000. Literature Review and Recommended Sampling Protocol for Bull Trout in King County. Seattle, WA. Available at: http://your.kingcounty.gov/dnrp/library/2000/kcr848.pdf.

King County. 2012. Mitigation Reserves Program – King County, Washington. Available at: http://www.kingcounty.gov/environment/waterandland/wetlands/mitigation-credit-program.aspx.

King County. 2014a. Stream report for Thornton Creek (Station 0434) and McAleer Creek (Station A432). Available at http://green.kingcounty.gov/wlr/waterres/streamsdata/watershedinfo.aspx. Accessed March 21, 2014.

King County. 2014b. Water Quality Index report for Thornton Creek (Gauge #58A). Available at http://green.kingcounty.gov/wlr/waterres/streamsdata/WQIReport.aspx?Locator=0434. Accessed March 21, 2014.

King County. 2014c. Water Quality Index Report for McAleer Creek (Gauge #35c). http://green.kingcounty.gov/wlr/waterres/streamsdata/WQIReport.aspx?Locator=A432. Accessed March 21, 2014.

Knutson, K. L., and V. L. Naef. 1997. Management recommendations for Washington's priority habitats: riparian. Washington Department of Fish and Wildlife, Olympia. 181pp.

Martin, D. J., M. E. Robinson, and R. A. Grotefendt. 1998. The effectiveness of riparian buffer zones for protection of salmonid habitat in Alaska coastal streams. Alaska Forest Association, Ketchikan, AK. 85 p.

McDade, M. H., F. J. Swanson, W. A. McKee, J. F. Franklin, and J. Van Sickle. 1990. Source distances for coarse woody debris entering small streams in western Oregon and Washington. Canadian Journal of Forest Research. Volume 20, pages 326 to 330.

McKinley, M. 1997. Large woody debris source distances for western Washington Cascade streams. Unpublished report. Undergraduate senior research project, College of Forest Resources, University of Washington, Seattle, WA. 36 pages.

McMillan, B. 2007. The Spawning Survey Findings from Seattle's Thornton, Piper's, Longfellow, Fauntleroy and Taylor Creeks, September 21, 2006 to January 24, 2007. Also including the cumulative spawning survey data from 1999-2006 and Des Moines Creek in 2003 and 2004. Prepared by the Wild Fish Conservancy for Seattle Public Utilities. April 2007.

Murphy, M. L. and K. V. Koski. 1989. Input and depletion of woody debris in Alaska streams and implications for streamside management. North American Journal of Fisheries Management. Volume 9(4), pages 427 to 436.

Null, W.S., G. Skinner, and W. Leonard. 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office, Olympia, Washington.

Opperman, H., K.M. Cassidy, T. Aversa, E.S. Hunn, and B. Senturia. 2006. Sound to Sage: Breeding Bird Atlas of Island, King, Kitsap, and Kittitas Counties, Washington. Published at http://www.soundtosage.org by the Seattle Audubon Society. Version 1.1. September 2006.

Otak et al. 2009. Greater Lake Ballinger/McAleer Creek Watershed Study Draft Strategic Action Plan. Prepared by Otak, Inc., Golder Associates, Inc., Clear Creek Solutions, Inc., and EnviroIssues. May 2009.

Snohomish County. 2002. Swamp Creek Drainage Needs Report. DNR No. 2. Prepared by Snohomish County Public Works, Surface Water Management Division. Everett, WA.

Sound Transit. 2006. North Link Light Rail Transit Project Final Supplemental Environmental Impact Statement. Seattle, WA.

Sound Transit (Central Puget Sound Regional Transit Authority). 2012. Design Criteria Manual. Revision 1. Seattle, WA. February 2012.

Sound Transit. 2014. Lynnwood Link Light Rail Transit Project draft biological assessment. Seattle, WA.

Tetra Tech/KCM. 2004a. Thornton Creek and West Lake Washington basins characterization report. Report prepared for the City of Shoreline. May 2004.

Tetra Tech/KCM. 2004b. McAleer Creek and Lyon Creek basins characterization report. Report prepared for the City of Shoreline. May 2004.

Tabor, R.A., G.S. Brown, and V.T. Luiting. 2004. The effect of light intensity on sockeye salmon fry migratory behavior and predation by cottids in the Cedar River, Washington. North American Journal of Fisheries Management, 24: 128-145.

Tabor, R.A., D.W. Lantz, and S.T. Sanders. 2010. Distribution and habitat use of fish in Seattle's streams: Final Report, 2005 and 2006. U.S. Fish and Wildlife Service, Washington Fish and Wildlife Office. Lacey, WA. 122 pages.

Tschaplinski, P. J., and G. F. Hartman. 1983. Winter distribution of juvenile coho salmon (*Oncorhynchus kisutch*) before and after logging in Carnation Creek, British Columbia, and some implications for overwinter survival. Canadian Journal of Fisheries and Aquatic Sciences 40:452-461.

Thornton Creek WMC. 2001. Thornton Creek Draft Watershed Action Plan. Thornton Creek Watershed Management Committee and City of Seattle. May 2001.

Trotter, P.C. 2000. Headwater fishes and their uppermost habitats: a review as background for stream typing. Timber, Fish, and Wildlife Report TFW-ISAG1-00-001 to Washington Department of Natural Resources, Olympia, Washington.

USFWS (U.S. Fish and Wildlife Service). 2014. Listed and Proposed Endangered and Threatened Species and Critical Habitat; Candidate Species; and Species of Concern in King County and Snohomish County, Washington. Available at: http://www.fws.gov/wafwo/speciesmap_new.html. Accessed March 24, 2014.

Walter, K. 2013. Muckleshoot Indian Tribe Fisheries Division Habitat Program preliminary comments to the Lynnwood Link preliminary draft Ecosystems technical report. Sent via e-mail from Karen Walter, Watersheds and Land Use Team Leader, Muckleshoot Indian Tribe, to Lauren Swift, Environmental Planner, Sound Transit. February 28, 2013. 5 pages.

Washington DNR (Department of Natural Resources). 2014. Forest Practices Application Review System: Water Type Map. Available at http://www.dnr.wa.gov/businesspermits/topics/forestpracticesapplications/pages/fp_watertyping.aspx

WDFW (Washington Department of Fish and Wildlife). 1999. Bull trout of the Snohomish River system. Washington Department of Fish and Wildlife, Mill Creek, Washington.

WDFW (Washington Department of Fish and Wildlife). 2012. Salmonid Stock Inventory (SaSI) 2002. Olympia, WA. Available at: http://wdfw.wa.gov/conservation/fisheries/sasi/. Updated August 13, 2012.

WDFW (Washington Department of Fish and Wildlife). 2013. Salmon and steelhead species in Washington: population status. Available at: https://fortress.wa.gov/dfw/score/score/species/species.jsp. Accessed May 1, 2013.

WDFW (Washington Department of Fish and Wildlife). 2014a. SalmonScape fish database and mapping application. Available at: http://apps.wdfw.wa.gov/salmonscape/.

WDFW (Washington Department of Fish and Wildlife). 2014b. PHS on the Web: An interactive map of WDFW priority habitats and species information for project review. Available at: http://wdfw.wa.gov/mapping/phs/.

WDFW (Washington Department of Fish and Wildlife). 2014c. Fish passage barrier inventory. GIS layer. Available at: http://geography.wa.gov/GeospatialPortal/dataDownload.shtml. Downloaded March 26, 2014.

Weitkamp, D.E., and G.T. Ruggerone. 2000. Factors Affecting Chinook Salmon Populations, Background Report. Prepared by Parametrix, Inc., Natural Resources Consultants, and Cedar River Associates for City of Seattle, Washington. 224 pp.

Williams, R.W., R.M. Laramie, and J.J. Ames. 1975. A Catalog of Washington Streams and Salmon Utilization, Volume 1, Puget Sound Region. Washington Department of Fisheries. Olympia, WA.

APPENDIX A

Best Management Practices for Ecosystem Resources

APPENDIX A – BEST MANAGEMENT PRACTICES FOR ECOSYSTEM RESOURCES

This description of measures is a compilation of best management practices (BMPs) that can be used to avoid and minimize temporary construction and long-term impacts of the Lynnwood Link Extension on sensitive ecosystem resources. These BMPs are either required by state or federal agencies to obtain permits required for the project or may be required to comply with typical permit conditions. They are based on Sound Transit's knowledge of permit requirements and experience with conducting environmental compliance and permitting for numerous other projects in the Puget Sound area.

Construction Best Management Practices

General Best Management Practices for All Sensitive Areas

Sound Transit's construction contractor would implement construction BMPs that would apply to all work in or around sensitive areas. The construction contractor would work within construction limits marked with fencing and signage to prevent unintended impacts on riparian vegetation, wetlands, woodlands, and other sensitive sites outside of the construction limits. The construction limits would be clearly marked with high-visibility construction fencing and signage prior to any ground-disturbing or construction-related activities. There would be no direct site disturbance outside of the construction limits.

Soil or rock stockpiles, excavated materials, or excess soil materials would be prevented from eroding into sensitive habitats, including stream channels, wetlands, and riparian areas outside of the construction limits by high water or storm runoff. Before discharging or allowing runoff from the project site, the construction contractor would be required to develop, implement, and monitor a Temporary Erosion and Sediment Control (TESC) plan to address potential erosion for the duration of construction. The contractor would implement the plan before discharging or allowing runoff from the site. Monitoring requirements specified in the TESC would provide feedback to ensure that the erosion control practices are operating properly and effectively. BMPs would limit soil compaction in sensitive areas. For example, tracked equipment rather than tire-based equipment may be used in areas that are sensitive to adverse effects from soil compaction. Temporary work trestles or other measures that minimize impacts would be used where practical, such as the Scriber Creek wetland complex.

Other measures to reduce the risk of erosion and sedimentation may include the following:

- Installing erosion control blankets or an equally effective BMP on steep slopes that are susceptible to erosion and where ground-disturbing activities have occurred, in order to prevent erosion and assist with establishment of native vegetation.
- Covering material temporarily stored for use in project activities with plastic or other impervious material during rain events to prevent sediments from being washed from the storage area to surface waters

- Inspecting temporary and permanent erosion and sedimentation control measures on a regular basis and maintaining and repairing the measures to ensure continued performance of their intended function
- Inspecting silt fences after each rainfall, and at least daily during periods of prolonged rainfall.

Fish and Aquatic Habitat Protection

All work below the OHWM of streams in the study area would comply with the terms and conditions set forth in the Hydraulic Project Approval (HPA) issued for the project by the Washington Department of Fish and Wildlife (WDFW). The HPA program is the vehicle through which WDFW regulates activities that affect the bed or flow of waters of the state for the protection of fish life. An HPA is required for construction or structural work associated with any bridge structure or culvert construction within or below the ordinary high water mark (OHWM) of waters of the state. HPAs typically specify provisions designed to avoid or minimize the potential for adverse effects on habitat in receiving waters. Provisions required for the Lynnwood Link Extension could include restrictions on construction periods below the OHWM and/or other measures designed to avoid or minimize the potential for construction activities to deliver sediment or pollutants to streams.

In accordance with typical requirements of an HPA, when large woody debris must be moved to allow the reasonable use of an over-water or in-water facility, the large woody debris would be returned to the water downstream, where it would continue to provide aquatic habitat function. To reduce the risk of adverse effects on migrating salmonids during project construction, Sound Transit would require construction contractors to direct lighting away from fish-bearing waters and to place hoods or shields on lights, as needed, to minimize the amount of backlight or dispersed light cast toward the water's surface.

Any affected streambeds and stream banks would be permanently restored after in-water work with plantings of native or approved woody and herbaceous species within 1 year of completion of each phase of construction. Bank protection would follow the guidelines set forth in WDFW's *Integrated Streambank Protection Guidelines* (http://wdfw.wa.gov/hab/ahg/ispgdoc.htm).

Water Quality Protection

The federal Clean Water Act (CWA) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the CWA is the National Pollutant Discharge Elimination System (NPDES) permit program, which is administered by the U.S. Environmental Protection Agency (EPA). EPA has delegated responsibility to administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48 of the Revised Code of Washington, which defines the authority and obligations of the Washington State Department of Ecology (Ecology) in administering the wastewater discharge permit program. The project would obtain and adhere to a NPDES construction stormwater general permit to reduce or eliminate stormwater pollution and other impacts on surface waters. The construction contractor

would be required to adhere to water quality standards as stated in the 401 Water Quality Certificate and NPDES permit issued for the project.

Ecology's construction stormwater general permit is required for certain construction activities. The goal of the permit program is to reduce or eliminate stormwater pollution and other impacts on surface waters.

The project must complete a Notice of Intent (NOI) for coverage under the permit. A construction stormwater pollution prevention plan, approved by Ecology, would also be implemented before the start of construction. The plan would include BMPs to (1) prevent erosion; (2) prevent sedimentation; and (3) identify, reduce, eliminate, or prevent stormwater contamination and water pollution from construction activity. The Construction Stormwater Pollution Prevention Plan would include a TESC plan that includes BMPs such as silt fences; protective ground covers, such as straw, plastic sheeting, or jute mats; straw bales in drainage features; a Spill Prevention, Control, and Countermeasures Plan; a Concrete Containment and Disposal Plan; Dewatering Plan; and a Fugitive Dust Plan.

Turbid water produced (including untreated water from dewatering activities) would be prevented from discharging to fish-bearing waters or wetlands. Turbid wastewater may be routed to temporary or permanent detention facilities, or to upland areas that provide adequate rates of infiltration.

In accordance with conditions of a typical HPA, heavy equipment used during the course of in-water work would operate from above the OHWM wherever possible. Use of equipment below the OHWM would be limited to that necessary to gain position for work. Drive mechanisms would not enter or operate below the OHWM, except under the terms of the HPA issued by WDFW. Work areas below the OHWM would be isolated from other surface waters with a coffer dam or similar system to prevent suspended sediment or pollutants from leaving the work area.

Uncured concrete and/or concrete byproducts would be prevented from coming in contact with streams or water conveyed directly to streams during construction. A concrete truck chute cleanout area or equally effective BMP would be established to properly contain wet concrete. Any water having direct contact with uncured concrete would be contained and treated or removed from the site (as appropriate) to prevent discharge to streams or wetlands.

If any permanent footings or drilled or pile-driven shafts are installed below the OHWM, installation would be conducted in a manner consistent with Section 404 and other permits issued for the project by the Corps and other parties (as applicable). When constructing drilled shafts, the contractor would ensure that all drilling equipment, drill recovery and recycling pits, and any waste or spoil produced are properly contained to prevent discharge of drill wastes or fluids to any surface water or wetlands.

Equipment (excluding track-mounted equipment, large cranes, and other relatively immobile equipment) would be refueled and maintenance activities conducted at a distance from the nearest wetlands, ditches, and flowing or standing water approved by regulatory permits. Appropriate spill prevention measures and fuel containment systems would be designed and implemented to completely contain a potential spill as specified in the Spill Prevention, Control, and

Countermeasures Plan. As appropriate, equipment used for construction activities would be cleaned before arriving at the project site to ensure no potentially hazardous materials are exposed, no leaks are present, and the equipment is functioning properly. Wash water would not be discharged directly into any water body without pretreatment. Construction equipment and vehicles would be maintained to prevent them from leaking fuel or lubricants. Should a leak be detected on heavy equipment used for the project, the equipment would be repaired before use.

Vegetation and Wildlife Protection

The measures listed below would be implemented before and during project construction to avoid or minimize effects on vegetation and wildlife resources. These measures would be implemented along with others designed to avoid or minimize effects on other resources, such as streams, wetlands, and soils. The additional measures would be expected to provide more protection to vegetation and wildlife resources within and adjacent to streams and wetlands.

- Limit construction activity to a relatively small area immediately adjacent to the existing cleared area to minimize vegetation clearing and leave as much vegetation undisturbed as possible.
- As appropriate, restore areas temporarily affected by construction to pre-construction conditions or better through replanting or reseeding.
- Prepare and implement a revegetation plan that emphasizes the use of native species as appropriate.
- In accordance with the Migratory Bird Treaty Act, consult with USFWS on methods to implement during construction to avoid impacts on migratory birds. Such methods could include conducting pre-construction surveys for migratory birds and/or placing restrictions on vegetation clearing during the breeding season for migratory birds.
- To minimize the extent of habitat disturbance associated with the removal of potential hazard trees, Sound Transit would identify and remove such trees on an individual basis, based on tree species, tree health, and distance from the alignment.

In addition to the measures identified above, a monitoring plan and adaptive management plan would be implemented, as directed by permit requirements, for revegetated sensitive areas or buffers. The plans would generally require verification of 100 percent survival of all installed native trees and shrubs 1 year after installation. The performance criteria would be met if all dead plants are replaced at the end of the first year. Native woody species (planted and volunteer) must generally maintain a density of four plants per 100 square feet in each plant community by the end of the 3-year period. Plant communities would be identified in the mitigation plan.

Control of Noxious and Invasive Species

The most effective means of reducing the introduction and spread of noxious and invasive species are weed control and restoration of disturbed construction sites with native plant species suitable for the type of site disturbed. Weed control is important before and during construction. Per federal,

state, and local requirements and guidance, Sound Transit would implement appropriate measures to minimize risk of introduction and spread of noxious and invasive species, including restoring temporarily disturbed areas immediately following construction in each project segment. To minimize use of herbicides and fertilizers, restoration of disturbed areas would include the use of mulching, ground cover, and other planting strategies that discourage growth of undesirable species.

Design and Operation Best Management Practices

The project would install permanent stormwater runoff treatment and flow control facilities where needed to comply with Sound Transit's *Design Criteria Manual* (Sound Transit 2012).

The project would incorporate stormwater conveyance and flow control facilities that promote infiltration where applicable and permittable.

The project would select, design, and install runoff treatment BMPs that are best suited to the site conditions and best capable of achieving the required levels of treatment (subject to negotiation with the local jurisdiction and/or Ecology). These could include natural or engineered dispersion BMPs; biofiltration BMPs such as vegetated filter strips, biofiltration swales, or ecology embankments; wet-pool BMPs; and infiltration BMPs.

The project would route drainage to maintain existing stream basin contributing areas.

Sound Transit would coordinate with WSDOT, local jurisdictions, and resource agencies conducting restoration projects in the area to minimize the potential for light rail facilities to interfere with future restoration projects.

Except in cases where hazard trees pose an immediate threat to light rail safety or reliability, vegetation maintenance and hazard tree removal would be conducted outside of the breeding season for migratory birds.

The project would implement pesticide application techniques, in accordance with current Ecology water quality agreements, to minimize the impact on aquatic and terrestrial environments.

APPENDIX B

Wetland and Stream Delineation Report

SOUNDTRANSIT
RIDE THE WAVE

Lynnwood Link Extension

Technical Report

Wetland and Stream Delineation

401 South Jackson Street
Seattle, WA 98104-2826

February 2015

North Corridor Transit Partners
PARAMETRIX + PARSONS BRINCKERHOFF

Table of Contents

1 Introduction 1-1
1.1 Project Overview 1-1
1.2 Purpose of Report 1-1
1.3 Study Area 1-1
2 Methods 2-1
2.1 Data Gathered 2-1
2.1.1 Agency Coordination 2-1
2.1.2 Maps and Existing Documentation 2-1
2.2 Field Surveys 2-2
2.3 Wetland Identification and Classification 2-3
2.3.1 Wetland Identification 2-3
2.3.2 Wetland Classification and Rating 2-5
2.3.3 Wetland Functional Assessment 2-5
2.4 Stream Identification and Classification 2-6
2.4.1 Stream Identification 2-6
2.4.2 Stream Classification 2-7
3 Results 3-1
3.1 Wetlands 3-1
3.1.1 Seattle 3-6
3.1.2 Shoreline 3-13
3.1.3 Mountlake Terrace 3-18
3.1.4 Lynnwood 3-29
3.2 Streams 3-34
3.2.1 Thornton Creek and Tributaries 3-35
3.2.2 McAleer Creek and Tributaries 3-36
3.2.3 Scriber Creek and Tributaries 3-39
4 References 4-1

LIST OF TABLES

Table 2-1. Key to Plant Indicator Status Categories 2-5

Table 2-2. Wetland Categories and Buffer Requirements for Wetlands Located in the Lynnwood Link Extension Study Area 2-6

Table 2-3. Wetland Functions and Values Assessed 2-6

Table 2-4. Minimum Buffer Requirements for Streams in the Study Area by Local Jurisdiction 2-9

Table 3-1. Summary of Field-Identified Wetlands within the Lynnwood Link Extension Study Area 3-1

Table 3-2. Summary of Potential Wetlands within the Lynnwood Link Extension Study Area 3-2

Table 3-3. Summary of Streams in the Lynnwood Link Extension Study Area 3-34

LIST OF FIGURES

Figure 3-1a. Wetlands and Streams in Study Area 3-3

Figure 3-1b. Wetlands and Streams in Study Area 3-4

Figure 3-1c. Wetlands and Streams in Study Area 3-5

LIST OF ATTACHMENTS

A Wetland Field Investigation Dates

B Photographs

C Wetland Determination Data Forms

D Wetland Rating Forms

E Wetland Functions and Values Forms

F Delineated and Estimated Wetlands and Streams

ACRONYMS AND ABBREVIATIONS

Corps	U.S. Army Corps of Engineers
Dep	Depressional
Ecology	Washington State Department of Ecology
EIS	Environmental Impact Statement
GIS	geographic information system
GPS	global positioning system
HGM	hydrogeomorphic
I-5	Interstate 5
NEPA	National Environmental Policy Act
NGPA	Native Growth Protection Area
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
PEM	palustrine emergent
PFO	palustrine forested
PHS	Priority Habitats and Species
PSS	palustrine scrub-shrub
PUB	palustrine unconsolidated bottom
RCW	Revised Code of Washington
Riv	Riverine
Sound Transit	Central Puget Sound Regional Transit Authority
SR	State Route
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

1 INTRODUCTION

1.1 Project Overview

The proposed Lynnwood Link Extension would begin at Northgate in north Seattle and end at the Lynnwood Transit Center. The 8.5-mile project corridor generally follows Interstate 5 (I-5), the major north-south freeway through the state, and the primary route serving a large commuter market traveling between Snohomish and King counties. The corridor travels through the cities of Seattle and Shoreline in King County and Mountlake Terrace and Lynnwood in Snohomish County. The project area lies between Puget Sound to the west and Lake Washington to the east.

The Lynnwood Link Extension alternatives would extend light rail from the planned northern terminus of the Link light rail system at Northgate, continuing north along I-5 to Lynnwood. In 2010, the Central Puget Sound Regional Transit Authority (Sound Transit) started a project-level planning process and developed a set of alternatives that were studied in a Draft Environmental Impact Statement (EIS) (Sound Transit and Federal Transit Administration 2013). Through that analysis process, Sound Transit identified a Preferred Alternative, which is evaluated in this document and in the Final EIS.

1.2 Purpose of Report

This wetland and stream delineation report was prepared to describe the wetlands and streams within the Lynnwood Link Extension corridor to support the National Environmental Policy Act (NEPA) review process. This report will help facilitate agency review by providing detailed descriptions of study area wetlands and streams, including classifications, ratings, and buffers. Wetland and stream data gathered were used to assist the design of the project alternatives and would serve as the basis for determining and mitigating the impacts of the Preferred Alternative or any of the other light rail alternatives.

1.3 Study Area

The study area for this report encompasses the area within 200 feet of either side of the project alternatives or features. Wetlands and streams described in this report include those that fall entirely or partly within the study area. To encompass the maximum possible extent of water quality mixing zones set by the Washington State Department of Ecology (Ecology), the study area also includes stream segments extending up to 100 feet upstream and 300 feet downstream of locations where the project boundaries cross streams (Washington Administrative Code [WAC] 73-201A-400).

2 METHODS

The process of identifying and describing wetlands and streams in the study area involved agency coordination and review of existing information, as well as on-site field surveys. The following subsections describe the methods used for gathering existing information and field data.

2.1 Data Gathered

Sound Transit conducted a review of existing literature and data to identify and characterize potentially affected wetlands and streams in and near the study area. Existing documentation and information were compiled and reviewed first so that the field survey efforts could focus on verifying data and filling information gaps. This information included published and unpublished reports, maps, Web sites, aerial photographs, and communication with local municipality staff familiar with wetlands and streams within the project vicinity. In addition, state and local regulations and guidance were reviewed to assist in identifying stream types and to confirm project compliance with existing laws. The data sources are listed below.

2.1.1 Agency Coordination

Sound Transit contacted the following agencies and local jurisdictions:

- Washington State Department of Transportation (WSDOT)
- Ecology
- City of Seattle
- City of Shoreline
- City of Mountlake Terrace
- City of Lynnwood

2.1.2 Maps and Existing Documentation

Sound Transit reviewed the following resources:

- National Wetlands Inventory (NWI) data (U.S. Fish and Wildlife Service [USFWS])
- Natural Resources Conservation Service (NRCS) Soil Survey maps
- Priority Habitats and Species (PHS) data (Washington Department of Fish and Wildlife [WDFW])
- SalmonScape fish data and maps (WDFW)
- StreamNet data and maps (StreamNet 2012)
- City of Seattle *State of the Waters 2007* report (City of Seattle 2007)
- Basin characterization reports of Thornton Creek and West Lake Washington (Tetra Tech/KCM 2004a) and McAleer Creek and Lyon Creek (Tetra Tech/KCM 2004b)

- Stream habitat analysis for the City of Lynnwood (Jones and Stokes 2000)
- *Swamp Creek Drainage Needs Report*, including Scriber Creek Subbasin (Snohomish County 2002)
- *Salmon and Steelhead Habitat Limiting Factors Report for the Cedar-Sammamish Basin* (Kerwin 2001)
- Washington State Department of Natural Resources (DNR) Natural Heritage Program database
- *A Catalog of Washington Streams and Salmon Utilization, Volume 1, Puget Sound Region* (Williams et al. 1975)
- Critical area maps from local jurisdictions (Cities of Seattle, Shoreline, Mountlake Terrace, Lynnwood, King County, and Snohomish County)
- Existing digital geographic information system (GIS) data from the Cities of Seattle, Shoreline, Mountlake Terrace, and Lynnwood.
- *Sound Transit 2 Mitigation: Impact Summary and Analysis Memorandum* (ESA Adolfson 2010) and associated GIS data
- Aerial photography of the project corridor (including the King County aerial photography database or Google Earth database)
- Regulatory compliance documents, such as the *North Link Light Rail Transit Project Final Supplemental Environmental Impact Statement* (Sound Transit 2006), critical area studies, wetland delineation reports, and stream studies by other agencies or consulting firms, as available

2.2 Field Surveys

Following the review of existing documentation and information, Sound Transit conducted detailed field surveys to identify wetlands and streams that could be affected by any of the project alternatives. Surveys were conducted in two phases. During the Draft EIS phase, surveys were conducted to identify, map, and describe wetlands and streams within the field reconnaissance survey area, defined as public rights-of-way within the study area administered by the WSDOT or other public agencies. In preparation for the field reconnaissance surveys, a set of maps was developed showing data from local jurisdiction critical area maps, the NWI, and the *Sound Transit 2 Mitigation: Impact Summary and Analysis Memorandum* (ESA Adolfson 2010). Existing data and the study area boundary were overlain on aerial photographs at a scale of 1:24,000 (1 inch = 200 feet). Field reconnaissance surveys were performed between March 9 and July 23, 2012 (Attachment A) but wetland boundary delineations were not conducted during this phase. Instead, wetland boundaries were estimated in the field and mapped using a global positioning system (GPS); GPS data were then incorporated into the project GIS. Additional information about field reconnaissance surveys is provided in the *Lynnwood Link Extension Wetland Identification and Survey Technical Report* prepared for the Draft EIS (Sound Transit 2013).

During the Final EIS phase, wetland delineations and delineations of stream ordinary high water mark (OHWM) were performed in all properties for which rights of entry could be obtained along the Preferred Alternative alignment (approximately 100 feet on each side beyond the construction

limits for the Preferred Alternative; this area is referred to as the delineation survey area in this report). Some wetlands could not be accessed because right of entry was not granted. Delineation surveys were conducted between July 2013 and July 2014 (Attachment A). The purpose of the delineation surveys was to refine resource boundaries and update information for the Final EIS. Data from the delineation surveys were used to amend the data collected during the 2012 field reconnaissance surveys.

Wetlands, streams, and portions of these features where rights of entry could not be obtained within the study area were identified based on visual observation from public areas during field surveys; current local, state, and federal wetland maps; critical area reports; and aerial photographs. These features were identified as potential wetlands or potential streams and incorporated into the GIS database. Ground-truthing and field data collection were not conducted on properties where no rights of entry could be obtained.

Photographs of wetlands visited during the field reconnaissance or delineation surveys are presented in Attachment B.

2.3 Wetland Identification and Classification

2.3.1 Wetland Identification

Vegetation, soil, and hydrology conditions within the field reconnaissance and delineation survey areas were documented as necessary at representative locations (sample plots) using methods outlined in the U.S. Army Corps of Engineers (Corps) *Wetland Delineation Manual* (Corps 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (Corps 2010). These sample plots were identified in the field with labeled flagging and locations were recorded with a GPS unit or professional survey equipment. Both wetland and upland sample plots were documented. Wetland determination data forms were developed for all wetlands within the WSDOT, other public rights-of-way, and on properties where rights of entry were obtained. Observations of existing conditions and characteristics were recorded for each wetland and associated buffer. Data were collected at representative sample plots within each USFWS class, with a paired upland sample plot (except for Wetland WSE6 where the adjacent upland consisted of roadway and compacted fill).

During the reconnaissance phase for the Draft EIS, wetland boundaries were estimated and mapped using GPS. Wetlands that extend beyond the field reconnaissance survey area and other potential wetlands outside of the WSDOT or other public rights-of-way were also incorporated into the GIS database for analysis in the EIS. These wetland boundaries were added to the project GIS database by adding existing GIS layers or estimating and digitizing boundaries.

During the delineation phase for the Preferred Alternative, project biologists flagged wetland boundaries within the delineation survey area where rights of entry were obtained, which professional land surveyors then surveyed. Within portions of the field reconnaissance areas outside of the delineation area, boundaries were estimated and mapped using GPS. All wetlands on

properties where rights of entry were obtained within 100 feet of the Preferred Alternative were delineated and rated to support permitting with federal, state, and local agencies.

Each wetland identified in the study area received a unique identifier that is tracked in the project GIS database. Wetlands were named based on whether they were field-identified wetlands (W) or not field-identified/potential wetlands (PW); the city in which they are located (Seattle = SE, Shoreline = SH, Mountlake Terrace = MT, Lynnwood = LY); and the order they were encountered in the field (1, 2, 3, etc.). For example, Wetland WSE2 is the second field-identified wetland in Seattle. The field reconnaissance was conducted generally from south to north through the study area.

2.3.1.1 Hydrology

The project area was examined for evidence of hydrology. An area is considered to have wetland hydrology when soils are ponded or saturated consecutively 12.5 percent of the growing season. In King County (Seattle and Shoreline), the growing season generally lasts from the beginning of February (February 7) to the beginning of December (December 8) for a total of 304 days (USDA NRCS 2012a), so ponding or saturation must be present for approximately 38 consecutive days. Primary indicators of hydrology include surface inundation and saturated soils. Secondary indicators of hydrology include drainage patterns, watermarks on vegetation, water-stained leaves, and oxidized root channels.

2.3.1.2 Soils

Generally, an area must have hydric soils to be considered 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 portion. Biological activities in saturated soil result in reduced concentrations of oxygen that in turn result in a preponderance of organisms that use 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 matrix of hydric soil. Bright-colored redoximorphic features form within the matrix under a fluctuating water table. Other important hydric soil indicators include organic matter accumulations in the surface horizon, reduced sulfur odors, and organic-matter staining in the subsurface. Soils were examined by excavating sample pits to a depth of 18 inches or more to observe the soil profiles, colors, and textures. Munsell color charts (Gretag Macbeth 2000) were used to describe the soil colors.

2.3.1.3 Vegetation

The dominant plants and their wetland indicator status were evaluated to determine whether the vegetation is hydrophytic. Hydrophytic vegetation is generally defined as vegetation adapted to prolonged saturated soil conditions. To meet the hydrophytic vegetation criterion, more than 50 percent of the dominant plants must be facultative, facultative wetland, or obligate, according to the plant indicator status category assigned to each plant species by the USFWS (Reed 1988, 1993). Table 2-1 provides the definitions of the indicator status categories for identifying the plant species.

Table 2-1. Key to Plant Indicator Status Categories

Plant Indicator Status Category	Symbol	Definition
Obligate Wetland Plants	OBL	Plants that almost always (>99% of the time) occur in wetlands but 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 (33% 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: Corps (1987).

The scientific and common names for plants follow the currently accepted nomenclature. Most of the names are consistent with *Plants of the Pacific Northwest Coast* (Pojar and MacKinnon 1994) and the PLANTS Database (USDA NRCS 2012b). During the field investigations by project biologists, dominant plant species were observed and recorded on field data sheets for each data plot (Attachment C).

2.3.2 Wetland Classification and Rating

Wetlands were classified according to the USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). Hydrogeomorphic classifications were assigned to wetlands using the Corps methods established in *A Hydrogeomorphic Classification System for Wetlands* (Brinson 1993). Wetlands were rated according to critical areas ordinances of local jurisdictions and the *Washington State Wetland Rating System for Western Washington – Revised* (Hruby 2004) (Attachment D). Buffer widths were assigned to wetlands based on local jurisdiction requirements (Table 2-2).

2.3.3 Wetland Functional Assessment

Functions of delineated wetlands were assessed using the Washington State Department of Transportation (WSDOT) *Wetland Functions Characterization Tool for Linear Projects* (Null et al. 2000). This is a qualitative tool designed for linear projects to enable the rapid documentation and characterization of functions and values of a particular wetland. This method allows evaluation of wetland functions using best professional judgment and readily observed environmental characteristics. For example, an area of permanent open water is characteristic of a wetland that provides habitat for waterfowl or aquatic animals. The upland habitats and buffers surrounding wetlands were also considered in the evaluation because adjacent land uses affect the performance of wetland functions. Biologists reviewed the indicator characteristics present for each affected wetland and assigned a summary rating of low, moderate, or high for each wetland function (Attachment E). Table 2-3 lists the wetland functions and values evaluated.

Table 2-2. Wetland Categories and Buffer Requirements for Wetlands Located in the Lynnwood Link Extension Study Area

Local Rating System	Wetland Category/Type	Required Buffer Width (feet)
City of Seattle[a]	I	100-200
	II	100-200
	III	60-85
	IV	No buffer-50
City of Shoreline[b]	I	150
	II	115
	III	65
	IV	35
City of Mountlake Terrace[c]	I	300
	II	100
	III	65
	IV	50
City of Lynnwood[d]	I	110
	II	110
	III	75
	IV	40

[a] Based on Seattle Municipal Code 25.09.160.A and 25.09.160.C (buffer widths determined by habitat function scores). Only applicable to development on publicly or privately owned parcels.

[b] Based on Shoreline Municipal Code 20.80.320 and 20.80.330 (standard buffer widths shown)

[c] Based on Mountlake Terrace Municipal Code 16.15.080 and 16.15.090

[d] Based on Lynnwood Municipal Code 17.10.050 and 17.10.051 (standard buffer widths shown)

Table 2-3. Wetland Functions and Values Assessed

Flood Flow Alteration	Habitat for Amphibians
Sediment Removal	Habitat for Wetland-Associated Mammals
Nutrient and Toxicant Removal	Habitat for Wetland-Associated Birds
Erosion Control and Shoreline Stabilization	General Fish Habitat
Production of Organic Matter and its Export	Native Plant Richness
General Habitat Suitability	Educational or Scientific Value
Habitat for Aquatic Invertebrates	Uniqueness and Heritage

2.4 Stream Identification and Classification

2.4.1 Stream Identification

Streams were identified through existing maps and documents, communication with local municipality staff, and field surveys. State and local regulations and guidance were reviewed to assist in identifying stream types and to confirm project compliance with existing laws.

During the reconnaissance phase for the Draft EIS, stream OHWMs were estimated and mapped using GPS. 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.

During the delineation phase for the Preferred Alternative, project biologists flagged stream OHWMs within the delineation survey area, which professional land surveyors then surveyed. Segments of streams outside the delineation survey area but within the field reconnaissance survey area were estimated and mapped using GPS. Rights of entry were obtained for all stream segments in the delineation survey area, so the OHWMs of all streams that may be affected by construction of the Preferred Alternative were delineated. Final stream classification determinations, in accordance with local jurisdictions' critical areas ordinances, will be made during the permitting phase of this project.

Each stream identified in the study area received a unique identifier that is tracked in the project GIS database. Each stream without a formal name was assigned an alphanumeric code based on the city in which it is located (Seattle = SE, Shoreline = SH, Mountlake Terrace = MT, Lynnwood = LY) and the order in which it was encountered in the field (1, 2, 3, etc.). For example, Stream SSH2 is the second field-identified stream in Shoreline.

2.4.2 Stream Classification

Streams in the study area were assigned preliminary classifications based on the systems used by the Cities of Seattle[1], Shoreline, Mountlake Terrace, and Lynnwood, respectively. Each of these stream classification systems classifies and assigns protective buffers to streams based on the presence of fish and whether water flow is perennial or seasonal. Each system is hierarchical; that is, a stream is assigned to a particular category only if it does not meet the criteria of any higher ranking categories.

Identification and classification of streams in this report represent conservative estimates, based on available information and the regulations governing local critical areas. Some of the watercourses identified in this analysis may not actually be defined as streams by the local jurisdictions, or they may be assigned smaller buffers.

The categories of the City of Seattle classification system (Seattle Municipal Code 25.09.020) are as follows:

- **Type 1:** Waters inventoried as "shorelines of the state" under Revised Code of Washington (RCW) Chapter 90.58, but not including periodically inundated areas of their associated wetlands
- **Type 2:** Segments of natural waters that have high value to fish for spawning, rearing, or migration (i.e., having a defined channel width of at least 20 feet and a gradient less than 4 percent), or that are used for off-channel habitat
- **Type 3:** Segments of natural waters that have moderate to slight value to fish for spawning, rearing, or migration (i.e., having a defined channel width of at least 2 feet and a gradient less than 16 percent)
- **Type 4:** Segments of natural waters with perennial flow, lacking fish habitat
- **Type 5:** Segments of natural waters with seasonal flow only, lacking fish habitat

[1] Only applicable to development on publicly or privately owned parcels.

The categories of the City of Shoreline classification system (Shoreline Municipal Code 20.80.470) are as follows:

- **Type I:** Streams identified as "shorelines of the state" under the City's Shoreline Master Program
- **Type II:** Streams that are used by or that have habitat value for salmonids
- **Type III:** Streams with a channel width of at least 2 feet that are not used by salmonids
- **Type IV:** Streams with a channel width less than 2 feet that are not used by salmonids
- **Piped stream segments:** Segments of streams, regardless of their type, that are fully enclosed in an underground pipe or culvert

The categories of the City of Mountlake Terrace classification system (Mountlake Terrace Municipal Code 16.15.080) are as follows:

- **Class I:** Natural streams identified as "shorelines of the state" under the City's Shoreline Master Program
- **Class II:** Natural streams that have documented or significant potential for anadromous fish use
- **Class III:** Natural streams that are not used by anadromous fish
- **Class IV:** Natural streams with a channel width less than 2 feet that are not used by salmonid fish
- **Class V:** Natural streams that are seasonal and do not contain fish

The categories of the City of Lynnwood classification system (Lynnwood Municipal Code 17.10.060) are as follows:

- **Category I:** Scriber Creek, Swamp Creek, Lunds Creek, and Halls Creek
- **Category II:** Streams that flow year-round or that are used by salmonids
- **Category III:** Streams that are naturally intermittent and are not used by salmonids

Cities have jurisdiction over stream buffers, which are regulated through each City's Critical Areas Ordinance. Table 2-4 lists the stream buffer widths for the various stream classifications. The distances presented below are minimum requirements; wider buffers may be required in response to site-specific conditions (e.g., the presence of fish species listed as endangered or threatened under the Endangered Species Act) or the type and intensity of proposed uses.

Table 2-4. Minimum Buffer Requirements for Streams in the Study Area by Local Jurisdiction

Jurisdiction	Stream Classification	Buffer Requirement (feet)
City of Seattle[a]	Type 1	100 feet
	Type 2/3 – anadromous fish	75 feet
	Type 2/3 – no anadromous fish	50 feet
	Type 4	50 feet
	Type 5	50 feet
City of Shoreline[b]	Type I	115 feet
	Type II	75 feet
	Type III	35 feet
	Type IV	25 feet
	Piped	10 feet
City of Mountlake Terrace[c]	Class I	150 feet
	Class II	100 feet
	Class III	65 feet
	Class IV	50 feet
	Class V	Based on review
City of Lynnwood[d]	Category I	100 feet
	Category II	60 feet
	Category III	35 feet

[a] Seattle Municipal Code 25.09.020 (D5) and 25.09.200.A.3.d.1. Only applicable to development on publicly or privately owned parcels.

[b] Shoreline Municipal Code 20.80.470 and 20.80.480

[c] Mountlake Terrace Municipal Code 16.15.080 and 16.15.090

[d] Lynnwood Municipal Code 17.10.060 and 17.10.061

3 RESULTS

3.1 Wetlands

Sound Transit identified 37 wetlands in the study area (Figures 3-1a, 3-1b, and 3-1c; Attachment F). Table 3-1 summarizes classification and rating information for the delineated and other field-identified wetlands in the study area. Potential wetlands outside of public rights-of-way and more than 100 feet from the footprint of the Preferred Alternative were identified via existing documentation and public vantage points (Table 3-2). These potential wetlands include portions of field-identified wetlands that extend beyond the field reconnaissance survey area, as well as areas that appear to meet the wetland criteria that fall entirely outside of this survey area, but could not be ground-truthed. One of the field-identified wetlands (Wetland WSH1) is associated with a ditched swale. Additional sites were investigated but were dropped from analysis after determining that they were constructed stormwater ponds, not wetlands. Of the field-identified wetlands, 1 is rated as Category II according to the Ecology rating system, 23 are rated as Category III, and 4 are rated as Category IV according to the *Washington State Wetland Rating System for Western Washington – Revised* (Hruby 2004). The majority of wetlands are smaller than 0.5 acre, except Wetlands WSE8 (0.66 acre), WMT6 (1.12 acres), and WLY4 (16.54 acres). Existing conditions of field-identified wetlands are described below, organized by local jurisdiction.

Table 3-1. Summary of Field-Identified Wetlands within the Lynnwood Link Extension Study Area

Wetland[a]	Size (acres)	USFWS Class[b]	HGM Class[c]	Ecology Rating[d]	Local Rating[e]	Buffer Width[f] (feet)
WSE1	0.42	PFO	Riv	III	III	60
WSE3	0.05	PEM	Dep	III	III	60
WSE4	0.12	PFO	Dep	III	III	60
WSE5	0.26	PFO	Dep	III	III	60
WSE6	0.08	PSS	Dep	III	III	60
WSE7	0.19	PSS, PEM	Dep	III	III	60
WSE8	0.66	PFO, PSS	Dep	III	III	60
WSH1	0.06	PEM	Dep	IV	III	65
WSH2	0.37	PFO, PEM	Dep	III	III	65
WSH3	0.09	PEM	Dep	III	III	65
WSH4	0.10	PFO, PEM	Dep	III	III	65
WSH5	0.48	PFO	Dep	III	III	65
WMT1	0.49	PFO	Dep	III	III	65
WMT2	0.17	PFO	Riv, Slope	III	III	65
WMT3	0.07	PFO	Dep	III	III	65
WMT4	0.43	PSS	Dep	III	III	65
WMT5	0.34	PFO, PEM	Dep	III	III	65
WMT6	1.12	PFO	Dep	III	III	65
WMT7	0.42	PFO	Dep	III	III	65

Table 3-1. Summary of Field-Identified Wetlands within the Lynnwood Link Extension Study Area

Wetland[a]	Size (acres)	USFWS Class[b]	HGM Class[c]	Ecology Rating[d]	Local Rating[e]	Buffer Width[f] (feet)
WMT8	0.01	PFO	Slope	IV	IV	50
WMT9	0.03	PEM	Dep	IV	IV	50
WMT10	0.03	PSS	Dep	IV	IV	50
WMT11	0.07	PSS	Dep	III	III	65
WLY3	0.26	PSS, PEM, PUB	Dep	III	III	75
WLY4	16.54	PFO, PSS, PEM	Riv, Dep	II	II	110
WLY6	0.04	PFO	Dep	III	III	75
WLY7	0.15	PSS	Dep	III	III	75
WLY8	0.08	PEM	Dep	III	III	75

[a] Wetlands are identified with alphanumeric codes: WYYn. W stands for wetland; YY = two-letter code for local jurisdiction (SE = Seattle, SH = Shoreline, MT = Mountlake Terrace, LY = Lynnwood); n = sequential identification number.

[b] Cowardin et al. (1979). USFWS = U.S. Fish and Wildlife Service. PEM = palustrine emergent; PFO = palustrine forested; PSS = palustrine scrub-shrub

[c] Brinson (1993). HGM = Hydrogeomorphic; Dep = Depressional; Riv = Riverine

[d] Hruby (2004)

[e] Seattle Municipal Code 25.09.160.A, only applicable to development on publicly or privately owned parcels (Wetlands WSE1, WSE3-WSE8), Shoreline Municipal Code 20.80.320 (Wetlands WSH1-WSH5), Mountlake Terrace Municipal Code 16.15.080 (Wetlands WMT1-WMT8), Lynnwood Municipal Code 17.10.050 (WLY3, WLY4, and WLY6-WLY8)

[f] Seattle Municipal Code 25.09.160.C, only applicable to development on publicly or privately owned parcels (Wetlands WSE1, WSE3-WSE8), Shoreline Municipal Code 20.80.330 (Wetlands WSH1-WSH5), Mountlake Terrace Municipal Code 16.15.090 (Wetlands WMT1-WMT8), Lynnwood Municipal Code 17.10.051 (WLY3, WLY4, and WLY6-WLY8)

Table 3-2. Summary of Potential Wetlands within the Lynnwood Link Extension Study Area

Wetland[a]	Size (acres)	USFWS Class[b]	HGM Class[c]	Ecology Rating[d]	Local Rating[e]	Buffer Width[f] (feet)
PWSH3	0.10	PFO, PEM	Dep	Unknown	III	65
PWSH4	0.19	PFO	Slope	Unknown	III	65
PWSH5	0.07	PEM	Slope	Unknown	III	65
PWMT2	0.02	PFO	Dep	III	III	65
PWLY1	0.07	PSS	Dep	III	III	75
PWLY2	0.26	PFO	Dep	III	III	75
PWLY3	0.07	PEM	Dep	III	III	75
PWLY4	0.03	PFO	Dep	III	III	75
PWLY5	0.03	PUB	Dep	III	III	75

[a] Potential wetlands are identified with alphanumeric codes: PWYYn. PW stands for potential wetland; YY = two-letter code for local jurisdiction (SE = Seattle, SH = Shoreline, MT = Mountlake Terrace, LY = Lynnwood); n = sequential identification number.

[b] Cowardin et al. (1979). USFWS = U.S. Fish and Wildlife Service. PEM = palustrine emergent; PFO = palustrine forested; PSS = palustrine scrub-shrub; PUB = palustrine unconsolidated bottom

[c] Brinson (1993). HGM = Hydrogeomorphic; Dep = Depressional; Riv = Riverine

[d] Hruby (2004). Sound Transit did not rate wetlands because they are outside of the field reconnaissance area. Ratings are based on ratings provided in existing documentation. If existing documentation did not provide a rating, then it was listed as unknown.

[e] Shoreline Municipal Code 20.80.320 (Wetlands PWSH3-PWSH5), Mountlake Terrace Municipal Code 16.15.080 (Wetland PWMT2), Lynnwood Municipal Code 17.10.050 (PWLY1-PWLY5)

[f] Shoreline Municipal Code 20.80.330 (Wetlands PWSH3-PWSH5), Mountlake Terrace Municipal Code 16.15.090 (Wetland PWMT2), Lynnwood Municipal Code 17.10.051 (PWLY1-PWLY5)

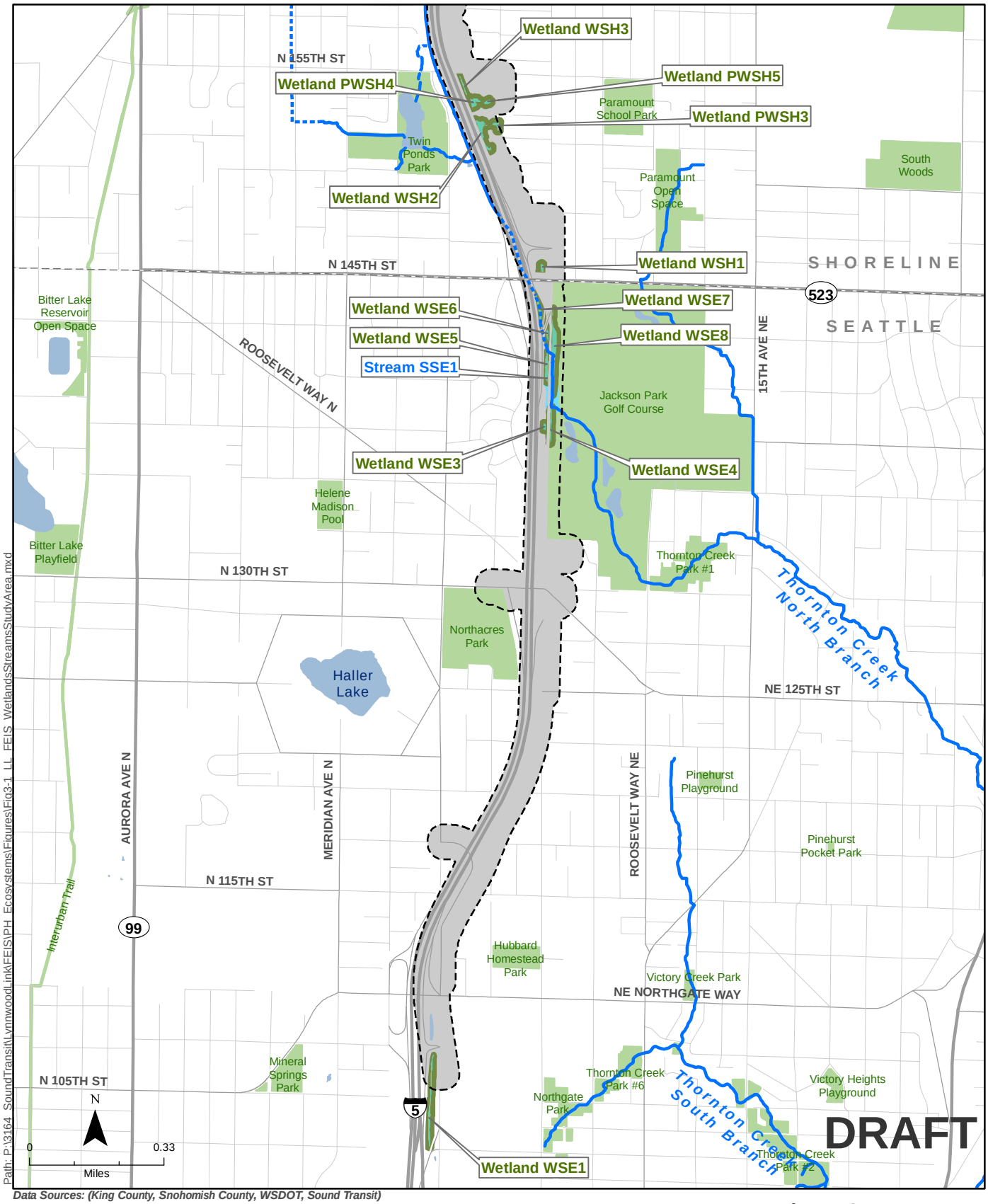


Figure 3-1a
Wetlands and Streams
In the Study Area

Lynnwood Link Extension

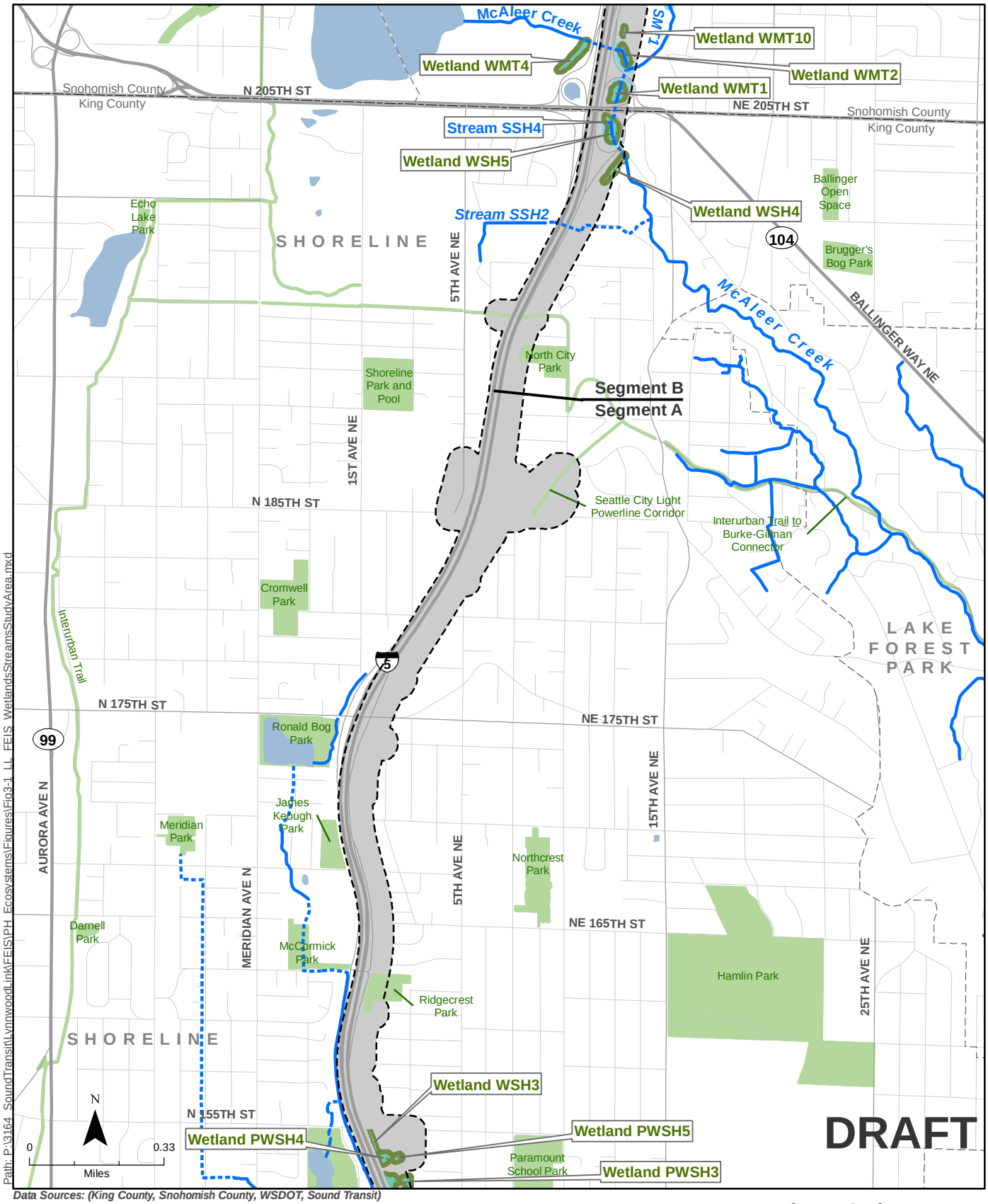


Figure 3-1b
Wetlands and Streams
In the Study Area

Lynnwood Link Extension

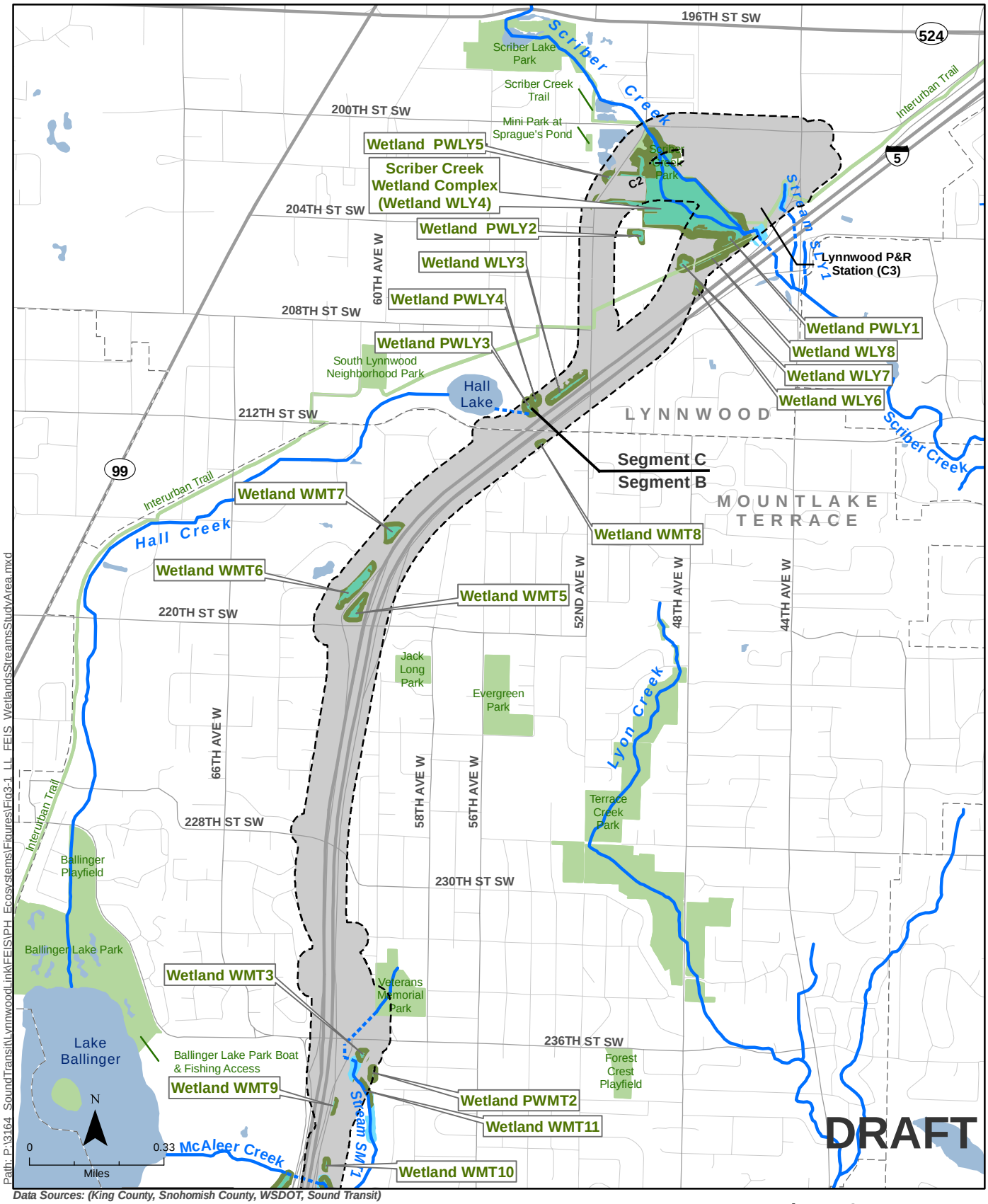


Figure 3-1c
Wetlands and Streams
In the Study Area

Lynnwood Link Extension

3.1.1 Seattle

Wetland WSE1[2]

Size: Approximately 0.42 acre

City of Seattle and Ecology Rating: Category III

USFWS Classification: Palustrine Forested

HGM Classification: Riverine

Sample Plots: WSE1-SP1 and WSE1-SP2

Wetland WSE1 is located in a linear depression east of the I-5 off-ramp, west of 1st Avenue NE, and south of NE 107th Street at Northgate, extending south of the field reconnaissance and delineation survey areas (Figure 3-1a). This wetland is part of the headwaters of the South Branch of Thornton Creek (City of Seattle 2007). Wetland WSE1 was identified as Wetland A for the Northgate Link Extension (North Link) project. Sample Plot WSE1-SP1 characterizes the wetland and Sample Plot WSE1-SP2 characterizes the adjacent upland.

Wetland hydrology is supported primarily by surface water from a stormwater pond to the north, which is conveyed via a pipe under the I-5 on-ramp and off-ramp. Two additional pipes also convey stormwater runoff from local roadways, although no water was present in these pipes during the field investigations. Saturation at the surface was observed along the perimeter of the wetland with channelized flowing water through the center. The channel is well-defined throughout the length of the wetland continuing south out of the study area. Water from this wetland flows south, then continues in stormwater pipes under NE 100th Street to the east, and ultimately into the South Branch of Thornton Creek. Water depth likely varies significantly and can change quickly.

Wetland WSE1 contains a forested community. Vegetation within the wetland is dominated by Pacific willow (*Salix lucida*), Sitka willow (*Salix sitchensis*), red-osier dogwood (*Cornus sericea*), and Himalayan blackberry (*Rubus armeniacus*). Red alder (*Alnus rubra*), watercress (*Nasturtium officinale*), climbing nightshade (*Solanum dulcamara*), giant horsetail (*Equisetum telmateia*), and bluegrass (*Poa* spp.) were also observed.

Soil was examined to a depth of 26 inches and consists of two layers. The top layer is a 5-inch very dark brown (10YR 2/2) gravelly silt loam. The lower layer is a greenish-gray (5GY 5/1) sand. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WSE1 consists of roadways and steep vegetated fill slopes. The upper slopes are generally maintained grasses and disturbance-tolerant forbs. Invasive species such as poison hemlock (*Conium maculatum*), Canadian thistle (*Cirsium arvense*), and Scotch broom (*Cytisus scoparius*) were also present. The lower slopes consist of western redcedar (*Thuja plicata*), big-leaf maple (*Acer macrophyllum),* pine (*Pinus* spp.), cascara (*Frangula purshiana*), tall Oregon grape (*Mahonia aquifolium*), western swordfern (*Polystichum munitum*), red-osier dogwood, Indian plum (*Oemleria*

[2] This wetland is in the city of Seattle within the road right-of-way (not on a publicly or privately owned parcel) and may not be subject to the City of Seattle Critical Areas Ordinance (Seattle Municipal Code 25.09).

cerasiformis), common hawthorn (*Crataegus monogyna*), red elderberry (*Sambucus racemosa*), and Himalayan blackberry. Many of these native plants may have been planted.

Wetland WSE1 is classified as palustrine forested under the USFWS system, and riverine under the hydrogeomorphic (HGM) system. Wetland WSE1 is rated Category III according to the City of Seattle (Seattle Municipal Code 25.09.160.A) and Ecology. The wetland scored 42 points on Ecology's rating form (16 points for water quality, 16 points for hydrologic functions, and 10 points for habitat functions) (Attachment D). The City of Seattle requires a standard 60-foot buffer for Category III wetlands with lower levels of habitat function (Seattle Municipal Code 25.09.160.C).

Wetland WSE3[3]

Size: Approximately 0.05 acre

City of Seattle and Ecology Rating: Category III

USFWS Classification: Palustrine Emergent

HGM Classification: Depressional

Sample Plots: WSE3-SP1, WSE3-SP2, WSE3-SP3, and WSE3-SP4

Wetland WSE3 is located east of I-5 and west of 5th Avenue NE, west of the Jackson Park Golf Course (see Figure 3-1a). The wetland is located entirely within the delineation survey area near the I-5 right-of-way fence and toe of the I-5 fill slope. Sample Plot WSE3-SP1 characterizes the wetland and Sample Plots WSE3-SP2, WSE3-SP3, and WSE3-SP4 characterize the adjacent upland.

Wetland hydrology is primarily supported by stormwater runoff from I-5. A concrete-lined ditch, situated along the east side of the wetland and adjacent to 5th Avenue NE, conveys water to Wetland WSE3 and provides an outlet where water is eventually piped under 5th Avenue NE to the North Branch of Thornton Creek. Wetland WSE3 likely also has a high groundwater table. Small areas of inundation in micro-depressions were observed, as well as saturation of soils.

Wetland WSE3 contains an emergent community dominated by reed canarygrass (*Phalaris arundinacea*). Some Himalayan blackberry and one cascara were also present.

Soil was examined to a depth of 18 inches and consists of two layers. The top layer is a 10-inch black (10YR 2/1) silt loam. The lower layer is a very dark gray (10YR 3/1) gravelly sandy loam with grayish brown (10YR 5/2) gravelly sandy loam inclusions that have yellowish brown (10YR 5/8) redoximorphic features. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The vegetated buffer surrounding Wetland WSE3 consists of a relatively narrow band between the wetland and roadways (I-5 and 5th Avenue NE). Maintained grasses and shrubs (primarily Himalayan blackberry) cover most of the buffer, with a forested area to the north. Species include red alder, ornamental maples (*Acer* sp.), western redcedar, birch (*Betula* spp.), Himalayan blackberry, common hawthorn, Scotch broom, reed canarygrass, western swordfern, and maintained grasses and forbs.

[3] This wetland is in the city of Seattle within road right-of-way (not on a publicly or privately owned parcel) and may not be subject to the City of Seattle Critical Areas Ordinance (Seattle Municipal Code 25.09).

Wetland WSE3 is classified as palustrine emergent under the USFWS system, and is a depressional wetland under the HGM system. Wetland WSE3 is rated a Category III according to the City of Seattle (Seattle Municipal Code 25.09.160.A) and Ecology. The wetland scored 32 points on Ecology's rating form (14 points for water quality, 10 points for hydrologic functions, and 8 points for habitat functions) (Attachment D). The City of Seattle requires a standard 60-foot buffer for Category III wetlands with a lower level of habitat function (Seattle Municipal Code 25.09.160.C).

Wetland WSE4[4]

Size: Approximately 0.12 acre

City of Seattle and Ecology Rating: Category III

USFWS Classification: Palustrine Forested

HGM Classification: Depressional

Sample Plots: WSE4-SP1 and WSE4-SP2

Wetland WSE4 is located in a ditch east of 5th Avenue NE and west of the Jackson Park Golf Course (see Figure 3-1a). The wetland is located entirely within the delineation survey area. Sample Plot WSE4-SP1 characterizes the wetland and Sample Plot WSE4-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by stormwater runoff and a high groundwater table. Saturation and inundation were observed in the wetland, and drainage patterns have formed as well. The wetland drains north to the North Branch of Thornton Creek.

Wetland WSE4 contains a forested community. Vegetation within the wetland includes western redcedar, Pacific willow, red alder, salmonberry (*Rubus spectabilis*), water parsley (*Oenanthe sarmentosa*), giant horsetail, and common ladyfern (*Athyrium filix-femina*). Himalayan blackberry and English ivy (*Hedera helix*) occur along the edge.

Soil was examined to a depth of 18 inches and consists of three layers. The top layer is a 5-inch black (10YR 2/1) mucky loam. The middle layer is a dark greenish gray (10Y 4/1) fine sandy loam with brown (10YR 4/3) redoximorphic features. The lower layer is a very dark gray (5Y 3/1) gravelly sandy loam. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WSE4 consists of a thin strip of shrubs immediately adjacent to the wetland, maintained road right-of-way farther to the west, Jackson Park Golf Course and Trail to the east, and shrubs with few trees to the north and south. Species include salmonberry, Himalayan blackberry, laurel (*Laurus nobilis*), and western redcedar.

Wetland WSE4 is classified as palustrine forested under the USFWS system and depressional under the HGM system. Wetland WSE4 is rated a Category III according to the City of Seattle (Seattle Municipal Code 25.09.160.A) and Ecology. The wetland scored 40 points on Ecology's rating form (14 points for water quality, 16 points for hydrologic functions, and 10 points for habitat functions)

[4] This wetland is in the city of Seattle within road right-of-way (not on a publicly or privately owned parcel) and may not be subject to the City of Seattle Critical Areas Ordinance (Seattle Municipal Code 25.09).

(Attachment D). The City of Seattle requires a standard 60-foot buffer for Category III wetlands with a lower level of habitat function (Seattle Municipal Code 25.09.160.C).

Wetland WSE5[5]

Size: Approximately 0.26 acre

City of Seattle and Ecology Rating: Category III

USFWS Classification: Palustrine Forested

HGM Classification: Depressional

Sample Plots: WSE5-SP1 and WSE5-SP2

Wetland WSE5 is located east of I-5 and west of 5th Avenue NE, west of the Jackson Park Golf Course (see Figure 3-1a). The wetland crosses the I-5 right-of-way fence, ranging from the lower portion of the I-5 fill slope down to the toe. Wetland WSE5 is located entirely within the delineation survey area. Sample Plot WSE5-SP1 characterizes the wetland and Sample Plot WSE5-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by a high groundwater table, precipitation, and occasional overbank flow from Thornton Creek. Saturation and inundation were observed in the wetland. No inlet was observed. The northern portion of the wetland drains to the North Branch of Thornton Creek and the southern portion drains to Stream SSE1, which flows to the North Branch of Thornton Creek under 5th Avenue SE.

Wetland WSE5 contains a forested community. Species within the wetland includes red alder, salmonberry, giant horsetail, common ladyfern, reed canarygrass, common rush (*Juncus effusus*), small-fruited bulrush (*Scirpus microcarpus*), climbing nightshade, bitter dock (*Rumex obtusifolius*), and Himalayan blackberry. A ponded area near the road contained American speedwell (*Veronica americana*), broadleaf cattail (*Typha latifolia*), small-fruited bulrush, northwest territory sedge (*Carex utriculata*), creeping buttercup (*Ranunculus repens*), water parsley, and twoheaded water-starwort (*Callitriche heterophylla*). A patch of Japanese knotweed (*Polygonum cuspidatum*) occurs at the south end, extending into the buffer.

Soil was examined to a depth of 19 inches and consists of one layer. The soil is a black (10YR 2/1) gravelly sandy loam with cobbles. The soil has a high concentration of organics and partially decomposed debris throughout the profile. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer is narrow, composed of vegetated fill slopes for I-5 and 5th Avenue NE. Species include red alder, Himalayan blackberry, English ivy, English holly (*Ilex aquifolium*), Douglas fir (*Pseudotsuga menziesii*), and maintained disturbance-tolerant grasses and forbs. There is no functioning buffer to the east (roadway).

Wetland WSE5 is classified as palustrine forested under the USFWS system and depressional under the HGM system. Wetland WSE5 is rated a Category III according to the City of Seattle (Seattle

[5] This wetland is in the city of Seattle within road right-of-way (not on a publicly or privately owned parcel) and may not be subject to the City of Seattle Critical Areas Ordinance (Seattle Municipal Code 25.09).

Municipal Code 25.09.160.A) and Ecology. The wetland scored 36 points on Ecology's rating form (14 points for water quality, 10 points for hydrologic functions, and 12 points for habitat functions) (Attachment D). The City of Seattle requires a standard 60-foot buffer for Category III wetlands with a lower level of habitat function (Seattle Municipal Code 25.09.160.C).

Wetland WSE6[6]

Size: Approximately 0.08 acre

City of Seattle and Ecology Rating: Category III

USFWS Classification: Palustrine Scrub-Shrub

HGM Classification: Depressional

Sample Plot: WSE6-SP1

Wetland WSE6 is a shallow, linear depression located east of the northbound I-5 off-ramp for NE 145th Street and west of 5th Avenue NE, west of the Jackson Park Golf Course (see Figure 3-1a). The wetland is located entirely within the delineation survey area. Sample Plot WSE6-SP1 characterizes the wetland.

Wetland hydrology is supported by precipitation, stormwater runoff, and a high groundwater table. There are no inlets or outlets to Wetland WSE6. Small pockets of inundation in micro-depressions and saturated soils were observed.

Wetland WSE6 contains a scrub-shrub community. Vegetation within the wetland is dominated by rose spirea (*Spiraea douglasii*) and reed canarygrass. Common ladyfern, Himalayan blackberry, red alder, and one birch are also present.

Soil was examined to a depth of 18 inches and consists of two layers. The top layer is a 9-inch black (10YR 2/1) gravelly silt loam. The lower layer is a dark grayish brown (10YR 4/2) gravelly sandy loam. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffers are narrow and composed of vegetation on the shoulders of I-5 and 5th Avenue NE. The vegetation surrounding Wetland WSE6 consists primarily of maintained disturbance-tolerant species of grasses and forbs within the I-5 right-of-way along with Himalayan blackberry and rose spirea. A small area to the south contains red alder, Douglas fir, and Himalayan blackberry.

Wetland WSE6 is classified as palustrine scrub-shrub under the USFWS system and depressional under the HGM system. Wetland WSE6 is rated a Category III according to the City of Seattle (Seattle Municipal Code 25.09.160.A) and Ecology. The wetland scored 38 points on Ecology's rating form (12 points for water quality, 18 points for hydrologic functions, and 8 points for habitat functions) (Attachment D). The City of Seattle requires a standard 60-foot buffer for Category III wetlands with a lower level of habitat function (Seattle Municipal Code 25.09.160.C).

[6] This wetland is in the city of Seattle within road right-of-way (not on a publicly or privately owned parcel) and may not be subject to the City of Seattle Critical Areas Ordinance (Seattle Municipal Code 25.09).

Wetland WSE7[7]

Size: Approximately 0.19 acre

City of Seattle and Ecology Rating: Category III

USFWS Classification: Palustrine Scrub-Shrub/Palustrine Emergent

HGM Classification: Depressional

Sample Plots: WSE7-SP1 and WSE7-SP2

Wetland WSE7 is a shallow, linear depression located east of the I-5 mainline and west of a transit off-ramp, just south of NE 145th Street (see Figure 3-1a). The wetland is located entirely within the delineation survey area. Sample Plot WSE7-SP1 characterizes the wetland and Sample Plot WSE7-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by precipitation, stormwater runoff, and a high groundwater table. There are no inlets to Wetland WSE7. A catch basin is located at the south end of the wetland providing an outlet. Areas of inundation and saturated soils were observed in the wetland.

Wetland WSE7 contains scrub-shrub and emergent communities. Vegetation within the scrub-shrub community is dominated by Himalayan blackberry with some broadleaf cattail and climbing nightshade intermixed. Vegetation within the emergent community is mostly broadleaf cattail, stalk-grain sedge (Carex stipata), common rush, and common duckweed (*Lemna minor*). Some maintained grasses and forbs, along with reed canarygrass, are also present in the emergent community.

Soil was examined to a depth of 20 inches and consists of two layers. The top layer is a 6-inch black (10YR 2/1) silt loam. The lower layer is a black (10YR 2/1) gravelly sandy loam. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WSE7 is mowed right-of-way dominated by disturbance-tolerant grasses and forbs. Some Himalayan blackberry is also growing within the buffer.

Wetland WSE7 is classified as palustrine scrub-shrub/palustrine emergent under the USFWS system and depressional under the HGM system (Brinson 1993). Wetland WSE7 is rated a Category III according to the City of Seattle (Seattle Municipal Code 25.09.160.A) and Ecology. The wetland scored 35 points on Ecology's rating form (14 points for water quality, 10 points for hydrologic functions, and 11 points for habitat functions) (Attachment D). The City of Seattle requires a standard 60-foot buffer for Category III wetlands with a lower level of habitat function (Seattle Municipal Code 25.09.160.C).

[7] This wetland is in the city of Seattle within road right-of-way (not on a publicly or privately owned parcel) and may not be subject to the City of Seattle Critical Areas Ordinance (Seattle Municipal Code 25.09).

Wetland WSE8[8]

Size: Approximately 0.66 acre

City of Seattle and Ecology Rating: Category III

USFWS Classification: Palustrine Forested/Palustrine Scrub-Shrub

HGM Classification: Depressional

Sample Plots: WSE8-SP1 and WSE8-SP2

Wetland WSE8 is located east of 5th Avenue NE and west of the Jackson Park Golf Course, extending out of the delineation survey area to the east (see Figure 3-1a). Sample Plot WSE8-SP1 characterizes the wetland and WSE8-SP2 characterizes the upland.

Wetland hydrology is supported by stormwater runoff and a high groundwater table. Flowing water, inundation, and saturated soils were observed during the site investigations. Surface water flows south in a ditch within the wetland. No inlet was apparent, but the wetland drains to the North Branch of Thornton Creek.

Wetland WSE8 contains forested and scrub-shrub communities. Vegetation within the forested community is dominated by young red alder, Sitka willow, Pacific willow, salmonberry, rose spirea, and giant horsetail. Vegetation within the scrub-shrub community is dominated by salmonberry, Himalayan blackberry, and rose spirea. Other species observed include common ladyfern, creeping buttercup, and climbing nightshade.

Soil was examined to a depth of 22 inches and consists of three layers. The top layer is a 10-inch black (10YR 2/1) very mucky loam. The middle layer is a very dark gray (10YR 3/1) very mucky loam from 10 to 20 inches. The lower layer is a very dark greenish gray (10Y 3/1) gravelly sand. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WSE8 is dominated by disturbance-tolerant species of grasses and forbs to the west within the maintained roadside and maintained grasses to the west (golf course). Unmaintained areas of the buffer consist of red alder, Himalayan blackberry, English holly, English ivy, and western swordfern.

Wetland WSE8 is classified as palustrine forested/palustrine scrub-shrub under the USFWS system, and depressional under the HGM system. Wetland WSE8 is rated a Category III according to the City of Seattle (Seattle Municipal Code 25.09.160.A) and Ecology. The wetland scored 43 points on Ecology's rating form (18 points for water quality, 10 points for hydrologic functions, and 15 points for habitat functions) (Attachment D). The City of Seattle requires a standard 60-foot buffer for Category III wetlands with a lower level of habitat function (Seattle Municipal Code 25.09.160.C).

[8] Portions of this wetland are in the city of Seattle within road right-of-way (not on a publicly or privately owned parcel) and may not be subject to the City of Seattle Critical Areas Ordinance (Seattle Municipal Code 25.09).

3.1.2 Shoreline

Wetland WSH1

Size: Approximately 0.06 acre

City of Shoreline Rating: Type III

Ecology Rating: Category IV

USFWS Classification: Palustrine Emergent

HGM Classification: Depressional

Sample Plots: WSH1-SP1 and WSH1-SP2

Wetland WSH1 is located east of I-5, north of NE 145th Street, and west of 5th Avenue NE, in a maintained area of the I-5 right-of-way (see Figure 3-1a). The western portion is connected to a ditched swale associated with I-5 stormwater conveyance and the northern portion is a grassy slope. This wetland is located entirely within the delineation survey area. Sample Plot WSH1-SP1 characterizes the wetland and Sample Plot WSH1-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by a high groundwater table and stormwater runoff. The wetland had areas inundated, saturated, and containing drainage patterns during the site investigation. The outlet of Wetland WSH1 is a catch basin located at the southeastern corner of the wetland. Stormwater flows from the ditch to the wetland along the southern boundary.

Wetland WSH1 contains an emergent community that is mostly maintained. The dominant vegetation includes maintained grasses and forbs, including common rush, colonial bentgrass (*Agrostis capillaris*), red fescue (*Festuca rubra*), tall fescue (*Schedonorus phoenix*), small-fruited bulrush, giant horsetail, field horsetail (*Equisetum arvense*), creeping buttercup, American speedwell, muskflower (*Mimulus moschatus*), watercress, white clover (*Trifolium repens*), red clover (*Trifolium pratense*), and other rush and sedge species (*Juncus* sp. and *Carex* sp.). Common cattail and Himalayan blackberry are located around the outlet and some black cottonwood (*Populus trichocarpa*) along the wetland edge.

Soil was examined to a depth of 18 inches and consists of two layers. The top layer is an 8-inch very dark gray (10YR 3/1) silt loam. The lower layer is a dark gray (2.5Y 4/1) gravelly sandy loam with light olive brown (2.5Y 5/6) redoximorphic features. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WSH1 consists primarily of maintained grass, especially to the northwest, but also includes Himalayan blackberry and giant horsetail. Himalayan blackberry is dominant to the east and overhangs the wetland boundary. Few trees are present in the buffer.

Wetland WSH1 is classified as palustrine emergent under the USFWS system and depressional under the HGM system. According to the City of Shoreline, Wetland WSH1 is rated a Type III (Shoreline Municipal Code 20.80.320). According to Ecology's wetland rating system, the wetland is rated a Category IV based on its score. The wetland scored 27 points on Ecology's rating form (10 points for water quality, 10 points for hydrologic functions, and 7 points for habitat functions) (Attachment D). The City of Shoreline requires a standard 65-foot buffer for Type III (Shoreline Municipal Code 20.80.330).

Wetland WSH2

Size: Approximately 0.37 acre

City of Shoreline Rating: Type III

Ecology Rating: Category III

USFWS Classification: Palustrine Forested/Palustrine Emergent

HGM Classification: Depressional

Sample Plots: WSH2-SP1, WSH2-SP2, WSH2-SP3, WSH2-SP4, WSH2-SP5, WSH2-SP6, and WSH2-SP7

Wetland WSH2 is located on a gentle slope and shallow depression east of I-5, straddling the highway noise wall, within the WSDOT right-of-way and on private property, in the vicinity of NE 152nd Street, extending east of the delineation survey area (see Figure 3-1a). Sample Plots WSH2-SP1, WSH2-SP3, WSH2-SP5, and WSH2-SP7 characterize the wetland and Sample Plot WSH2-SP2, WSH2-SP4, and WSH2-SP6 characterize the adjacent upland.

Wetland hydrology is supported by a high groundwater table and some drainage from residences outside of the field survey area to the east. The wetland was saturated and inundated during the site investigations and drainage patterns were visible. Water flows to the west into a ditch along I-5.

Wetland WSH2 contains forested and emergent communities. Vegetation within the wetland is primarily maintained grasses and forbs, as well as common rush, small-fruited bulrush, reed canarygrass, and creeping buttercup. A large weeping willow (*Salix babylonica*) with Himalayan blackberry and salmonberry comprise a forested area to the southeast.

At Sample Plot WSH2-SP1, soil was examined to a depth of 20 inches and consists of two layers. The top layer is an 11-inch very dark brown (10YR 2/2) gravelly sandy loam with very dark brown (7.5YR 2.5/3) and dark reddish brown (5YR 3/4) redoximorphic features. The lower layer is a dark grayish brown (10YR 4/2) compacted silt loam. At Sample Plot WSH2-SP3, soil was examined to a depth of 18 inches and consists of two layers. The top layer is a 15-inch black (10YR 2/1) silt loam, and the lower layer is a loam with a matrix consisting of two colors—very dark brown (10YR 2/2) and gray (10YR 5/1). At Sample Plot WSH2-SP5, soil was examined to a depth of 18 inches and consists of three layers. The top layer is a 6-inch very dark grayish brown (10YR 3/2) gravelly sandy loam. The middle layer is a grayish brown (2.5Y 5/2) gravelly sandy loam with dark brown (7.5YR 3/4) redoximorphic features. The lower layer is a gray (2.5Y 5/1) gravelly sandy loam with strong brown (7.5YR 4/6) redoximorphic features.

At Sample Plot WSH2-SP7, soil was examined to a depth of 17 inches and consists of three layers over a hard pan. The top layer is an 8-inch very dark grayish brown (10YR 3/2) gravelly sandy loam. The middle layer is a very dark grayish brown (10YR 3/2) gravelly sandy loam with dark brown (7.5YR 3/4) redoximorphic features. The lower layer is a black (10YR 2/1) gravelly sandy loam with dark yellowish brown (10YR 4/6) redoximorphic features. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The vegetated buffer surrounding Wetland WSH2 consists primarily of maintained grasses and forbs in the I-5 right-of-way and on private property. Structures with yards are present to the east. There

are some trees (including western redcedar) in the southern buffer, with an understory of Himalayan blackberry, laurel, and climbing nightshade.

Wetland WSH2 is classified as palustrine forested/palustrine emergent under the USFWS system, and depressional under the HGM system. According to the City of Shoreline, Wetland WSH2 is rated a Type III (Shoreline Municipal Code 20.80.320). According to Ecology's wetland rating system, the wetland is rated a Category III based on its score. The wetland scored 34 points on Ecology's rating form (6 points for water quality, 20 points for hydrologic functions, and 8 points for habitat functions) (Attachment D). The City of Shoreline requires a standard 65-foot buffer for Type III wetlands (Shoreline Municipal Code 20.80.330).

Wetland WSH3

Size: Approximately 0.09 acre

City of Shoreline Rating: Type III

Ecology Rating: Category III

USFWS Classification: Palustrine Emergent

HGM Classification: Depressional

Sample Plots: WSH3-SP1 and WSH3-SP2

Wetland WSH3 is located east of I-5, just south of NE 155th Street, and west of the fire station (see Figure 3-1a). This wetland is primarily in a linear depression, located entirely within the delineation survey area. Sample Plot WSH3-SP1 characterizes the wetland and Sample Plot WSH3-SP2 characterizes the adjacent upland.

Wetland hydrology is primarily supported by shallow groundwater and precipitation; however, surface runoff from the fire station parking lot may also contribute to the hydrology. The wetland drains south to a ditch within the I-5 right-of-way. Inundation and saturated soils were observed during the field investigation.

Wetland WSH3 contains an emergent community. Vegetation within the wetland is dominated by reed canarygrass, but also includes one western redcedar, some Himalayan blackberry, giant horsetail, and climbing nightshade.

Soil was examined to a depth of 19 inches and consists of two layers. The top layer is a 5-inch dark grayish brown (10YR 4/2) gravelly sandy loam. The lower layer is a dark grayish brown (10YR 4/2) gravelly sandy loam with cobbles and strong brown (7.5YR 4/6) redoximorphic features. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WSH3 consists of a narrow slope dominated by reed canarygrass and Himalayan blackberry to the north and south. The buffer to the west is the I-5 fill slope, dominated by Himalayan blackberry, a row of Douglas fir trees, and maintained grasses. To the east there is a narrow row of ornamental trees along the edge of the parking lot of the fire station.

Wetland WSH3 is classified as palustrine emergent under the USFWS system and depressional under the HGM system. According to the City of Shoreline, Wetland WSH3 is rated a Type III (Shoreline Municipal Code 20.80.320). According to Ecology's wetland rating system, the wetland is rated a

Category III based on its score. The wetland scored 35 points on Ecology's rating form (14 points for water quality, 16 points for hydrologic functions, and 5 points for habitat functions) (Attachment D). The City of Shoreline requires a standard 65-foot buffer for Type III wetlands (Shoreline Municipal Code 20.80.330).

Wetland WSH4

Size: Approximately 0.10 acre

City of Shoreline Rating: Type III

Ecology Rating: Category III

USFWS Classification: Palustrine Forested/Palustrine Emergent

HGM Classification: Depressional

Sample Plots: WSH4-SP1, WSH4-SP2, and WSH4-SP3

Wetland WSH4 is located east of the I-5 off-ramp to State Route (SR) 104 and west of Forest Park Drive NE, extending northeast of the field reconnaissance and delineation survey areas (see Figure 3-1b). This linear wetland is near the I-5 right-of-way fence, ranging from the lower portion of the I-5 fill slope down to the toe. Sample Plots WSH4-SP1 and WSH4-SP3 characterize the wetland and Sample Plot WSH4-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by a high groundwater table and seeps. The seeps are located along the northwest boundary of the wetland. No specific inlet was observed. Water flows to the northeast in a swale at the edge of the I-5 right-of-way, draining to McAleer Creek. Inundation and saturated soils were observed during the field investigation.

Wetland WSH4 contains forested and emergent communities. Vegetation within the forested community includes red alder, salmonberry, twinberry honeysuckle (*Lonicera involucrata*), reed canarygrass, common ladyfern, fowl mannagrass (*Glyceria striata*), creeping buttercup, Himalayan blackberry, and giant horsetail. The vegetation within the emergent community includes giant horsetail, common ladyfern, Himalayan blackberry, American speedwell, fringed willowherb (*Epilobium ciliatum*), common duckweed, and twoheaded water-starwort.

At Sample Plot WSH4-SP1, soil was examined to a depth of 20 inches and consists of two layers. The top layer is a 17-inch black (10YR 2/1) silt loam with organics. The lower layer is a very dark gray (10YR 3/1) and dark grayish brown (10YR 4/2) very sandy loam with gravel and cobbles. At Sample Plot WSH4-SP3, soil was examined to a depth of 20 inches and consists of two layers. The top layer is a 15-inch black (10YR 2/1) silt loam with organics. The lower layer is a black (10YR 2/1) and dark grayish brown (10YR 4/2) gravelly sandy loam with cobbles. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer on the slope, north and west of Wetland WSH4, consists of Douglas fir, Himalayan blackberry, and Indian plum. The buffer consists of maintained residential yards, roads, and driveways to the south and east.

Wetland WSH4 is classified as palustrine forested/palustrine emergent under the USFWS system and depressional under the HGM system. According to the City of Shoreline, Wetland WSH4 is

rated a Type III (Shoreline Municipal Code 20.80.320). According to Ecology's wetland rating system, the wetland is rated a Category III based on its score. The wetland scored 37 points on Ecology's rating form (14 points for water quality, 10 points for hydrologic functions, and 13 points for habitat functions) (Attachment D). The City of Shoreline requires a standard 65-foot buffer for Type III wetlands (Shoreline Municipal Code 20.80.330).

Wetland WSH5

Size: Approximately 0.48 acre

City of Shoreline Rating: Type III

Ecology Rating: Category III

USFWS Classification: Palustrine Forested

HGM Classification: Depressional

Sample Plots: WSH5-SP1 and WSH5-SP2

Wetland WSH5 is in a deep depression associated with McAleer Creek, surrounded by roadway fill slopes. It is located entirely within the delineation survey area east of I-5 inside the northbound on-ramp cloverleaf south of SR 104 (see Figure 3-1b). Sample Plot WSH5-SP1 characterizes the wetland and Sample Plot WSH5-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by McAleer Creek, stormwater drainages, and a shallow groundwater table. Seeps and drainage patterns were also observed along the slopes of the wetland. The primary inlet and outlet are large culverts associated with McAleer Creek. Both the wetland and stream drain to the south.

Wetland WSH5 contains a forested community. Vegetation within the wetland includes red alder, black cottonwood, birch, rose spirea, Scouler's willow (*Salix scouleriana*), salmonberry, twinberry honeysuckle, reed canarygrass, small-fruited bulrush, giant horsetail, creeping buttercup, common ladyfern, coastal hedgenettle (*Stachys chamissonis*), climbing nightshade, and fringed willowherb.

Soil was examined to a depth of 18 inches and consists of two layers. The top layer is a 10-inch very dark grayish brown (10YR 3/2) sandy loam. The lower layer is a very dark greenish gray (10Y 3/1) gravelly sand with dark yellowish brown (10YR 4/6) redoximorphic features. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WSH5 consists of coniferous and deciduous trees. Species include Douglas fir, black cottonwood, red alder, western redcedar, ornamental maple, and ornamental cherry (*Prunus* sp.) Understory vegetation consists of Himalayan blackberry, rose spirea, Indian plum, English holly, trailing blackberry (*Rubus ursinus*), western swordfern, giant horsetail, and English ivy. Additionally, a narrow band of maintained herbaceous vegetation, including tick quackgrass (*Thinopyrum pycnanthum*), is located near the roadways.

Wetland WSH5 is classified as palustrine forested under the USFWS system and depressional under the HGM system. According to the City of Shoreline, Wetland WSH5 is rated a Type III (Shoreline Municipal Code 20.80.320). According to Ecology's wetland rating system, the wetland is rated a Category III based on its score. The wetland scored 33 points on Ecology's rating form (12 points for

water quality, 6 points for hydrologic functions, and 15 points for habitat functions) (Attachment D). The City of Shoreline requires a standard 65-foot buffer for Type III wetlands (Shoreline Municipal Code 20.80.330).

3.1.3 Mountlake Terrace

Wetland WMT1

Size: Approximately 0.49 acre

City of Mountlake Terrace and Ecology Rating: Category III

USFWS Classification: Palustrine Forested

HGM Classification: Depressional

Sample Plots: WMT1-SP1 and WMT1-SP2

Wetland WMT1 is in a deep depression associated with McAleer Creek surrounded by roadway fill slopes. It is located entirely within the delineation survey area east of I-5 inside of the cloverleaf northbound off-ramp, north of SR 104 (see Figure 3-1b). Sample Plot WMT1-SP1 characterizes the wetland and Sample Plot WMT1-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by McAleer Creek, stormwater runoff, a shallow groundwater table, and seeps. Saturation at the surface was commonly observed throughout the wetland, especially near the base of slopes. The wetland also contains inundated micro-depressions and drainage channels. Large amounts of stormwater were observed flowing from a pipe southwest of the wetland, down a rock-lined channel through Wetland WMT1 to McAleer Creek. The primary inlet and outlet are large culverts associated with McAleer Creek. The stream channel is well-defined throughout most of the wetland. The wetland drains to McAleer Creek, which flows to the south (to Wetland WSH5).

Wetland WMT1 contains a forested community dominated by red alder, black cottonwood, salmonberry, Himalayan blackberry, twinberry honeysuckle, rose spirea, common ladyfern, giant horsetail, and creeping buttercup. Other species observed include birch, Himalayan blackberry English holly, Indian plum, pale yellow iris (*Iris pseudacorus*), reed canarygrass, largeleaf avens (*Geum macrophyllum*), fringed willowherb, climbing nightshade, western touch-me-not (*Impatiens noli-tangere*), and western swordfern.

Soil was examined to a depth of 18 inches and consists of three layers. The top layer is a 5-inch very dark grayish brown (10YR 3/2) silt loam. The middle layer is a 4-inch dark gray (10YR 4/1) gravelly sandy loam with dark yellowish brown (10YR 4/6) redoximorphic features. The lower layer is a dark gray (10YR 4/1) very sandy loam with dark yellowish brown (10YR 4/6) redoximorphic features. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WMT1 consists of coniferous and deciduous trees. Species include Douglas fir, black cottonwood, red alder, birch, western hemlock (*Tsuga heterophylla*), and bitter cherry (*Prunus emarginata*). Understory vegetation consists of Himalayan blackberry, rose spirea, Indian plum, English holly, western swordfern, and giant horsetail. Additionally, a narrow band of maintained herbaceous vegetation is located near the roadways.

Wetland WMT1 is classified as palustrine forested under the USFWS system and depressional under the HGM system. Wetland WMT1 is rated a Category III according to the City of Mountlake Terrace (Mountlake Terrace Municipal Code 16.15.080) and Ecology. The wetland scored 33 points on Ecology's rating form (12 points for water quality, 6 points for hydrologic functions, and 15 points for habitat functions) (Attachment D). The City of Mountlake Terrace requires a standard 65-foot buffer for Category III wetlands (Mountlake Terrace Municipal Code 16.15.090).

Wetland WMT2

Size: Approximately 0.17 acre

City of Mountlake Terrace and Ecology Rating: Category III

USFWS Classification: Palustrine Forested

HGM Classification: Riverine/Slope

Sample Plots: WMT2-SP1, WMT2-SP2, and WMT2-SP3

Wetland WMT2 is located east of I-5, northeast of the northbound I-5 on-ramp from SR 104 and southeast of Gateway Place (see Figure 3-1b). This wetland is on a steep slope extending down to McAleer Creek, located entirely within the delineation survey area. Sample Plots WMT2-SP1 and WMT2-SP3 characterize the wetland and Sample Plot WMT2-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by McAleer Creek and seeps. Areas of saturation and inundation were observed in the wetland. The stream channel is well-defined throughout most of the wetland. McAleer Creek flows from the northwest (from the Nile Shrine Golf Course west of I-5) to the south in a pipe under the northbound I-5 on-ramp to Wetland WMT1.

Wetland WMT2 contains a forested community. Vegetation on the slope consists of black cottonwood and red alder in the overstory, with an understory dominated by scouring rush (*Equisetum hyemale*). Other species include Himalayan blackberry, trailing blackberry, salmonberry, laurel, English holly, Indian plum, common hawthorn, reed canarygrass, western swordfern, coastal hedgenettle, and giant horsetail. Vegetation in and adjacent to McAleer Creek includes overhanging black cottonwood, salmonberry, Himalayan blackberry, pale yellow iris, creeping buttercup, small-fruited bulrush, reed canarygrass, climbing nightshade, western touch-me-not, and giant horsetail.

At Sample Plot WMT2-SP1, soil was examined to a depth of 12 inches and consists of two layers. The top layer is a 6-inch very dark grayish brown (10YR 3/2) sandy loam. The lower layer is a dark grayish brown (2.5Y 4/2) gravelly sandy loam with yellowish brown (10YR 5/6) redoximorphic features. There is an extremely compacted restrictive layer at 12 inches. At Sample Plot WMT2-SP3, soil was examined to a depth of 20 inches and consists of four layers. The top layer is a 3-inch black (10YR 2/1) loam. The second layer is a dark gray (10YR 4/1) compacted sand with dark yellowish brown (10YR 3/6) redoximorphic features. The third layer is a very dark gray (10YR 3/1) compacted sand with gravel and small cobbles that has dark yellowish brown (10YR 3/6) redoximorphic features. The lowest layer is a very dark gray (10YR 3/1) sandy loam. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WMT2 consists generally of steep vegetated slopes. Species growing east of the wetland include Douglas fir, red alder, bitter cherry, bigleaf maple, ornamental

maple, Himalayan blackberry, trailing blackberry, and western swordfern. The buffer to the west consists of Douglas fir, western redcedar, red alder, ornamental maple, black cottonwood, Indian plum, Himalayan blackberry, trailing blackberry, and western swordfern.

Wetland WMT2 is classified as palustrine forested under the USFWS system, and riverine/slope under the HGM system. Wetland WMT2 is rated a Category III according to the City of Mountlake Terrace (Mountlake Terrace Municipal Code 16.15.080) and Ecology. The wetland scored 46 points on Ecology's rating form (16 points for water quality, 16 points for hydrologic functions, and 14 points for habitat functions) (Attachment D). The City of Mountlake Terrace requires a standard 65-foot buffer for Category III wetlands (Mountlake Terrace Municipal Code 16.15.090).

Wetland WMT3

Size: Approximately 0.07 acre

City of Mountlake Terrace and Ecology Rating: Category III

USFWS Classification: Palustrine Forested

HGM Classification: Depressional

Sample Plots: WMT3-SP1 and WMT3-SP2

Wetland WMT3 is in a small, shallow depression east of I-5, east of the northbound I-5 off-ramp, west of 237th Street SW, and south of 236th Street SW (see Figure 3-1c). The wetland is located entirely within the field survey area. Sample Plot WMT3-SP1 characterizes the wetland and Sample Plot WMT3-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by a high ground water table. Soil saturation was observed and water-stained leaves were present. There may also be some periods of inundation. It is a closed depression and therefore has no inlet or outlet.

Wetland WMT3 has a forested community consisting of red alder, western redcedar, salmonberry, common ladyfern, western skunk cabbage (*Lysichiton americanus*), and giant horsetail. A single bitter cherry tree, a single western hemlock tree, western swordfern, and salal (*Gaultheria shallon*) are growing on hummocks.

Soil was examined to a depth of 18 inches and consists of two layers. The top layer is an 11-inch very dark gray (10YR 3/1) silt loam. The lower layer is a black (10YR 2/1) silt loam. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WMT3 consists of a mixed forest. Species include bitter cherry, red alder, western redcedar, Douglas fir (on the upper slopes), western hemlock, Himalayan blackberry, Indian plum, salmonberry, cherry laurel (*Prunus laurocerasus*), red elderberry, giant horsetail, and English ivy.

Wetland WMT3 is classified as palustrine forested under the USFWS system and is depressional under the HGM system. Wetland WMT3 is rated a Category III according to the City of Mountlake Terrace (Mountlake Terrace Municipal Code 16.15.080) and Ecology. The wetland scored 41 points on Ecology's rating form (16 points for water quality, 14 points for hydrologic functions, and 11

points for habitat functions) (Attachment D). The City of Mountlake Terrace requires a standard 65-foot buffer for Category III wetlands (Mountlake Terrace Municipal Code 16.15.090).

Wetland WMT4

Size: Approximately 0.43 acre

City of Mountlake Terrace and Ecology Rating: Category III

USFWS Classification: Palustrine Scrub-Shrub

HGM Classification: Depressional

Sample Plots: WMT4-SP1 and WMT4-SP2

Wetland WMT4 is located in a depression west of I-5 and west of the southbound I-5 off-ramp to SR 104. This wetland was not delineated because it is outside of the delineation survey area. It also extends west of the field reconnaissance survey area onto the Nile Shrine Golf Course and is approximately 0.43 acre (see Figure 3-1b). Sample Plot WMT4-SP1 characterizes the wetland and Sample Plot WMT4-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by a high groundwater table and potentially stormwater runoff from I-5. The wetland drains north to McAleer Creek. Observations during the site investigation included flowing water and drainage patterns. The wetland is seasonally inundated and saturated.

Wetland WMT4 contains a scrub-shrub community. Vegetation within the wetland is dominated by salmonberry, common ladyfern, and Himalayan blackberry. Other species present include twinberry honeysuckle, reed canarygrass, western swordfern, giant horsetail, water horsetail (*Equisetum fluviatile*), and false lily of the valley (*Maianthemum dilatatum*).

Soil was examined to a depth of 18 inches and consists of three layers. The top layer is a 5-inch very dark brown (10YR 2/2) loam. The middle layer is an 11-inch very dark greenish gray (10Y 3/1) gravelly sand. The lower layer is a very dark gray (5Y 3/1) and dark greenish gray (10GY 4/1) very sandy loam. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WMT4 consists of narrow areas of forest to the east and west of the wetland. A large retaining wall disrupts the buffer to the east and a golf course is located to the west. The golf course beyond the forested strip to the west is composed of maintained grasses. The forested buffer consists of red alder, western redcedar, salmonberry, Indian plum, Himalayan blackberry, English holly, English ivy, and giant horsetail.

Wetland WMT4 is classified as palustrine scrub-shrub under the USFWS system and depressional under the HGM system. Wetland WMT4 is rated a Category III according to the City of Mountlake Terrace (Mountlake Terrace Municipal Code 16.15.080) and Ecology. The wetland scored 34 points on Ecology's rating form (16 points for water quality, 6 points for hydrologic functions, and 12 points for habitat functions) (Attachment D). The City of Mountlake Terrace requires a standard 65-foot buffer for Category III wetlands (Mountlake Terrace Municipal Code 16.15.090).

Wetland WMT5

Size: Approximately 0.34 acre

City of Mountlake Terrace and Ecology Rating: Category III

USFWS Classification: Palustrine Forested/Palustrine Emergent

HGM Classification: Depressional

Sample Plots: WMT5-SP1, WMT5-SP2, and WMT5-SP3

Wetland WMT5 is located in a shallow depression west of I-5, east of the southbound I-5 off-ramp to 220th Street SW, and north of 220th Street SW (see Figure 3-1c). The wetland is located entirely within the delineation survey area. Sample Plot WMT5-SP1 characterizes the wetland and Sample Plot WMT5-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by a high groundwater table and stormwater runoff. Saturation at the surface was observed along the perimeter of the wetland with pockets of inundation through the center of the wetland. The wetland drains to a catch basin located in the northern portion of the wetland.

Wetland WMT5 contains a forested community and an emergent community. The forested community is dominated by red alder, black cottonwood, quaking aspen (*Populus tremuloides*), twinberry honeysuckle, red-osier dogwood, and Sitka willow, but the emergent community is dominated by reed canarygrass. Other species observed include birch, climbing nightshade, common rush, and fringed willowherb.

At Sample Plot WMT5-SP1, soil was examined to a depth of 18 inches and consists of three layers. The top layer is a 4-inch very dark grayish brown (10YR 3/2) sandy loam. The middle layer is a 3-inch dark greenish gray (10Y 4/1) clay loam. The lower layer is a greenish gray (10Y 5/1) gravelly sandy loam. The middle and lower layers are very compacted.

At Sample Plot WMT5-SP3, soil was examined to a depth of 18 inches and consists of three layers. The top layer is a 6-inch very dark gray (10YR 3/1) gravelly sandy loam. The middle layer is a very dark gray (10YR 3/1) gravelly sandy loam with strong brown (7.5YR 4/6) redoximorphic features. The lowest layer is a very dark gray (2.5Y 3/1) gravelly sandy loam with light olive brown (2.5Y 5/6) redoximorphic features. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WMT5 consists of steep vegetated slopes and maintained road shoulders. The upper slopes, near the roadways, are generally maintained grasses and disturbance-tolerant forbs. The lower portion of the buffer consists of red alder, Douglas fir, black cottonwood, Himalayan blackberry, snowberry (*Symphoricarpos albus*), twinberry honeysuckle, western redcedar, and forsythia (*Forsythia suspensa*).

Wetland WMT5 is classified as palustrine forested/palustrine emergent under the USFWS system, and depressional under the HGM system. Wetland WMT5 is rated a Category III according to the City of Mountlake Terrace (Mountlake Terrace Municipal Code 16.15.080) and Ecology. The wetland scored 30 points on Ecology's rating form (14 points for water quality, 7 points for hydrologic functions, and 9 points for habitat functions) (Attachment D). The City of Mountlake Terrace requires a standard 65-foot buffer for Category III wetlands (Mountlake Terrace Municipal Code 16.15.090).

Wetland WMT6

Size: Approximately 1.12 acres

City of Mountlake Terrace and Ecology Rating: Category III

USFWS Classification: Palustrine Forested

HGM Classification: Depressional

Sample Plots: WMT6-SP1 and WMT6-SP2

Wetland WMT6 is located on a slope and depression northeast of the Mountlake Terrace City Hall. This location is west of I-5, southeast of 60th Avenue West, and west of the southbound I-5 off-ramp to 220th Street SW (see Figure 3-1c). The wetland is located entirely within the delineation survey area. Sample Plot WMT6-SP1 characterizes the wetland and Sample Plot WMT6-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by groundwater. Pockets of saturation and inundation were irregularly located throughout the wetland. The wetland has hummocks and micro-depressions as well as a slope. During the site investigation, the groundwater was expressing in the lower portions of the slope and draining to a catch basin in a ditch northwest of the wetland.

Wetland WMT6 contains a forested community. Vegetation within the wetland includes red alder, Pacific willow, black cottonwood, salmonberry, Himalayan blackberry, red-osier dogwood, giant horsetail, small-fruited bulrush, western skunk cabbage, spreading woodfern (*Dryopteris expansa*), and common ladyfern. Creeping buttercup, watercress, and American speedwell are dominant outside the right-of-way fence along 60th Avenue West.

Soil was examined to a depth of 18 inches and consists of two layers. The top layer is a 7-inch black (10YR 2/1) silt loam with organics. The lower layer is a greenish gray (10G 5/1) gravelly sandy loam. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WMT6 consists of forested areas and maintained lawn. The buffer to the southeast on the I-5 prism slope consists of Douglas fir, big-leaf maple, Himalayan blackberry, Indian plum, and giant horsetail. The buffer near the Mountlake Terrace City Hall and I-5 generally consists of maintained grasses and disturbance-tolerant forbs with some landscaped trees.

Wetland WMT6 is classified as palustrine forested under the USFWS system and depressional under the HGM system. Wetland WMT6 is rated a Category III according to the City of Mountlake Terrace (Mountlake Terrace Municipal Code 16.15.080) and Ecology. The wetland scored 30 points on Ecology's rating form (14 points for water quality, 7 points for hydrologic functions, and 9 points for habitat functions) (Attachment D). The City of Mountlake Terrace requires a standard 65-foot buffer for Category III wetlands (Mountlake Terrace Municipal Code 16.15.090).

Wetland WMT7

Size: Approximately 0.42 acre

City of Mountlake Terrace and Ecology Rating: Category III

USFWS Classification: Palustrine Forested

HGM Classification: Depressional

Sample Plots: WMT7-SP1 and WMT7-SP2

Wetland WMT7 is a relatively flat depression west of the I-5 fill slope, east of 60th Avenue West, and northeast of Wetland WMT6 (see Figure 3-1c). A portion of the wetland was delineated and surveyed in the WSDOT right-of-way, but this work was not completed on the private parcel to the west. The wetland extends outside of the field reconnaissance and delineation survey areas. Sample Plot WMT7-SP1 characterizes the wetland and Sample Plot WMT7-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by a high groundwater table. The predominant hydrologic regime is saturated soils and the outlet of the wetland is located on the west side of the wetland outside of the field reconnaissance and delineation survey areas. The wetland drains into a culvert that flows to the northwest under 60th Avenue West.

Wetland WMT7 contains a forested community. Vegetation within the wetland includes red alder, Sitka willow, Pacific willow, western redcedar, salmonberry, Himalayan blackberry, twinberry honeysuckle, common ladyfern, American skunk cabbage, giant horsetail, and coastal hedgenettle.

Soil was examined to a depth of 26 inches and consists of three layers. The top layer is a 10-inch black (10YR 2/1) organic layer. The middle layer is a 7-inch very dark brown (10YR 2/2) organic layer. The lower layer is a very dark gray (10YR 3/1) silt loam with organic matter inclusions. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer to the north, west, and south of Wetland WMT7 consists of red alder, western redcedar, and salmonberry. There is a narrow forested area on the steep slope of the I-5 road prism to the east that consists of big-leaf maple, European mountain ash (*Sorbus aucuparia*), Douglas fir, Himalayan blackberry, Indian plum, and western swordfern. A narrow band of generally maintained grasses and disturbance-tolerant forbs is located immediately adjacent to I-5.

Wetland WMT7 is classified as palustrine forested under the USFWS system and depressional under the HGM system (Brinson 1993). Wetland WMT7 is rated a Category III according to the City of Mountlake Terrace (Mountlake Terrace Municipal Code 16.15.080) and Ecology. The wetland scored 32 points on Ecology's rating form (14 points for water quality, 7 points for hydrologic functions, and 11 points for habitat functions) (Attachment D). The City of Mountlake Terrace requires a standard 65-foot buffer for Category III wetlands (Mountlake Terrace Municipal Code 16.15.090).

Wetland WMT8

Size: Approximately 0.01 acre

City of Mountlake Terrace and Ecology Rating: Category IV

USFWS Classification: Palustrine Forested

HGM Classification: Slope

Sample Plots: WMT8-SP1 and WMT8-SP2

Wetland WMT8 is located in a swale southeast of I-5, northwest of an apartment complex, and south of 212th Street SW (see Figure 3-1c). Although it is within the field reconnaissance survey area, this wetland was not delineated because it is outside of the delineation survey area. Sample Plot WMT8-SP1 characterizes the wetland and Sample Plot WMT8-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by a high groundwater table. No inlet or outlet was observed in the wetland. Water was flowing slowly from the south to the north during the site investigation. Inundation, saturation, water-stained leaves, and algae were also observed in the wetland. The flowing water likely goes subsurface and drains to a nearby stormwater drainage element.

Wetland WMT8 contains a forested community. Vegetation within the wetland includes salmonberry, common ladyfern, western skunk cabbage, Himalayan blackberry, piggy-back-plant (*Tolmiea menziesii*), giant horsetail, and English ivy. Red alder is growing along the edge, overhanging the wetland.

Soil was examined to a depth of 19 inches and consists of three layers. The top layer is a 5-inch very dark gray (10YR 3/1) loam. The middle layer is a dark gray (5Y 4/1) gravelly sandy loam with olive brown (2.5Y 4/3) redoximorphic features from 5 to 9 inches. The lower layer is a dark greenish gray (10Y 4/1) gravelly sandy loam with dark yellowish brown (10YR 3/4) redoximorphic features. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WMT8 is forested and consists of red alder, Douglas fir, big-leaf maple, European mountain ash, western redcedar, Himalayan blackberry, Indian plum, salmonberry, English ivy, and western swordfern.

Wetland WMT8 is classified as palustrine forested under the USFWS system and depressional under the HGM system. Wetland WMT8 is rated a Category IV according to the City of Mountlake Terrace (Mountlake Terrace Municipal Code 16.15.080) and Ecology. The wetland scored 14 points on Ecology's rating form (4 points for water quality, 3 points for hydrologic functions, and 7 points for habitat functions) (Attachment D). The City of Mountlake Terrace requires a standard 50-foot buffer for Category IV wetlands (Mountlake Terrace Municipal Code 16.15.090).

Wetland WMT9

Size: Approximately 0.03 acre

City of Mountlake Terrace and Ecology Rating: Category IV

USFWS Classification: Palustrine Emergent

HGM Classification: Depressional

Sample Plots: WMT9-SP1 and WMT9-SP2

Wetland WMT9 is a shallow, linear depression (associated with a ditch) located east of the I-5 northbound on-ramp, south of 236th Street SW (see Figure 3-1c). The wetland is located entirely within the delineation survey area. Sample Plot WMT9-SP1 characterizes the wetland and Sample Plot WMT9-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by precipitation, stormwater runoff, and a high groundwater table. There are no inlets to Wetland WMT9. A catch basin is located at the south end of the wetland providing an outlet. Areas of inundation and saturated soils were observed in the wetland.

Wetland WMT9 consists of an emergent vegetation community dominated by maintained grasses interspersed with locally dominant patches of broadleaf cattail, red fescue, common rush, and reed canarygrass.

Soil was examined to a depth of 15 inches and consists of three layers. The top layer is a 2-inch very dark gray (10YR 3/1) silt loam. The middle layer (2 to 9 inches) is a dark gray (2.5Y 5/1) loamy sand with light olive brown (2.5Y 5/6) redoximorphic features. The bottom layer is a compacted dark gray (5Y 5/1) loamy sand with reddish brown (5YR 6/8) redoximorphic features at 9 to 15 inches. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer east and directly adjacent to Wetland WMT9 is a mowed right-of-way dominated by disturbance-tolerant grasses and forbs. A vigorous stand of mixed trees and shrubs, likely planted about 10 years ago, dominate the area farther upslope, east of the wetland. Species consist of big-leaf maple, western serviceberry (*Amelanchier alnifolia*), Douglas fir, and vine maple (*Acer circinatum*). A thin strip of mowed right-of-way separates the wetland from the paved shoulder of the northbound I-5 on-ramp.

Wetland WMT9 is classified as palustrine emergent under the USFWS system and depressional under the HGM system (Brinson 1993). Wetland WMT9 is rated a Category IV according to the City of Mountlake Terrace (Mountlake Terrace Municipal Code 16.15.080) and Ecology. The wetland scored 17 points on Ecology's rating form (6 points for water quality, 4 points for hydrologic functions, and 7 points for habitat functions) (Attachment D). The City of Mountlake Terrace requires a standard 50-foot buffer for Category IV wetlands (Mountlake Terrace Municipal Code 16.15.090).

Wetland WMT10

Size: Approximately 0.03 acre

City of Mountlake Terrace and Ecology Rating: Category IV

USFWS Classification: Palustrine Scrub-Shrub

HGM Classification: Depressional

Sample Plots: WMT10-SP1 and WMT10-SP2

Wetland WMT10 is located east of the I-5 northbound on-ramp, north of SR 104 (see Figure 3-1b). This depressional wetland is near the I-5 right-of-way fence, at the toe of the I-5 fill slope. Sample Plot WMT10-SP1 characterizes the wetland and Sample Plot WMT10-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by a high groundwater table and runoff from the immediate vicinity. The wetland does not contain an inlet or an outlet. Saturated soils and a high water table were observed during the field investigation.

Wetland WMT10 contains a scrub-shrub community dominated by red-osier dogwood, black cottonwood, and Himalayan blackberry. Other common species include rose spirea, giant horsetail, and fringed willowherb. This wetland appears to be maintained periodically.

Soil was examined to a depth of 18 inches and consists of two layers. The top layer is a 5-inch dark grayish brown (10YR 3/2) sandy loam. The lower layer is a dark grayish brown (10YR 3/2) sandy loam and a dark yellowish brown (10YR 3/4) gravelly loamy sand at 5 to 18 inches. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer on the slope to the north, west, and south of Wetland WMT10 consists of a mowed right-of-way dominated by disturbance-tolerant grasses and forbs. Undeveloped (cleared) and developed (commercial building and large parking lot) parcels are located to the east of the wetland, outside the right-of-way fencing.

Wetland WMT10 is classified as palustrine scrub-shrub under the USFWS system and depressional under the HGM system. Wetland WMT10 is rated a Category IV according to the City of Mountlake Terrace and Ecology (Mountlake Terrace Municipal Code 16.15.080). The wetland scored 29 points on Ecology's rating form (12 points for water quality, 8 points for hydrologic functions, and 9 points for habitat functions) (Attachment D). The City of Mountlake Terrace requires a standard 50-foot buffer for Category IV wetlands (Mountlake Terrace Municipal Code 16.15.090).

Wetland WMT11

Size: Approximately 0.07 acre

City of Mountlake Terrace and Ecology Rating: Category III

USFWS Classification: Palustrine Scrub-Shrub

HGM Classification: Depressional

Sample Plots: WMT11-SP1 and WMT11-SP2

Wetland WMT11 is a previously maintained ditch/swale associated with an abandoned school site located east of the I-5 northbound on-ramp, south of 236th Street SW (see Figure 3-1c). The wetland extends outside of the delineation survey area to the east. Sample Plot WMT11-SP1 characterizes the wetland and Sample Plot WMT11-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by precipitation, stormwater runoff, high groundwater table, and occasional ephemeral flooding from Stream SMT1. The inlet to Wetland WMT11 is a partially buried 36-inch corrugated metal pipe that extends under a road to the west of the wetland conveying SMT1. The wetland transitions back to a stream (SMT1) that flows in a southerly direction along the toe of a slope (east of the wetland), eventually discharging into McAleer Creek. Areas of inundation and saturated soils were observed in the wetland.

Wetland WMT11 contains a scrub-shrub community dominated by Himalayan blackberry with locally dominant salmonberry that extends farther east and south, outside the delineation survey area. Emergent vegetation within this community is dominated by reed canarygrass and giant horsetail with a locally dominant patch of common ladyfern (also extending east and south outside the study area). Other species observed include climbing nightshade, creeping buttercup, and a solitary Pacific willow.

Soil was examined to a depth of 18 inches and consists of three layers. The top layer is a 6-inch black (10YR 2/1) sandy clay loam. The middle layer is a very dark grayish brown (10YR 3/2) loamy sand at 6 to 9 inches. At 9 to 18 inches, the bottom layer is a dark grayish brown (10YR 4/2) loamy sand with yellowish brown (10YR 5/8) redoximorphic features. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer northeast of Wetland WMT11 is unmaintained grasses and forbs. The buffer to the southwest is a narrow strip of unmaintained grasses and forbs preceded by paved roadway. A small portion of the wetland is bordered by a stand of mature trees and shrubs along the eastern perimeter, which are part of a larger contiguous vegetated corridor that extends north and south along a steep slope, where the Wetland WMT11 transitions to stream. The trees and shrubs primarily consist of big-leaf maple, black cottonwood, Douglas fir, vine maple, willow species, salmonberry, Himalayan blackberry, and red alder. The remainder of the buffer consists of unvegetated areas, including a road and abandoned building foundations.

Wetland WMT11 is classified as palustrine scrub-shrub under the USFWS system and depressional under the HGM system (Brinson 1993). Wetland WMT11 is rated a Category III according to the City of Mountlake Terrace (Mountlake Terrace Municipal Code 16.15.080) and Ecology. The wetland scored 37 points on Ecology's rating form (22 points for water quality, 4 points for

hydrologic functions, and 11 points for habitat functions) (Attachment D). The City of Mountlake Terrace requires a standard 65-foot buffer for Category III wetlands (Mountlake Terrace Municipal Code 16.15.090).

3.1.4 Lynnwood

Wetland WLY3

Size: Approximately 0.08 acre

City of Lynnwood and Ecology Rating: Category III

USFWS Classification: Palustrine Scrub-Shrub/Palustrine Emergent/Palustrine Unconsolidated Bottom

HGM Classification: Depressional

Sample Plots: WLY3-SP1, WLY3-SP2, WLY3-SP3, and WLY3-SP4

Wetland WLY3 is in a linear depression northwest of I-5 and south of the end of 53rd Avenue West (see Figure 3-1c). The wetland is located entirely within the delineation survey area. Sample Plot WLY3-SP1 characterizes the wetland and Sample Plots WLY3-SP2, WLY3-SP3, and WLY3-SP4 characterize the adjacent upland.

Wetland hydrology is supported by surface water from a culvert under 52nd Avenue and a high groundwater table. Saturation at the surface was observed along the perimeter of the wetland with flowing water through the center of the wetland. A well-defined, ditched channel is present through some of the wetland. The wetland drains to a lifted culvert located near the southwest end of the wetland.

Wetland WLY3 contains a scrub-shrub community dominated by rose spirea with some Himalayan blackberry. This wetland also has an emergent community dominated by reed canarygrass and creeping buttercup. Other species include colonial bentgrass, broadleaf cattail, water parsley, and black cottonwood saplings.

Soil was examined to a depth of 20 inches and consists of two layers. The surface layer is a mixture of a very dark gray (10YR 3/1) silt loam and a gray (2.5Y 5/1) clay loam with light olive brown (2.5Y 5/6) redoximorphic features. The lower layer is a black (10YR 2/1) silt loam. High levels of organic content were observed in the lower layer. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WLY3 consists of steep forested slopes on the I-5 fill slopes to the southeast and disturbed residential properties to the northwest. Vegetation in the I-5 right-of-way consists of Douglas fir, big-leaf maple, black cottonwood, red alder, redwood (*Sequoia* sp.), Himalayan blackberry, English holly, English ivy, Indian plum, and western swordfern. A row of trees including black cottonwood, Douglas fir, and big-leaf maple are growing on the right-of-way fence line northwest of the wetland.

Wetland WLY3 is classified as palustrine scrub-shrub/palustrine emergent/palustrine unconsolidated bottom under the USFWS system and depressional under the HGM system. Wetland WLY3 is rated

a Category III according to the City of Lynnwood (Lynnwood Municipal Code 17.10.050) and Ecology. The wetland scored 36 points on Ecology's rating form (10 points for water quality, 16 points for hydrologic functions, and 10 points for habitat functions) (Attachment D). The City of Lynnwood requires a standard 75-foot buffer for Category III wetlands (Lynnwood Municipal Code 17.10.051).

Wetland WLY4

Size: Approximately 16.54 acres

City of Lynnwood and Ecology Rating: Category II

USFWS Classification: Palustrine Forested/Palustrine Scrub-Shrub/Palustrine Emergent

HGM Classification: Riverine/Depressional

Sample Plots: WLY4-SP1, WLY4-SP2, WLY4-SP3, WLY4-SP4, and WLY4-SP5

Wetland WLY4 is a large wetland/stream complex associated with Scriber Creek, located southeast of Cedar Valley Road, northeast of 204th Street SW, and southwest of the Lynnwood Transit Center (see Figure 3-1c). The wetland extends outside of the field reconnaissance and delineation survey areas. Sample Plots WLY4-SP1, WLY4-SP3, and WLY4-SP5 characterize the wetland and Sample Plots WLY4-SP2 and WLY4-SP4 characterize the adjacent upland.

Wetland hydrology is supported primarily by Scriber Creek, which enters the wetland from the north. A high groundwater table and stormwater runoff likely contribute to the hydrology as well. Saturation of soils, inundation, a permanently flowing stream, and open water ponds were observed in areas of Wetland WLY4. The channel of Scriber Creek is well defined near the northern and southern boundaries, becoming less defined in between. The wetland and Scriber Creek drain southeast, out of the field reconnaissance and delineation survey areas.

Wetland WLY4 contains forested, scrub-shrub, and emergent communities. The forested areas are dominated by black cottonwood, Pacific willow, and reed canarygrass, with lesser amounts of western redcedar, Sitka spruce, and salmonberry. The scrub-shrub community consists primarily of rose spirea, red-osier dogwood, twinberry honeysuckle, and Sitka willow. Indian plum, western skunk cabbage, and water parsley are also present. Reed canarygrass dominates the emergent community. The southern portion of the wetland adjacent to the Interurban Trail is actively maintained.

At Sample Plot WLY4-SP1, soil was examined to a depth of 20 inches and consists of one layer—a black (10YR 2/1) mucky silt. High levels of organic content in various stages of decomposition were observed in the soil. At Sample Plot WLY4-SP3, soil was examined to a depth of 20 inches and consists of three layers. The surface layer is a very dark brown (10YR 2/2) loam with decomposed organic matter. The middle layer is a gray (10YR 5/1) sandy loam with gravels and dark yellowish brown (10YR 3/6) redoximorphic features. The lower layer is a greenish gray (10Y 5/1) sandy loam with gravels and dark yellowish brown (10YR 3/6) redoximorphic features. At Sample Plot WLY4-SP5, soil was examined to a depth of 18 inches and consists of one layer—a black (10YR 2/1) very silty loam. High levels of organic content in various stages of decomposition were observed in the soil. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WLY4 is generally very narrow, often forested or shrub. The wetland is in an urban setting and much of the buffer is a narrow line of trees located between the wetland and developed areas, such as parking lots, trails, or residential and commercial structures. Vegetation includes Douglas fir, western redcedar, red alder, black cottonwood, Himalayan blackberry, red-osier dogwood, English holly, Portugal laurel (*Prunus lusitanica*), western swordfern, English ivy, maintained grasses, and other disturbance-tolerant species. Plantings, a split rail fence, and Native Growth Protection Area (NGPA) signs were observed in the vicinity of the private property to the south along the wetland edge.

Wetland WLY4 is classified as palustrine forested/palustrine scrub-shrub/palustrine emergent under the USFWS system and riverine/depressional under the HGM system. Wetland WLY4 is rated a Category II according to the City of Lynnwood (Lynnwood Municipal Code 17.10.050) and Ecology. The wetland scored 69 points on Ecology's rating form (26 points for water quality, 20 points for hydrologic functions, and 23 points for habitat functions) (Attachment D). The City of Lynnwood requires a standard 110-foot buffer for Category II wetlands (Lynnwood Municipal Code 17.10.051).

Wetland WLY6

Size: Approximately 0.04 acre

City of Lynnwood and Ecology Rating: Category III

USFWS Classification: Palustrine Forested

HGM Classification: Depressional

Sample Plots: WLY6-SP1 and WLY6-SP2

Wetland WLY6 is located in a depression northwest of I-5 and northeast of 208th Street SW (see Figure 3-1c). The wetland is located entirely within the delineation survey area. Sample Plot WLY6-SP1 characterizes the wetland and Sample Plot WLY6-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by stormwater runoff from under 208th Street SW and a high groundwater table. Wetland WLY6 likely has seasonal flooded and seasonal saturated hydroperiods. Wetland hydrology indicators observed include small pockets of inundation and soil saturation. No inlet or outlet was located during the field investigation.

Wetland WLY6 contains a forested community dominated by Pacific willow and twinberry honeysuckle. Other vegetation within the wetland includes red alder, Himalayan blackberry, rose spirea, sedge, common ladyfern, creeping buttercup, and reed canarygrass.

Soil was examined to a depth of 18 inches and consists of three layers. The top layer is a 4-inch very dark gray (10YR 3/1) silt loam with yellowish red (5YR 4/6) redoximorphic features. The middle layer is a 5-inch dark gray (5Y 4/1) clay loam with strong brown (7.5YR 4/6) redoximorphic features. The lower layer is a dark gray (5Y 4/1) clay loam with fewer strong brown (7.5YR 4/6) redoximorphic features. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WLY6 to the west is narrow, consisting of disturbance-tolerant grasses and forbs associated with the maintained right-of-way for 208th Street SW. The buffer to

the north is dominated by black cottonwood and Himalayan blackberry with a few red elderberry and one Douglas fir, extending into a fallow field. The buffer to the south and east contains a gravel access road and is vegetated primarily with Himalayan blackberry and Scotch broom with a few trees and some grasses. Much of the buffer is disturbed by a gravel access road and 208th Street SW.

Wetland WLY6 is classified as palustrine forested under the USFWS system and depressional under the HGM system. Wetland WLY6 is rated a Category III according to the City of Lynnwood (Lynnwood Municipal Code 17.10.050) and Ecology. The wetland scored 40 points on Ecology's rating form (22 points for water quality, 10 points for hydrologic functions, and 8 points for habitat functions) (Attachment D). The City of Lynnwood requires a standard 75-foot buffer for Category III wetlands (Lynnwood Municipal Code 17.10.051).

Wetland WLY7

Size: Approximately 0.04 acre

City of Lynnwood and Ecology Rating: Category III

USFWS Classification: Palustrine Scrub-Shrub

HGM Classification: Depressional

Sample Plots: WLY7-SP1 and WLY7-SP2

Wetland WLY7 is in a small depression northwest of the intersection of 48th Avenue West and the Interurban Trail (see Figure 3-1c). The wetland is located entirely within the delineation survey area. Sample Plot WLY7-SP1 characterizes the wetland and Sample Plot WLY7-SP2 characterizes the adjacent upland. It appears the wetland and entire site on which it is located have been disturbed within the last 10 years.

Wetland hydrology is supported by surface water and precipitation. Saturation was observed at a depth of 9 inches. Water-stained leaves were also observed within the wetland. No inlets or outlets to the wetland were observed.

Wetland WLY7 contains a scrub-shrub community. Vegetation within the wetland is dominated by black cottonwood, Pacific willow, and Sitka willow. Other common species include red alder saplings, Scouler's willow, twinberry honeysuckle, and salmonberry. Herbaceous vegetation under the shrubs was dominated by colonial bentgrass and common velvetgrass (*Holcus lanatus*).

Soil was examined to a depth of 18 inches and consists of three layers. The top layer is an 8-inch grayish brown (10YR 5/1) clay loam. The middle layer is a 5-inch dark grayish brown (10YR 3/2) sandy loam with dark yellowish brown (10YR 4/6) redoximorphic features. The lower layer is a dark reddish brown (10YR 3/3) disturbed sandy loam with dark yellowish brown (10YR 4/6) redoximorphic features. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The buffer surrounding Wetland WLY7 to the northeast is primarily a narrow patch of shrub species preceded by the Edmonds School District property, which is a combination of pavement and areas of bare earth disturbed by heavy machinery. The narrow patch of shrub includes black cottonwood saplings, Himalayan blackberry, Sitka willow, and Scouler's willow. A small portion of the buffer to the west is a narrow shrub-dominated corridor that extends along the Interurban Trail. The

remaining buffer is a thin strip of forbs and grasses followed by the Interurban Trail to the south and 48th Avenue West to the east.

Wetland WLY7 is classified as palustrine scrub-shrub under the USFWS system and depressional under the HGM system. Wetland WLY7 is rated a Category III according to the City of Lynnwood (Lynnwood Municipal Code 17.10.050) and Ecology. The wetland scored 36 points on Ecology's rating form (16 points for water quality, 14 points for hydrologic functions, and 6 points for habitat functions) (Attachment D). The City of Lynnwood requires a standard 75-foot buffer for Category III wetlands (Lynnwood Municipal Code 17.10.051).

Wetland WLY8

Size: Approximately 0.08 acre

City of Lynnwood and Ecology Rating: Category III

USFWS Classification: Palustrine Emergent

HGM Classification: Depressional

Sample Plots: WLY8-SP1 and WLY8-SP2

Wetland WLY8 is in a linear depression northwest of I-5 and southeast of the intersection of 48th Avenue West and the Interurban Trail (see Figure 3-1c). The wetland is located entirely within the delineation survey area. Sample Plot WLY8-SP1 characterizes the wetland and Sample Plot WLY8-SP2 characterizes the adjacent upland.

Wetland hydrology is supported by surface water from a culvert under 48th Avenue West. Surface soil cracks and bare ground were observed in some areas of the wetland, and a well-defined, ditched channel is present in a part of the wetland. There is no outlet in the wetland.

Wetland WLY8 contains an emergent community. Vegetation within the wetland is dominated by common rush and various grasses with locally dominant patches of common spikerush (*Eleocharis palustris*). Reed canarygrass and broadleaf cattail are also present.

Soil was examined to a depth of 12 inches and consists of two layers. The top layer is a 4-inch dark grayish brown (10YR 4/2) gravelly silt loam. The bottom layer is a grayish brown (2.5Y 5/2) gravelly clay loam. Both layers contain dark yellowish brown (10YR 4/6) redoximorphic features. The soil was very compacted and gravel, cobble, and angular rock were observed throughout the soil profile. Soils in the wetland are not mapped by the NRCS (identified as Urban land).

The majority of the buffer surrounding WLY8 is disturbed and consists largely of invasive vegetation including Scotch broom and Himalayan blackberry. The remaining buffer is a thin strip of forbs and grasses preceded by 48th Avenue West and the Interurban Trail.

Wetland WLY8 is classified as palustrine emergent under the USFWS system and depressional under the HGM system. Wetland WLY8 is rated a Category III according to the City of Lynnwood (Lynnwood Municipal Code 17.10.050) and Ecology. The wetland scored 38 points on Ecology's rating form (22 points for water quality, 10 points for hydrologic functions, and 6 points for habitat functions) (Attachment D). The City of Lynnwood requires a standard 75-foot buffer for Category III wetlands (Lynnwood Municipal Code 17.10.051).

3.2 Streams

The study area for the Lynnwood Link Extension is drained by three stream systems: Thornton Creek, McAleer Creek, and Scriber Creek (see Figures 3-1a, 3-1b, and 3-1c; Attachment F). All three streams drain to Lake Washington. Thornton and McAleer creeks drain directly to the lake, while water from Scriber Creek flows to the lake via Swamp Creek and the Sammamish Slough. Lake Washington is the second-largest natural lake in Washington, with a surface area of 22,138 acres. The lake lies at an elevation of 22 feet and has a maximum depth of 214 feet. The major sources of water that enter the lake are the Cedar River (55 percent of the average inflow) and the Sammamish River (27 percent of the average inflow). The remainder of inflow comes from May Creek, Coal Creek, Lyon Creek, McAleer Creek, Thornton Creek, and other smaller streams. The lake drains to Puget Sound through the Lake Washington Ship Canal, which is an artificial waterway constructed in 1916.

Table 3-3 summarizes the stream information in the study area. The existing conditions of streams are described below, organized by stream system. Additional information about fish use, fish habitat quality, and riparian habitat conditions in the streams and their tributaries is provided in the Ecosystem Resources Technical Report (Sound Transit 2014).

Table 3-3. Summary of Streams in the Lynnwood Link Extension Study Area

Stream Name[a]	Stream Index No.[b]	Fish Habitat Status[c]	Local Jurisdiction	Local Jurisdiction Stream Classification[d]	Local Jurisdiction Buffer Width (feet)
Thornton Creek, North Branch	08.0030	Documented	Seattle	Type 3[e]	75[e]
Thornton Creek Tributary (SSE1)	NA	Potential	Seattle	Type 3[e]	75[e]
McAleer Creek Tributary (SSH2)	NA	Unknown (Presumed Potential)	Shoreline	Piped	10
McAleer Creek Tributary (SSH4)	NA	Unknown	Shoreline	Type III	65
McAleer Creek	08.0049	Documented	Shoreline	Type II	115
McAleer Creek	08.0049	Documented	Mountlake Terrace	Class II	100
McAleer Creek Tributary (SMT1)	08.0050	Potential	Mountlake Terrace	Class III/Class V[f]	65/0[f]
Scriber Creek	08.0061	Documented	Lynnwood	Category I	100
Scriber Creek Tributary (SLY1)	08.0064	Potential	Lynnwood	Category III	35

Streams other than Thornton Creek, McAleer Creek, and Scriber Creek are identified with alphanumeric codes: SYYn.
S stands for stream; YY = two-letter code for local jurisdiction (SE = Seattle, SH = Shoreline, MT = Mountlake Terrace, LY = Lynnwood); n = sequential identification number

[b] Water Resource Inventory Area (WRIA) identification numbers according to Williams et al. (1975). 'NA' indicates watercourses that are not identified in that inventory.

[c] Documented = Fish have been observed in the study area; Potential = Potential fish habitat is present, based on field assessment of stream width and gradient, but stream segments in the study area are upstream of human-caused fish passage barriers; Unknown = No fish presence data are available and stream segments are contained within culverts in the study area.

[d] Identification and classification of streams in this analysis represent conservative estimates, based on available information and the provisions of local critical areas rules. Some of the watercourses identified in this analysis may not actually be defined as streams by the local jurisdictions, or they may be assigned smaller buffers than indicated here. Actual impacts would be analyzed and mitigated as appropriate through local permitting processes.

[e] The Seattle Municipal Code applies development restrictions and specifies mitigation requirements only within environmentally critical areas or buffers on publicly or privately held parcels. The locations where the proposed alignments would pass near Thornton Creek and Stream SSE1 are within the right-of-way for I-5 and are therefore not subject to City of Seattle buffer requirements. Regulatory buffer widths are used in this analysis to identify areas where construction of the light rail alternatives could affect the condition of riparian buffers. Mitigation requirements would be developed through local permitting processes.

[f] See Stream SMT1 discussion under Section 3.2.2.

3.2.1 Thornton Creek and Tributaries

The 7,200-acre Thornton Creek basin drains a substantial portion of northeastern Seattle and most of Shoreline. The stream flows generally south and east before discharging to Lake Washington. Segments of the North Branch of Thornton Creek (Water Resource Inventory Area [WRIA] No. 08.0030) within and immediately upstream of the Jackson Park Golf Course fall within the study area. Also present is an unnamed tributary to the North Branch of Thornton Creek, identified as Stream SSE1 for this analysis.

Thornton Creek, North Branch

The North Branch of Thornton Creek originates near Ronald Bog in Shoreline and enters the study area south of North 145th Street and west of 5th Avenue NE, after emerging from culverts under I-5. Within the study area, the stream flows in a ditch between 5th Avenue NE and the Jackson Park Golf Course for approximately 700 feet before veering east into the golf course (Tetra Tech/KCM 2004a).

All portions of the North Branch of Thornton Creek in the study area are considered fish-bearing (WDFW 2014a). In-stream habitat within the study area is rated as low, based on channel morphology, sediment regime, and existing physical habitat conditions (City of Seattle 2007). Resident salmonids are present throughout the system. Spawning anadromous salmonids have been observed as far upstream as 35th Avenue NE and NE 115th Street, approximately 2.5 miles downstream of the study area (City of Seattle 2007; WDFW 2014a). WDFW (2014b) classified three of the culverts in the North Branch of Thornton Creek downstream of the study area as total barriers to fish passage. An additional 18 structures, including 7 culverts, 5 streambed control structures, 3 recreational dams, 2 bridges, and 1 artificial waterfall, are partial barriers (WDFW 2014b). Within the study area, the culverts under I-5 and 5th Avenue NE are also partial barriers (WDFW 2014b). However, an adult steelhead observed in 2004 upstream of the I-5 culvert suggests that none of these structures may present an absolute barrier to fish passage (Tetra Tech/KCM 2004a). Notably, steelhead are renowned for their ability to negotiate what would be considered barriers for most other salmonids (Tetra Tech/KCM 2004a).

Riparian habitat quality of the North Branch of Thornton Creek within the study area is rated low, based on riparian area width, connectivity, understory and canopy composition, canopy density, and the percentage of the stream shaded by vegetation (City of Seattle 2007). Much of the stream's riparian buffer in the study area consists of roads (5th Avenue NE and off-ramps from I-5) and other impervious surfaces. Stream banks in most portions of the study area are dominated by Himalayan blackberry, particularly along the segment that parallels 5th Avenue NE. On the opposite side of 5th Avenue NE from the light rail alignments, the stream passes through a 50- to 70-foot-wide strip of vegetation. Overstory species in this strip include red alder, black cottonwood, and scattered patches of immature western redcedar. This overstory canopy provides shade for the stream during spring and summer (when the trees have leaves), as well as the potential for contributing some woody debris. Within the golf course, the dominant riparian vegetation in the study area consists of non-native plants, turf, and landscaping.

The North Branch of Thornton Creek in the study area is located within the city of Seattle and is therefore subject to the provisions of the local Critical Areas Ordinance (Seattle Municipal Code 25.09). Notably, the ordinance applies development restrictions and specifies mitigation requirements only within environmentally critical areas or buffers on publicly or privately held parcels. The locations where the proposed alternative alignments would pass near the stream are within the right-of-way for I-5 and therefore are not subject to City of Seattle buffer requirements. However, to facilitate a comparison of the potential effects of the alternatives, the stream has been assigned an analytical buffer based on a provisional classification. Based on the presence of natural waters with moderate to slight value to fish for spawning, rearing, or migration (i.e., having a defined channel width of at least 2 feet and a gradient less than 16 percent), the North Branch of Thornton Creek in the study area would be classified as a Type 3 stream, requiring a riparian buffer of 75 feet.

Stream SSE1

Approximately 300 feet south of Thornton Creek's crossing under 5th Avenue NE, a watercourse emerges from a culvert in the I-5 right-of-way, flows southward in the ditch on the west side of 5th Avenue NE, and then drains to Thornton Creek via a culvert under 5th Avenue NE. The watercourse was not catalogued by Williams et al. (1975); the source of the water in the ditch is not known and historic maps of the area do not indicate the presence of a tributary to Thornton Creek at this location. However, field observations of flowing water during the summer months suggest that some flow may be derived from groundwater. No fish are known or expected to use the watercourse (WDFW 2014a). Riparian habitat for the surface-flowing segment of the watercourse consists of a strip of red alder and Himalayan blackberry in the I-5 right-of-way between 5th Avenue NE and the off-ramp from I-5 northbound to NE 145th Street.

The watercourse falls within the Seattle city limits and is therefore subject to the provisions of Seattle Municipal Code 25.09. For this analysis, this watercourse is provisionally identified as a stream (SSE1) and classified as Type 3, based on the presence of a 2-foot-wide channel and a gradient less than 16 percent. As with the North Branch of Thornton Creek, the surface-flowing portion of the stream in the study area is within a road right-of-way and therefore is not subject to City of Seattle buffer requirements. A formal determination of whether the watercourse is a stream (and if so, how it is classified) will occur through the process of project permitting with the City of Seattle.

3.2.2 McAleer Creek and Tributaries

McAleer Creek (WRIA No. 08.0049) originates at Lake Ballinger and flows roughly 6 miles to the northeast corner of Lake Washington. The 5,300-acre drainage basin includes portions of Lynnwood, Edmonds, Mountlake Terrace, Shoreline, and Lake Forest Park. Most of the northern portion of the study area (from NE 185th Street in Shoreline, north to about 208th Street SW in Lynnwood) drains to the McAleer Creek system. Areas north of 224th Street SW drain to Lake Ballinger, which empties to McAleer Creek.

McAleer Creek

Much of McAleer Creek within the study area is contained within culverts. The main stem enters the study area from an open channel through the Nile Shrine Golf Course west of I-5. The open-channel habitat and associated riparian areas of McAleer Creek in the study area occur in four discrete segments, separated by segments that are contained within culverts. The stream segments in the study area are as follows, progressing from upstream to downstream:

- Culvert under I-5 (440 feet)
- Open channel adjacent to the on-ramp from SR 104 westbound to I-5 northbound (240 feet)
- Culvert under the cloverleaf interchange between I-5 northbound and SR 104 westbound (280 feet)
- Open channel in the area enclosed by the cloverleaf off-ramp from I-5 northbound to SR 104 westbound (200 feet)
- 4-foot by 6-foot box culvert under SR 104 (320 feet)
- Channelized open water course in the area enclosed by the cloverleaf on-ramp from SR 104 eastbound to I-5 northbound (200 feet)
- 66-inch-diameter culvert beneath the off-ramp from I-5 northbound to SR 104 (280 feet)

All portions of McAleer Creek in the study area are considered fish-bearing, supporting both anadromous and resident salmonids (WDFW 2014a). Immediately downstream of the study area, the in-stream habitat of McAleer Creek has been rated as poor, based on the preponderance of fine sediments, as well as scouring and incision resulting from bank hardening (Tetra Tech/KCM 2004b). The channel provides poorly defined pool-riffle complexes; the only pool habitat consists of step-pools formed by weirs. The gravel/cobble stream substrate is heavily cemented with sediment, reducing its spawning suitability (Tetra Tech/KCM 2004b). Riparian habitat quality along the open-channel segments of McAleer Creek in the study area is generally good, dominated by forest canopy that provides shade and the potential for recruitment of woody debris that contributes to channel complexity. The value of the riparian habitat is limited, however, by a lack of connectivity.

McAleer Creek within the study area is located within two jurisdictions and is therefore subject to two separate Critical Area Ordinances. Stream segments south of NE 205th Street and SR 104 are within the city of Shoreline and are subject to the provisions of Shoreline Municipal Code chapter 20.80. Stream segments north of NE 205th Street and SR 104 are within the city of Mountlake Terrace and are subject to the provisions of Mountlake Terrace Municipal Code chapter 16.15. Shoreline Municipal Code 20.80.470 classifies McAleer Creek as Type III, which requires a 75-foot buffer. Mountlake Terrace Municipal Code 16.15.080 classifies McAleer Creek as Class II, which requires a 100-foot buffer.

Stream SSH2

Approximately 1,800 feet south of the I-5/SR 104 interchange, a tributary to McAleer Creek (Stream SSH2) has been identified as passing under I-5 (Tetra Tech/KCM 2004b). This tributary was not catalogued by Williams et al. (1975). After entering a culvert just west of I-5, the stream remains piped for approximately 1,500 feet, resurfacing shortly before its confluence with the main stem of McAleer Creek near a wastewater pumping station upstream of 15th Avenue NE (Tetra Tech/KCM 2004b). The open-water portions of the stream within the study area, west of I-5 (i.e., on the opposite side of I-5 from any of the proposed alternative alignments), are within concrete-lined ditches along NE 200th Street. During site visits conducted for this analysis, flowing water was observed in this watercourse only during and immediately after rainfall.

Based on intermittent flows and the presence of human-created barriers to fish passage, SSH2 is not known or expected to support fish under current conditions (WDFW 2014a). However, the basin size, channel width, and stream gradient of the watercourse indicate the potential to support fish in the future. Shoreline Municipal Code 20.80.470 classifies the stream as Piped, which requires a 10-foot buffer.

Stream SSH4

Within the cloverleaf interchange between eastbound SR 104 and northbound I-5, a watercourse emerges from a culvert under the roadway, flows approximately 30 feet, and then joins McAleer Creek. The watercourse was not catalogued as a stream by Williams et al. (1975), the source of the water is not known, and historical maps of the area do not indicate the presence of a tributary to McAleer Creek at this location. However, field observations of flowing water during the summer months suggest that some flow may be derived from groundwater. The surface-flowing segment of the stream in the study area can be accessed by fish from McAleer Creek.

For this analysis, this watercourse is provisionally identified as a stream (SSH4) and classified as Type III per Shoreline Municipal Code 20.80.470, based on the presence of a 2-foot-wide channel and a gradient less than 16 percent. A formal determination of whether the watercourse is a stream (and if so, how it is classified) will occur through the process of project permitting with the City of Shoreline. If the watercourse is classified as a Type III stream, its regulatory buffer will be contained entirely within the larger regulatory buffer for McAleer Creek. Riparian habitat conditions for Stream SSH4 are therefore the same as described for McAleer Creek above.

Stream SMT1

North of the I-5/SR 104 interchange, a tributary (WRIA No. 08.0050; Stream SMT1) joins McAleer Creek in the wooded area adjacent to the on-ramp from SR 104 westbound to I-5 northbound. The tributary originates in Veterans Memorial Park northeast of the Mountlake Terrace Transit Center, then flows south through a series of open watercourses and culverts east of I-5. During site visits conducted for this analysis, flowing water was observed in this watercourse only during and immediately after rainfall. Farther downstream, along the eastern border of the Edmonds School District property south of 236th Street SW, water from a culvert under the school property

contributes flow on a more regular basis. Based on intermittent flows and the presence of human-created barriers to fish passage, SMT1 is not known or expected to support fish under current conditions (WDFW 2014a). However, the basin size, channel width, and stream gradient of the watercourse indicate the potential to support fish in the future. Riparian habitat quality along the open-channel segments of Stream SMT1 in the study area is generally good, dominated by forest canopy that provides shade and the potential for recruitment of woody debris that contributes to channel complexity. The value of the riparian habitat is limited, however, by culverts that interfere with the passage of woody debris to downstream segments of fish-bearing streams.

The City of Mountlake Terrace has identified the uppermost reaches of this watercourse in the study area as a Class V (seasonal, non-fish-bearing) stream that does not require a regulatory buffer. It is possible that the City may determine that the downstream reaches meet the criteria for a Class IV (requiring a 50-foot buffer) or Class III stream (requiring a 65-foot buffer). The segment that is crossed by the proposed light rail alignments is upstream of the water source in the Edmonds School District property and is therefore likely to be considered a Class V stream.

3.2.3 Scriber Creek and Tributaries

Scriber Creek (WRIA No. 08.0061) drains an area of approximately 4,250 acres, including the extreme northern portion of the study area. The stream flows southeast, joining Swamp Creek approximately 2.5 miles downstream of the study area. Swamp Creek flows into the Sammamish River, which empties into the northern end of Lake Washington.

Scriber Creek

The study area includes approximately 2,000 feet of the main stem of Scriber Creek. For much of its length in the study area, the stream channel is braided and indistinct as it flows through the large wetland complex (Wetland WLY4) south and west of the Lynnwood Transit Center. The stream forms a defined channel as it exits the study area, flowing southeast and under I-5. Based on input provided by Ecology staff who collaborated on field delineations in July 2014, the OHWM of Scriber Creek through the wetland complex is defined as encompassing the entire breadth of the complex. At most times of year, flowing water is confined to a few channels that make up a small portion of the total wetland complex. The locations of these channels likely change from year to year.

All portions of Scriber Creek in the study area are considered fish-bearing, supporting resident salmonids (WDFW 2014a). Anadromous salmonids have been observed in Scriber Creek, but sources differ about their habitat use as far upstream as the study area (Sound Transit 2014). The main stem reach in the study area is dominated by the large scrub-shrub wetland adjacent to the park-and-ride lot. Salmon spawning habitat conditions within this reach are poor due to limited canopy and vegetative cover, the presence of bank armoring, and the abundance of silt and other fine substrates (Jones and Stokes 2000). Side channels and other low-velocity areas may provide good rearing habitat, however (City of Lynnwood 2004). Riparian vegetation for Scriber Creek in the study area generally consists of the surrounding wetland complex (Wetland WLY4). Vegetation in Wetland WLY4 is dominated by black cottonwood, Pacific willow, red-osier dogwood, and reed canarygrass.

Areas with dense growth of salmonberry and Himalayan blackberry are also present, along with red alder, western redcedar, big-leaf maple, and Pacific flowering dogwood (*Cornus nuttallii*).

Scriber Creek within the study area is located within the city of Lynnwood and therefore subject to the local Critical Areas Ordinance. Lynnwood Municipal Code 17.10.060 classifies Scriber Creek as a Category I, which requires a 100-foot buffer.

Stream SLY1

Also present in the study area is an unnamed, intermittent, non-fish-bearing tributary (WRIA No. 08.0064; Stream SLY1) that flows southward along the eastern edge of the Lynnwood Transit Center. The channel flows through a small patch of forest vegetation (the upper part has been recently planted) before it enters a culvert under the I-5 on-ramp and joins Scriber Creek southeast of I-5. The watercourse is highly channelized and does not flow at the surface for most of its length. The surface-flowing sections are the short segments within and downstream of the study area, including a segment on the Lynnwood Civic Center campus approximately 0.6 mile north of the study area. The primary source of flow for the tributary is urban runoff, and habitat quality is generally poor. Stormwater runoff from impervious surfaces likely contributes to a flashy flow regime during fall and winter (City of Lynnwood 2004). A flashy flow regime is one in which water volumes peak sharply after the onset of a precipitation event, rapidly returning to pre-rain levels shortly after the precipitation ends.

The portion of Stream SLY1 in the study area is separated from known fish-bearing waters by culverts under the off-ramp from I-5 northbound to 44th Avenue West, I-5 itself, and the on-ramp from 44th Avenue West to I-5 southbound. WDFW (2014b) has not evaluated the fish passage potential of these culverts because Stream SLY1 is considered a non-fish-bearing stream. Based on the presence of human-created barriers to fish passage, Stream SLY1 is not currently known or expected to support fish. Based on its basin size, channel width, and stream gradient, however, Stream SLY1 may have the potential to support fish in the future.

Lynnwood Municipal Code 17.10.060 classifies Stream SLY1 as Category III, which requires a 35-foot buffer.

4 REFERENCES

Brinson, M.M. 1993. A Hydrogeomorphic Classification for Wetlands. Wetlands Research Program Technical Report WRP-DE-4. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.

City of Lynnwood. 2004. Final Supplemental Environmental Impact Statement for the Lynnwood City Center Sub-area Plan. September 9, 2004. Available at: http://www.lynnwoodeconomicdevelopment.org/CityCenter.ashx?p=1489.

City of Seattle. 2007. State of the Waters 2007. Volume I: Seattle Watercourses. Available at: http://www.ci.seattle.wa.us/util/Services/Drainage_&_Sewer/Keep_Water_Safe_&_Clean/RestoreOurWaters/ProgramDocuments/index.htm. Accessed March 13, 2012.

Corps (U.S. Army Corps of Engineers). 1987. Corps of Engineers Wetlands Delineation Manual. Wetlands Research Program Technical Report Y-87-1 (on-line edition). U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.

Corps (U.S. Army Corps of Engineers). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). U.S. Army Engineer Research and Development Center, Vicksburg, MS. May 2010.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS-70/31, U.S. Fish and Wildlife Service, Washington, DC.

ESA Adolfson. 2010. Sound Transit 2 Mitigation: Impact Summary and Analysis Memorandum. December 3, 2010. Prepared for Sound Transit. Seattle, WA.

Gretag Macbeth. 2000. Munsell soil color charts. New Windsor, NY.

Hruby, T. 2004. Washington State Wetland Rating System for Western Washington – Revised. Washington State Department of Ecology Publication #04-06-025. Olympia, WA.

Jones and Stokes. 2000. Stream Habitat Analysis. Report 2 – Salmonid Habitat Assessment. Report prepared for the City of Lynnwood, WA. October 2000.

Kerwin, J. 2001. Salmon and Steelhead Habitat Limiting Factors Report for the Cedar-Sammamish Basin (Water Resource Inventory Area 8). Report prepared for the Washington Conservation Commission. Olympia, WA. September 2001.

Null, W.S., G. Skinner, and W. Leonard. 2000. Wetland Functions Characterization Tool for Linear Projects. Washington State Department of Transportation, Environmental Affairs Office, Olympia, WA.

Pojar, J., and A. MacKinnon (eds.). 1994. Plants of the Pacific Northwest Coast. Vancouver, BC: Lone Pine.

Reed, P.B. 1988. National List of Plant Species that Occur in Wetlands: Southwest (Region 7). National Wetlands Inventory, U.S. Fish and Wildlife Service, Washington, D.C. Biological Report 88 (26.7).

Reed, P.B. 1993. 1993 Supplement to National List of Plant Species that Occur in Wetlands: Northwest Region (Region 9). U.S. Fish and Wildlife Service, Washington, D.C. Biological Report 88(26.9).

Snohomish County. 2002. Swamp Creek Drainage Needs Report. DNR No. 2. Prepared by Snohomish County Public Works, Surface Water Management Division. Everett, WA.

Sound Transit (Central Puget Sound Regional Transit Authority). 2006. North Link Light Rail Transit Project Final Supplemental Environmental Impact Statement. Seattle, WA.

Sound Transit (Central Puget Sound Regional Transit Authority). 2013. Lynnwood Link Extension Wetland Identification and Survey Technical Report. Seattle, WA.

Sound Transit (Central Puget Sound Regional Transit Authority). 2014. Ecosystem Resources Technical Report, Lynnwood Link Extension Draft Environmental Impact Statement. Prepared for Sound Transit by North Corridor Transit Partners. Seattle, WA. October 2014.

Sound Transit (Central Puget Sound Regional Transit Authority) and Federal Transit Administration. 2013. Lynnwood Link Extension Draft Environmental Impact Statement. Seattle, WA. July 2013.

StreamNet. 2012. Routed stream network used to georeference StreamNet's fish data. Published September 2012. Mixed scale: 1:24k to 1:100k. Available at: http://www.streamnet.org/mapping_apps.cfm.

Tetra Tech/KCM. 2004a. Thornton Creek and West Lake Washington Basins Characterization Report. Report prepared for the City of Shoreline. May 2004.

Tetra Tech/KCM. 2004b. McAleer Creek and Lyon Creek Basins Characterization Report. Report prepared for the City of Shoreline. May 2004.

USDA NRCS (U.S. Department of Agriculture, Natural Resources Conservation Service). 2012a. Climate Analysis for Wetlands by County. Available at: http://www.wcc.nrcs.usda.gov/climate/wetlands.html. Portland, OR.

USDA NRCS (U.S. Department of Agriculture, Natural Resources Conservation Service). 2012b. The PLANTS Database (http://plants.usda.gov). National Plant Data Team, Greensboro, NC.

WDFW (Washington Department of Fish and Wildlife). 2014a. SalmonScape fish database and mapping application. Available at: http://apps.wdfw.wa.gov/salmonscape/.

WDFW (Washington Department of Fish and Wildlife). 2014b. Fish passage barrier inventory. GIS layer. Available at: http://geography.wa.gov/GeospatialPortal/dataDownload.shtml. Downloaded March 26, 2014.

Williams, R.W., R.M. Laramie, and J.J. Ames. 1975. A Catalog of Washington Streams and Salmon Utilization, Volume 1, Puget Sound Region. Washington Department of Fisheries. Olympia, WA.

ATTACHMENT A

Wetland Field Investigation Dates

Table A-1. Dates of Field Reconnaissance Surveys

Wetland	Date of Field Investigation	Location
WSE1	3/9/12	I-5 ROW, west of 1st Avenue NE & south of on- & off-ramps
WSE3	3/14/12	I-5 ROW, between I-5 and 5th Avenue NE
WSE4	3/14/12	Between 5th Avenue NE and Jackson Park Golf Course
WSE5	3/19/12	I-5 ROW, between I-5 and 5th Avenue NE
WSE6	3/19/12	I-5 ROW, between I-5 off-ramp and 5th Avenue NE
WSE7	3/19/12	I-5 ROW, between I-5 and Transit off-ramp
WSE8	3/21/12	Between 5th Avenue NE and Jackson Park Golf Course
WSH1	3/15/12	I-5 ROW, west of 5th Avenue NE and north of NE 145th Street
WSH2	3/15/12	I-5 ROW and extending east, west of 3rd Avenue NE
WSH3	3/15/12	I-5 ROW, south of NE 155th Street, west of fire station
WSH4	3/21/12	I-5 ROW, east of I-5 off-ramp to SR 104
WSH5	3/21/12	I-5 ROW, in cloverleaf south of SR 104
WMT1	3/27/12	I-5 ROW, in cloverleaf north of SR 104
WMT2	3/27/12	I-5 ROW, east of I-5 on-ramp from SR 104
WMT3	3/28/12	I-5 ROW, east of I-5 off-ramp to 236th Street SW
WMT4	3/29/12	I-5 ROW, east of I-5 south off-ramp to SR 104
WMT5	4/3/12	I-5 ROW, west of I-5 south off-ramp to 220th Street SW
WMT6	4/3/12	I-5 ROW, east of I-5 south off-ramp to 220th Street SW
WMT7	4/3/12	I-5 ROW, east of 60th Avenue W
WMT8	4/3/12	I-5 ROW, east of I-5 and south of 212th Street SW
WLY3	4/5/12	I-5 ROW, northwest of I-5 and southwest of 52nd Avenue W
WLY4	4/9/12	Scriber Creek Park, southwest of Lynnwood Transit Center
WLY6	4/17/12	Northwest of I-5 and east of 208th Street SW

Table A-2. Dates of Delineation Surveys

Wetland	Date of Boundary Delineation	Location
WSE1	4/22/14	I-5 ROW, west of 1st Avenue NE & south of on- & off-ramps
WSE3	7/2/13	I-5 ROW, between I-5 and 5th Avenue NE
WSE4	5/30/14	Between 5th Avenue NE and Jackson Park Golf Course
WSE5	7/9/13	I-5 ROW, between I-5 and 5th Avenue NE
WSE6	7/9/13	I-5 ROW, between I-5 off-ramp and 5th Avenue NE
WSE7	7/11/13	I-5 ROW, between I-5 and Transit off-ramp
WSE8	5/30/14	Between 5th Avenue NE and Jackson Park Golf Course
WSH1	5/2/14	I-5 ROW, west of 5th Avenue NE and north of NE 145th Street
WSH2	4/22/14	I-5 ROW and extending east, west of 3rd Avenue NE
WSH3	3/27/14	I-5 ROW, south of NE 155th Street, west of fire station
WSH4	7/31/13	I-5 ROW, east of I-5 off-ramp to SR 104
WSH5	6/6/14	I-5 ROW, in cloverleaf south of SR 104
WMT1	6/2/14	I-5 ROW, in cloverleaf north of SR 104
WMT2	8/7/13	I-5 ROW, east of I-5 on-ramp from SR 104
WMT3	8/7/13	I-5 ROW, east of I-5 off-ramp to 236th Street SW
WMT4	NA	Outside of delineation survey area
WMT5	12/13/13	I-5 ROW, west of I-5 south off-ramp to 220th Street SW
WMT6	12/13/13	I-5 ROW, east of I-5 south off-ramp to 220th Street SW

Table A-2. Dates of Delineation Surveys

Wetland	Date of Boundary Delineation	Location
WMT7	4/30/14	I-5 ROW, east of 60th Avenue W
WMT8	NA	Outside of delineation survey area
WMT9	5/16/14	I-5 ROW, in ditch along off-ramp to 236th Street SW
WMT10	6/2/14	I-5 ROW, east of I-5 on-ramp from SR 104
WMT11	5/16/14	Edmonds School District property east of 237th Street SW
WLY3	4/30/14	I-5 ROW, northwest of I-5 and southwest of 52nd Avenue W
WLY4	7/16/14	Scriber Creek Park, southwest of Lynnwood Transit Center
WLY6	1/27/14	Northwest of I-5 and east of 208th Street SW
WLY7	7/16/14	North of Interurban Trail near 48th Avenue W
WLY8	7/16/14	South of Interurban Trail near 48th Avenue W

ATTACHMENT B

Photographs

Photograph 1. Wetland WSE1 facing north.

Photograph 2. Wetland WSE3, looking south at sample plot WSE3-SP1.

Photograph 3. Wetland WSE4, looking northeast at sample plot WSE4-SP1.

Photograph 4. Wetland WSE5 along 5th Avenue NE, facing south.

Photograph 5. Wetland WSE6, facing northeast.

Photograph 6. Wetland WSE7 from the south end, facing north.

Photograph 7. Wetland WSE8 from east of Thornton Creek, south of 5th Avenue NE crossing.

Photograph 8. Wetland WSH1 looking northeast at sample plot WSH1-SP1.

Photograph 9. Wetland WSH2 from the south end, facing north.

Photograph 10. Wetland WSH3 from the south side, facing north.

Photograph 11. Wetland WSH4 from the south end, facing north.

Photograph 12. Wetland WSH5 from the north end, facing southeast.

Photograph 13. Wetland WMT1 facing east side from culvert under SR 104 (McAleer Creek on left side of photograph).

Photograph 14. Wetland WMT2 from McAleer Creek, facing east.

Photograph 15. Wetland WMT3 looking north at sample plot WMT3-SP1.

Photograph 16. Wetland WMT4 from retaining wall, facing west.

Photograph 17. Wetland WMT5 from the center, facing south.

Photograph 18. Wetland WMT6 from the east side, facing west-southwest.

Photograph 19. Wetland WMT7 from the southeast, looking at sample plot WMT7-SP1.

Photograph 20. Wetland WMT8 from north looking south.

Photograph 21. Wetland WMT9 looking south.

Photograph 22. Wetland WMT10 from the southern end, looking north.

Photograph 23. Wetland WMT11 from the northern end, looking southeast.

Photograph 24. Wetland WLY3 facing west.

Photograph 25. Wetland WLY4 near 200th Street SW and Cedar Valley Road, facing southeast (Scriber Creek on left side of photograph).

Photograph 26. Wetland WLY6 from access road, facing north-northeast.

Photograph 27. Wetland WLY7 from the east.

Photograph 28. Wetland WLY8, western end.

Photograph 29. Thornton Creek near I-5 facing upstream (north).

Photograph 30. Stream SSE1 inlet near right-of-way fence.

Photograph 31. Stream SSH2 along 200th Street, west of I-5 facing upstream (west)..

Photograph 32. Stream SSH4 inlet within Wetland WSH5.

Photograph 33. McAleer Creek from culvert facing downstream (south).

Photograph 34. Stream SMT1 in the park from inlet at north end facing downstream (south).

Photograph 35. Scriber Creek facing downstream (south).

Photograph 36. Stream SLY1 approximately 100 feet downstream from inlet facing upstream (north).

ATTACHMENT C

Wetland Determination Data Forms

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

Project Site: Lynnwood Link Extension | City/County: Seattle/King | Sampling Date: 3/9/12 & 04/22/14

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WSE1-SP1

Investigator(s): M. Maynard, C. Worsley; K. Seckel, C. Worsley | Section, Township, Range: S29, T26N, 4E

Landform (hillslope, terrace, etc.): toe of slope | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): A | Lat: 47.70557516600 | Long: -122.32901515600 | Datum: NAD83

Soil Map Unit Name: Urban land | NWI classification: PFO

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: Sample plot is located at the edge of the wetted channel of stream SSE2 on the east side. Northwest of LB12 and WSE1-10A.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lucida*	90	yes	FACW
2. *Frangula purshiana (rooted on WL boundary)*	10	no	FAC
3.			
4.			
50% = 50, 20% = 20	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Cornus sericea*	60	yes	FACW
2.			
3.			
4.			
5.			
50% = 30, 20% = 12	60	= Total Cover	
Herb Stratum (Plot size: 2M)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	30	yes	FACU
2.			
50% = 15, 20% = 6	30	= Total Cover	

% Bare Ground in Herb Stratum 100

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSE1-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					gr silt loam	
5-26	5GY 5/1	100					lo. sand	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☒ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	surface
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: 04/22/14 - inundation/flowing water (5 inches deep) in stream, at edge of sample pit. Saturated to the surface, and free water in pit to surface.

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

Project Site: Lynnwood Link Extension | City/County: Seattle/King | Sampling Date: 3/9/12 & 04/22/14

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WSE1-SP2

Investigator(s): M. Maynard, C. Worsley; K. Seckel, C. Worsley | Section, Township, Range: S29, 26N, 4E

Landform (hillslope, terrace, etc.): slope | Local relief (concave, convex, none): concave | Slope (%): 20

Subregion (LRR): A | Lat: 47.70558299100 | Long: -122.32907995900 | Datum: NAD83

Soil Map Unit Name: Urban land | NWI classification: upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: The sample plot is located on the west side of the wetland on the hill slope to the I-5 off-ramp. West (approximately 8 feet), upslope of WSE1-10, and approximately 10 feet west of RB-12. Near base of Crataegus monogyna.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Crataegus monogyna*	30	yes	FACU
2. *Thuja plicata*	8	yes	FAC
3. *Pseudotsuga menziesii*	2	no	FACU
4.			
50% = 20, 20% = 8	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = ____, 20% = ____		= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	75	yes	FACU
2.			
50% = 38, 20% = 15	75	= Total Cover	

% Bare Ground in Herb Stratum 95

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSE1-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/1	100					Sa Loam	
5-18	2.5Y 4/3	100					Sand	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indiators were observed.
04/22/14 - No indicators of wetland hydrology observed.

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

Project Site: Lynnwood Link Extension | City/County: Seattle/King | Sampling Date: 3/14/12 & 7/2/13

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WSE3-SP1

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S20, T26N, 4E

Landform (hillslope, terrace, etc.): _____ | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): A | Lat: 47.72883384730 | Long: -122.32369209500 | Datum: NAD83

Soil Map Unit Name: Urban land | NWI classification: PEM

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: WSE3-SP1 is located in a reed canarygrass patch at the north end of the wetland, approximately 5 feet west of the fence and 15 feet west of the power pole.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Phalaris arundinacea*	100	yes	FACW
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	5	n/a*	FACU
2. _____			
50% = 2.5, 20% = 1	5	= Total Cover	

% Bare Ground in Herb Stratum 0 (7/2/13)

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	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: *excluded from calculations per chapter 2 guidance Rubus armeniacus is overhanging from upland. Species with 5% or less absolute coverage were not considered dominant. The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSE3-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					Si Loam	
10-18	10YR 3/1	70					Gr Sa Loam	
	10YR 5/2	18	10YR 5/8	12	C	M	Gr Sa Loam	inclusions

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Lower layer has inclusions making up 30% of the layer that are a 10YR 5/2 gravelly sandy loam with 10YR 5/8 redoximorphic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	5
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project Site: Lynnwood Link Extension City/County: Seattle/King Sampling Date: 3/14/12 & 7/2/13

Applicant/Owner: Sound Transit State: WA Sampling Point: WSE3-SP2

Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S20, T26N, 4E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): ____ Slope (%): 3

Subregion (LRR): A Lat: 47.72872167380 Long: -122.32377768800 Datum: NAD83

Soil Map Unit Name: Urban land NWI classification: upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: The sample plot is located west of the wetland in Himalayan blackberry, approximately 50 feet southwest of power pole and 20 feet west of the fence.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Crataegus monogyna*	20	yes	FACU
2. *ornamental maple*	15	n/a*	NL (UPL)
3. _____			
4. _____			
50% = 17.5, 20% = 7	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Rubus spectabilis*	5	no	FAC
2. _____			
3. _____			
4. _____			
5. _____			
50% = 2.5, 20% = 1	5	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	100	yes	FACU
2. _____			
50% = 50, 20% = 20	100	= Total Cover	

% Bare Ground in Herb Stratum 0 (leaf litter)

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: *Exluded from calculations. Species with 5% or less absolute coverage were not considered dominant. The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSE3-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100					Gr Sa Loam	
6-18							Gr Sand	Fill

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Cobbles in the lower layer

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators observed. .

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

Project Site: Lynnwood Link Extension City/County: Seattle/King Sampling Date: 7/2/13
Applicant/Owner: Sound Transit State: WA Sampling Point: WSE3-SP3
Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S20, T26N, 4E
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): convex Slope (%): 1
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Urban land NWI classification: upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: The sample plot is located approximately 3 feet west of the fence, between a cedar and birch, and approximatley 150 feet north-northwest of WSE3-SP2.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula papyrifera*	40	yes	FAC
2. *Thuja plicata*	25	yes	FAC
3. *Alnus rubra*	25	yes	FAC
4. _____			
50% = 45, 20% = 16.2	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____	5	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	80	yes	FACU
2. _____			
50% = 40, 20% = 16	80	= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: *Exluded from calculations. Species with 5% or less absolute coverage were not considered dominant. The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSE3-SP3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	2.5Y 3/2	100					Gr Sa Loam	with cobbles
13-19	2.5Y 3/3	100					Gr Sa Sand	with cobbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Cobbles throughout profile

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators observed. The sample plot is located approximatley 4 feet west of the ditch. .

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

Project Site: Lynnwood Link Extension City/County: Seattle/King Sampling Date: 4/29/14

Applicant/Owner: Sound Transit State: WA Sampling Point: WSE3-SP4

Investigator(s): M. Louther, C. Worsley Section, Township, Range: S20, T26N, 4E

Landform (hillslope, terrace, etc.): toe of I-5 fill slope Local relief (concave, convex, none): convex Slope (%): 1

Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83

Soil Map Unit Name: Urban land NWI classification: upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: Precipitation is greater than normal this late winter/early spring. The sample plot is located south of WSE3 between an unknown Acer sp to S and another unknown Acer sp to N. Alnus rubra and Pseudotsuga menziesii to NE, unknown Acer sp. to W, Sorbus aucuparia to ENE, and onions on slope to the west. At toe of I-5 fill slope.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer sp. (ornamental)*	60	n/a*	-
2. *Alnus rubra*	50	yes	FAC
3. *Pseudotsuga menziesii*	8	no	FACU
4. *Sorbus aucuparia*	5	no	NL (UPL)
50% = 32, 20% = 13	63	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Rubus spectabilis*	2	no	FAC
2. *Ilex aquifolium*	2	no	FACU
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = 2, 20% = 1	4	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Alliuim sp (garden onion escapee)*	5	n/a*	-
2. *Phalaris arundinacea*	5	no	FACW
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = 2.5, 20% = 1	5	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	30	yes	FACU
2. _____	_____	_____	_____
50% = 15, 20% = 6	30	= Total Cover	

% Bare Ground in Herb Stratum 90

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: *Exluded from calculations. Malus spp (ornamental) with 2% cover in tree stratum. Species with 5% or less absolute coverage were not considered dominant. The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSE3-SP4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	2.5Y 3/2	100					Gr Sa Loam	with cobbles
13-19	2.5Y 3/3	100					Gr Sa Sand	with cobbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Cobbles throughout profile

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators observed. The sample plot is located approximatley 4 feet west of the ditch. .

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

Project Site: Lynnwood Link Extension | City/County: Seattle/Kinig | Sampling Date: 3/14/12 & 7/2/13

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WSE4-SP1

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S20, T26N, R4E

Landform (hillslope, terrace, etc.): bottom of linear depression | Local relief (concave, convex, none): none | Slope (%): ____

Subregion (LRR): A | Lat: 47.72905088520 | Long: -122.32339466800 | Datum: NAD83

Soil Map Unit Name: Urban land | NWI classification: PFO

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: The sample plot is located on the east side of (adjacent to) standing water, approximately 35 feet east of the road and 25 feet west of the golf course. Between 2 western redcedars. Approximately 20 feet NNW of concrete monument.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	90	yes	FAC
2. *Ilex aquifolium*	2	no	NL (UPL)
3.			
4.			
50% = 46, 20% = 18.4	92	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Rubus spectabilis*	2	no	FAC
2.			
3.			
4.			
5.			
50% = 1, 20% = 0.4	2	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Athyrium filix femina*	80	yes	FAC
2. *Equisetum telmateia*	20	yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Hedera helix*	5	no	NL (UPL)
2. *Rubus armeniacus*	2	no	FACU
50% = 2.5, 20% = 1	7	= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x1 = ____
FACW species ____	x2 = ____
FAC species ____	x3 = ____
FACU species ____	x4 = ____
UPL species ____	x5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSE4-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					Mucky Lo	
5-11	10Y 4/1	92	10YR 4/3	8			Fine Sa Lo	
11-18	5Y 3/1	100					Gr Sa Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Partially decomposed leaf litter over soil. Organic lenses or layering, especially at 11 inches. Inclusions of silt loam in lower horizon (5Y 2/1). .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	11
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Two inches of inundation near the sample plot (3/14/12 & 7/2/13

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

Project Site: Lynnwood Link Extension | City/County: Seattle/King | Sampling Date: 3/14/12 & 7/2/13

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WSE4-SP2

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S20, T26N, R4E

Landform (hillslope, terrace, etc.): _____ | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): A | Lat: 47.72910037860 | Long: -122.32329964000 | Datum: NAD83

Soil Map Unit Name: Urban land | NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: The sample plot is located approximately 18 feet east of WSE4-SP1 and approximately 10 feet west of the fence.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	50	yes	FAC
2.			
3.			
4.			
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Rubus spectabilis*	15	yes	FAC
2. *Sambucus racemosa*	10	yes	FACU
3. *Prunus sp. (laurel)*	2	no	
4.			
5.			
50% = 13.5, 20% = 5.4	27	= Total Cover	
Herb Stratum (Plot size: 2M)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	60	yes	FACU
2.			
50% = 30, 20% = 12	60	= Total Cover	

% Bare Ground in Herb Stratum _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSE4-SP2

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-9	10YR 2/2						Gr Sa Loam	
9-18	10YR 2/1						Gr Sa Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Cobbles observed below at 16 inches and below. .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators observed.

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

Project Site: Lynnwood Link Extension | City/County: Seattle/King | Sampling Date: 3/19/12 & 7/9/13

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WSE5-SP1

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S20, T26N, R4E

Landform (hillslope, terrace, etc.): toe of road fill slope | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): A | Lat: 47.73129462180 | Long: -122.32368003200 | Datum: NAD83

Soil Map Unit Name: Urban land | NWI classification: PFO

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: Sample plot is located approximately 70 feet south of North Branch Thornton Creek, at toe of I-5 slope, approximately 15 feet west of the fence.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	85	yes	FAC
2.			
3.			
4.			
50% = 42.5, 20% = 17	85	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Athyrium filix-femina*	20	yes	FAC
2. *Equisetum telmateia*	60	yes	FACW
3. *Scirpus mircrocarpus*	2	no	OBL
4. *Ranunculus repens*	2	no	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 42, 20% = 16.8	84	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	25	yes	FACU
2.			
50% = 12.5, 20% = 5	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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: The 1988 Region 9 National Wetland Plant List and 1993 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSE5-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-19	10YR 2/1	100					Gr Sa Loam	with cobbles. High organic content.

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Partially decomposed organic debris throughout the profile.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	16
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Water seeping into soil pit throughout profile. Soil saturation at surface on 7/9/13

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

Project Site: Lynnwood Link Extension City/County: Seattle/King Sampling Date: 3/19/12
Applicant/Owner: Sound Transit State: WA Sampling Point: WSE5-SP2
Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S20, T26N, R4E
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): none Slope (%): 10
Subregion (LRR): A Lat: 47.73127973780 Long: -122.32376967800 Datum: NAD83
Soil Map Unit Name: Urban land NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: The sample plot is located approximately 22 feet east of I-5 guardrails and approximately 18 feet southwest of WSE5-SP1.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	90	yes	FAC
2.			
3.			
4.			
50% = 45, 20% = 18	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Equisetum telmateia*	30	yes	FACW
2. *Gallium aparine*	5	no	FACU
3. *Athyrium filix-femina*	2	no	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 18.5, 20% = 7.4	37	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	60	yes	FACU
2.			
50% = 30, 20% = 12	60	= 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	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: The 1988 Region 9 National Wetland Plant List and 1993 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSE5-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1							Duff	partially decomposed
1-8	10YR 3/2	100					Gr Sa Loam	
8-12	10YR 4/2	100					Gr Sa Loam	inclusions of sand
12-20	2.5Y 5/2	80	10YR 5/4	20	C	M	Gr Sand	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Disturbed, some trash in upper layer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	17
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	8

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project Site: Lynnwood Link Extension City/County: Seattle/King Sampling Date: 3/19/12

Applicant/Owner: Sound Transit State: WA Sampling Point: WSE6-SP1

Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S20, T26N, R4E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): A Lat: 47.73230327350 Long: -122.32368177900 Datum: NAD83

Soil Map Unit Name: Urban land NWI classification: PSS

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: The sample plot is located approximately 75 feet south of 5th Ave/I-5 northbound off-ramp and approximately 18 feet east northeast of light pole. No paired plot for WSE6. Upland area to east and west consists of mowed fill slope for I-5 northbound off-ramp and 5th Avenue. Fill/disturbed soils with reed canarygrass and disturbance-tolerant roadside grasses.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Spirea douglasii*	60	yes	FACW
2. _____			
3. _____			
4. _____			
5. _____			
50% = 30, 20% = 12	60	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Phalaris arundinacea*	90	yes	FACW
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
50% = 45, 20% = 18	90	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: The 1988 Region 9 National Wetland Plant List and 1993 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSE6-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/1	100					Gr Si Loam	
9-18	10YR 4/2	100					Gr Sa Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☐

Remarks: Soils appear to have been disturbed. There are inclusions of sand in the lower layer and litter and debris throughout the profile.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	surface
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: The sample plot is adjacent to a microdepression with 1 inch of inundation.

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

Project Site: Lynnwood Link Extension | City/County: Seattle/King | Sampling Date: 3/19/12 & 7/11/13

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WSE7-SP1

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S20, T26N, R4E

Landform (hillslope, terrace, etc.): _____ | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): A | Lat: 47.73291615630 | Long: -122.32406708600 | Datum: NAD83

Soil Map Unit Name: Urban land | NWI classification: PEM

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: The sample plot is located approximately 20 feet south southeast of tree in the wetland, east side of the southern cattail patch.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ornamental maple*	15	n/a*	-
2.			
3.			
4.			
50% = 7.5, 20% = 3	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Typha latifolia*	70	yes	OBL
2. *Agrostis capillaris*	40	yes	FAC
3. *Festuca rubra*	20	no	FAC
4. *Carex stipata*	20	no	OBL
5. *Lemna minor*	60	yes	OBL
6. *Holcus lanatus*	10	no	FAC
7. *Juncus effusus*	10	no	FACW
8.			
9.			
10.			
11.			
50% = 115, 20% = 46	230	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	25	yes	FACU
2.			
50% = 12.5, 20% = 5	25	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: *excluded from calculations per chapter 2 guidance The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation. One tree in wetland (ornamental maple).

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSE7-SP1

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-6	10YR 2/1						Si Loam	
6-20	10YR 2/1						Gr Sa Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Inclusions of sand in the lower horizon. High concentrations of organic matter.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	6
Water Table Present?	Yes	☒	No	☐	Depth (inches):	surface
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: 3 inches of inundation during 7/11/2013 site investigation

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

Project Site: Lynnwood Link Extension City/County: Seattle/King Sampling Date: 3/19/12

Applicant/Owner: Sound Transit State: WA Sampling Point: WSE7-SP2

Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S20, T26N, R4E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): convex Slope (%): 2

Subregion (LRR): A Lat: 47.73291045000 Long: -122.32400494100 Datum: NAD83

Soil Map Unit Name: Urban land NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: The sample plot is located east of the wetland in mowed grass, approximately 30 feet southeast of ornamental maple tree. No SP flag because area is mowed.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Agrostis capillaris*	40	yes	FAC
2. *Festuca rubra*	30	yes	FAC
3. *Holcus lanatus*	30	yes	FAC
4. *Schedonorus phoenix*	5	no	FACU
5. *Taraxicum officinale*	5	no	FACU
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
50% = 55, 20% = 22	110	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	10	yes	FACU
2. _____			
50% = 5, 20% = 2	10	= Total Cover	
% Bare Ground in Herb Stratum 0			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0[1]

☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ 5 - Wetland Non-Vascular Plants[1]

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: The 1988 Region 9 National Wetland Plant List and 1993 Supplement were used for this delineation. Dominant herbaceous species are all FAC disturbance-tolerant plants commonly found in maintained road ROW.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSE7-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100					Loam	
4-14	10YR 3/2	100					Gr Sa Loam	with cobbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Profile is compacted. Various inclusions. .

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☐	Depth (inches):	
Water Table Present?	Yes	☐	No	☐	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	4

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Seeping in at 4 inches below the surface. Compacted soils are likely creating a restrictive layer.

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

Project Site: Lynnwood Link Extension | City/County: Seattle/King | Sampling Date: 3/21/12 & 7/11/13

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WSE8-SP1

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S20, T26N, R4E

Landform (hillslope, terrace, etc.): _____ | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): A | Lat: 47.73149499190 | Long: -122.32336785500 | Datum: NAD83

Soil Map Unit Name: Urban land | NWI classification: PFO

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: The sample plot is located approximately 15 feet northeast of NB Thornton Creek 5th Ave crossing. No paired upland sample plot.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	35	yes	FAC
2. *Salix lucida*	80	yes	FACW
3.			
4.			
50% = 57.5, 20% = 23	115	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Salix sitchensis*	40	yes	FACW
2. *Rubus spectabilis*	25	yes	FAC
3.			
4.			
5.			
50% = 32.5, 20% = 13	65	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Athyrium filix-femina*	30	yes	FAC
2. *Equisetum telmateia*	5	no	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 10, 20% = 4	35	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	20	yes	FACU
2.			
50% = 10, 20% = 4	20	= Total Cover	

% Bare Ground in Herb Stratum 80

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSE8-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					v. Mu Loam	
10-20	10YR 3/1	100					v. Mu Loam	
20-22	10Y 3/1	100					Gr Sand	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Sulfidic odor. Soil from 0 to 20 inches has high organic content with varying degrees of decomposition.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Soils saturated to the surface (3/21/12 & 7/9/13)

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

Project Site: Lynnwood Link Extension City/County: Seattle/King Sampling Date: 7/11/13
Applicant/Owner: Sound Transit State: WA Sampling Point: WSE8-SP2
Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S20, T26N, R4E
Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): concave Slope (%): 50
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Urban land NWI classification: Upland forest
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: The sample plot is located approximately 25 feet west of perimeter trail and chain link fence, east of the wetland on the slope.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	90	yes	FAC
2.			
3.			
4.			
50% = 45, 20% = 18	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Sorbus aucuparia*	10	yes	NO
2. *Ilex aquifolium*	5	no	FACU
3. *Rubus spectabilis*	20	yes	FAC
4.			
5.			
50% = 17.5, 20% = 7	35	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Ranunculus repens*	60	yes	FAC
2. *Geum macrophyllum*	2	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 31, 20% = 12.4	62	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	35	yes	FACU
2. *Hedera helix*	5	yes	FACU
50% = 20, 20% = 8	40	= Total Cover	

% Bare Ground in Herb Stratum 20

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	60	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSE8-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	100					Sa Loam	with cobbles
2-16	10YR 3/2	100					Sa Loam	
16-18	2.5Y 5/3	100					Sa Loam	gravel and sand in layer, compacted

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary indicators were observed

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

Project Site: Lynnwood Link Extension | City/County: Shoreline/King | Sampling Date: 3/15/12 & 7/16/13

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WSH1-SP1

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S17, T26N, R4E

Landform (hillslope, terrace, etc.): _____ | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): A | Lat: 47.73447093280 | Long: -122.32399213200 | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: PEM

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: The sample plot is located in the northern arm of the wetland, approximately 15 feet south southwest of a birch tree. Heavy rains during site investigation and more than average precipitation for the five days prior.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula papyrifera(overhaning from boundary)*	30	yes	FAC
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50% = 15, 20% = 6	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Juncus effusus*	75	yes	FACW
2. *Equisetum telmatiea*	5	no	FACW
3. *Agrostis capillaris*	15	no	FAC
4. *Ranunculus repens*	35	yes	FACW
5. *Mimulus moschatus*	25	yes	OBL
6. *Hypochaeris radicata*	2	no	FACU
7. *Taraxacum officinale*	2	no	FACU
8. *Trifolium pratense*	5	no	FACU
9. *Holcus lanatus*	2	no	FAC
10. *Rorippa nasturtium-aquaticum*	25	yes	OBL
11. *Equisetum arvense*	50	yes	FAC
50% = 120.5, 20% = 48.2	241	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus ursinus*	2	no	FACU
2. *Rubus armeniacus (overhanging from upland)*	8	n/a*	FACU
50% = 5, 20% = 2	10	= Total Cover	

% Bare Ground in Herb Stratum 20

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: *excluded from calculations per chapter 2 guidance Species with 5% or less absolute coverage were not considered dominant. The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH1-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	100					Si Loam	
8-18	2.5Y 4/1	95	2.5Y 4/6	5	C	M	Gr Sa Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Inclusions of 10YR 2/1 sandy loam from 15 inches and below.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	7
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Sample plot is adjacent to standing water (1 inch deep). Soils were saturated to 4 inches below the surface during 7/16/13 site investigation.

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

Project Site: Lynnwood Link Extension | City/County: Shoreline/King | Sampling Date: 3/15/12

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WSH1-SP2

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S17, T26N, R4E

Landform (hillslope, terrace, etc.): _____ | Local relief (concave, convex, none): convex | Slope (%): 4

Subregion (LRR): A | Lat: 47.73441940360 | Long: -122.32406798700 | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: The sample plot is located northwest of the wetland (between north and west arms) on a grass slope, between north and west arms. Heavy rains during site investigation and more than average precipitation for the five days prior.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra (overhanging from S. WL boundary)*	40	n/a*	FAC
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Festuca rubra*	50	yes	FAC
2. *Agrostis capillaris*	50	yes	FAC
3. *Schedonorus phoenix*	20	no	FAC
4. *Achillea millefolium*	10	no	FACU
5. *Taraxacum officinale*	5	no	FACU
6. *Hypochaeris radicata*	5	no	FACU
7. *Holcus lanatus*	5	no	FAC
8. *Trifolium repens*	5	no	FAC
9. *Trifolium pratense*	5	no	FACU
10.			
11.			
50% = 77.5, 20% = 31	155	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	2	no	FACU
2.			
50% = 1, 20% = 0.4	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:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: *excluded from calculations per chapter 2 guidance Area is mowed/maintained. Moss in grass. Species with 5% or less absolute coverage were not considered dominant. The 1988 Region 9 National Wetland Plant List and 1993 Supplement were used for this delineation. Dominant herbaceous species are all FAC disturbance-tolerant plants commonly found in maintained road ROW.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH1-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					Sa Loam	
5-15	2.5Y 3/2	100					Gr Sa Loam	
15-18	2.5Y 4/2	85	10YR 4/6	15	C	M	Gr Sa Loam	with cobbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Garbage debris at 12 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	16
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	10

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Water seeping in to the pit at 10 inches.

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

Project Site: Lynnwood Link Extension | City/County: Shoreline/King | Sampling Date: 3/15/12 & 3/26/14

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WSH2-SP1

Investigator(s): M. Maynard, C. Worsley; K. Seckel, C. Worsley | Section, Township, Range: S17, T26N, R4E

Landform (hillslope, terrace, etc.): swale | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): A | Lat: 47.73871180380 | Long: -122.32704887700 | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: PEM

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: Located in center of swale, approximately 8 feet west of sound wall. Heavy rains during site investigation and more than average precipitation for the five days prior.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Juncus effusus*	50	yes	FACW
2. *Scirpus microcarpus*	5	no	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11. *Unknown grasses*	90	n/a*	-
50% = 27.5, 20% = 11	55	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1.			
2.			
50% = ____, 20% = ____		= 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: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: *The dominant vegetation (grasses) is mowed and unidentifiable. May be a WSDOT mix. The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH2-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 2/2	70	5YR 3/4	25	C	M	Gr Sa Loam	
			7.5YR 5/8	5	C	M		
11-20	10YR 4/2	85	10YR 5/8	15	C	M	Silt Loam	Compacted

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Lower layer appears to be disturbed and contains inclusions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	4
Water Table Present?	Yes	☒	No	☐	Depth (inches):	surface
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: 03/26/14 - Same conditions observed with 4 inches standing water.

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

Project Site: Lynnwood Link Extension | City/County: Shoreline/King | Sampling Date: 3/15/12 & 3/26/14

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WSH2-SP2

Investigator(s): M. Maynard, C. Worsley; K. Seckel, C. Worsley | Section, Township, Range: S17, T26N, R4E

Landform (hillslope, terrace, etc.): _____ | Local relief (concave, convex, none): convex | Slope (%): 1

Subregion (LRR): A | Lat: 47.73875709240 | Long: -122.32704648000 | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: The sample plot is located approximately 3 feet north of the wetland boundary and 4 feet west of the sound wall. Heavy rains during site investigation and more than average precipitation for the five days prior. Sample plot boundary limited by soundwall and wetland boundary.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Galium aparine*	5	no	FACU
2. *Geranium molle*	2	no	NL (UPL)
3. *Holcus lanatus*	2	no	FAC
4. *Echinochloa crus-galli*	10	yes	FAC
5. *Cirsium arvense*	5	no	FAC
6. *Pteridium aquilinum*	8	no	FACU
7. *Schedonorus arundinaceus*	10	yes	FAC
8. *Vicia americana*	2	no	FAC
9. _____			
10. _____			
11. *Unknown grass (likely mostly AGCA)*	80	n/a*	-
50% = 22, 20% = 9	44	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	20	yes	FACU
2. _____			
50% = 10, 20% = 4	20	= Total Cover	

% Bare Ground in Herb Stratum _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	67	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: *The dominant vegetation (grasses) is mowed and unidentifiable. May be a WSDOT mix. Wood chips near soundwall. The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH2-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					Loam	
2-6	10YR 2/2	100					Gr Sa Loam	
6-18	10YR 3/2	96	10YR 6/8	2			Gr Sa Loam	with cobbles
			7.5YR 5/8	2				

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Soil is disturbed, pieces of concrete.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	15
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	10

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: Soils were saturated at 10 inches and below. This was during a heavy rain event.
3/26/14 - no indicators of wetland hydrology were observed.

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

Project Site: Lynnwood Link Extension City/County: Shoreline/King Sampling Date: 3/26/14
Applicant/Owner: Sound Transit State: WA Sampling Point: WSH2-SP3
Investigator(s): K. Seckel, C. Worsley Section, Township, Range: S17, T26N, R4E
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Precipitation is greater than normal this late winter/early spring. Sample plot is located approximately 6 feet southeast of weeping willow and approximately 4 feet northwest of boundary flag WSH2-2. Area is PFO due to one large spreading weeping willow.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix babylonica*	80	yes	FACW
2. _____			
3. _____			
4. _____			
50% = 40, 20% = 16	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Prunus laurocerasus (overhaning from upland)*	5	n/a*	NL (UPL)
2. _____			
3. _____			
4. _____			
5. _____			
50% = 2.5, 20% = 1	5	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			-
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	95	yes	FACU
2. _____			
50% = 48, 20% = 19	95	= Total Cover	
% Bare Ground in Herb Stratum 70			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☒ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: *excluded from calculations per chapter 2 guidance Rubus armeniacus is acting hydrophytically. The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH2-SP3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 2/1	70					si. loam	
15-18	10YR 2/2	20					loam	
15-18	10YR 5/1	80					loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Sulfidic odor.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	surface
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Small pockets of inundation in adjacent microdepressions.

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

Project Site: Lynnwood Link Extension City/County: Shoreline/King Sampling Date: 3/26/14
Applicant/Owner: Sound Transit State: WA Sampling Point: WSH2-SP4
Investigator(s): K. Seckel, C. Worsley Section, Township, Range: S17, T26N, R4E
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Precipitation is greater than normal this late winter/early spring. Sample plot is located approximately 4 feet east of soundwall and approximately 10 feet south of wetland. Sample plot boundary is confined by soundwall.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix babylonica*	50	yes	FACW
2. _____			
3. _____			
4. _____			
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			-
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	80	yes	FACU
2. _____			
50% = 40, 20% = 16	80	= Total Cover	
% Bare Ground in Herb Stratum 70			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH2-SP4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 2/2	100					Loam	
1-3	10YR 5/2	35	10YR 5/8	5	C	M	lo. sand	
	10YR 3/2	60						
3-13	10YR 5/2	45	10YR 5/8	10	C	M	lo. sand	
13-18	10YR 4/1	70	10YR 5/8	5	C	M	sa. loam	
	10YR 5/1	25						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks:

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

Project Site: Lynnwood Link Extension City/County: Shoreline/King Sampling Date: 4/12/14
Applicant/Owner: Sound Transit State: WA Sampling Point: WSH2-SP5
Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S17, T26N, R4E
Landform (hillslope, terrace, etc.): undulating topography Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Precipitation is greater than normal this late winter/early spring. Wetland was previously identified as PWSH1, and sample plot was previously named PWSH1-SP1. Sample plot is located approximately 8 feet WNW of boundary flag PWSH1-3. Approximately 5 feet east of soundwall and approximately 20 feet north of poplar.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Phalaris arundinacea*	70	yes	FACW
2. *Cirsium arvense*	5	no	FAC
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			-
50% = 38, 20% = 15	75	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	50	yes	FACU
2. _____			
50% = 25, 20% = 10	50	= Total Cover	
% Bare Ground in Herb Stratum 5			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☒ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Rubus armeniacus is acting hydrophytically. Moss covers approximately 20 percent. The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH2-SP5

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					gr. sa. loam	
6-15	2.5Y 5/2	80	7.5YR 3/4	20	C	M	gr. sa. loam	
15-18	2.5Y 5/1	80	7.5 YR 4/6	20	C	M	gr. sa. loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	16
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	8

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project Site: Lynnwood Link Extension City/County: Shoreline/King Sampling Date: 4/12/14
Applicant/Owner: Sound Transit State: WA Sampling Point: WSH2-SP6
Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S17, T26N, R4E
Landform (hillslope, terrace, etc.): flat, slightly undulating topography Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Precipitation is greater than normal this late winter/early spring. Wetland was previously identified as PWSH1, and sample plot was previously named PWSH1-SP2. Sample plot is located SE of wetland in lawn, approximately 35 feet W of NW corner of parking lot and 20 feet E of soundwall.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Holcus lanatus*	40	yes	FAC
2. *Taraxacum officinale*	10	no	FACU
3. *Hypochaeris radicata*	30	yes	FACU
4. *Trifolium repens*	5	no	FAC
5. *Schedonorus arundinaceus*	15	no	FAC
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			-
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 0			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH2-SP6

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					gr. sa. loam	
6-17	10YR 4/1	85	7.5YR 3/4	15	C	M	gr. sa. loam	w. some cobbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Soils appear to be disturbed. Some trash in sample pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	16

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks:

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

Project Site: Lynnwood Link Extension | City/County: Shoreline/King | Sampling Date: 4/12/14

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WSH2-SP7

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S17, T26N, R4E

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): A | Lat: _____ | Long: _____ | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: PEM

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: Precipitation is greater than normal this late winter/early spring. Wetland was previously identified as PWSH1, and sample plot was previously named PWSH1-SP3. Sample plot is located in the NW corner of lawn, approximately 3 feet from maintained edge.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Schedonorus arundinaceus*	5	no	FAC
2. *Poa pratensis*	20	yes	FAC
3. *Hypochaeris radicata*	5	no	FACU
4. *Taraxacum officinale*	5	no	FACU
5. *Festuca rubra*	30	yes	FAC
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			-
50% = 33, 20% = 13	65	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 0			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☒ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Moss covers approximately 40 percent. The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH2-SP7

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					gr. sa. loam	
8-10	10YR 3/2	80	7.5YR 3/4	20	C	M	gr. sa. loam	
10-17	10YR 2/1	80	10YR 4/6	20	C	M	gr. sa. loam	
17+							hard pan	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: trash in soil profile (glass)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	13
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	11

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project Site: Lynnwood Link Extension | City/County: Shoreline/King | Sampling Date: 3/15/12 & 3/26/14

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WSH3-SP1

Investigator(s): M. Maynard, C. Worsley; K. Seckel, C. Worsley | Section, Township, Range: S17, T26N, R4E

Landform (hillslope, terrace, etc.): _____ | Local relief (concave, convex, none): none | Slope (%): 2

Subregion (LRR): A | Lat: 47.74089017690 | Long: -122.32828328200 | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: PEM

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: The sample plot is located approximately 5 feet west of the chainlink fence. Heavy rains during site investigation and more than average precipitation for the five days prior.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja plicata*	15	yes	FAC
2.			
3.			
4.			
50% = 7.5, 20% = 3	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Phalaris arundinacea*	100	yes	FACW
2. *Equisetum telmateia*	15	no	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 57.5, 20% = 23	115	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	10	yes	FACU
2.			
50% = 5, 20% = 2	10	= Total Cover	

% Bare Ground in Herb Stratum 2

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	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH3-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/2	100					Gr Sa Loam	
5-19	10YR 4/2	70	7.5YR 4/6	30			Gr Sa Loam	with cobbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Soils were dry below 9 inches below the surface when the pit was dug. It filled to 7 inches below the surface.
3/26/14 - no surface water, water table was at 12 inches below the surface, and soil saturation was at 11 inches below the surface.

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

Project Site: Lynnwood Link Extension City/County: Shoreline/King Sampling Date: 3/15/12 & 3/26/14

Applicant/Owner: Sound Transit State: WA Sampling Point: WSH3-SP2

Investigator(s): M. Maynard, C. Worsley; K. Seckel, C. Worsley Section, Township, Range: S17, T26N, R4E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): A Lat: 47.74094607150 Long: -122.32831303000 Datum: NAD83

Soil Map Unit Name: Urban Land NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: Heavy recent rains prior to delineations. The sample plot is located north of the wetland, approximately 6 feet west of the fence and 15 feet north of WSH3-SP1. Heavy rains during site investigation and more than average precipitation for the five days prior.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ornamental cedar*	15	n/a*	-
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Ornamental shrub*	5	n/a*	-
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Phalaris arundinacea*	100	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	5	no	FACU
2.			
50% = _____, 20% = _____		= Total Cover	

% Bare Ground in Herb Stratum 0

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	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: The ornamental species are located outside of the fence in a landscaped area. Species with 5% or less absolute coverage were not considered dominant. Thuja plicata overhanging from wetland. Moss covers 80%. The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH3-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/2	100					Gr Sa Loam	
11-18	10YR 4/1	70	7.5YR 5/8	30			Gr Sa Loam	with cobbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Debris in soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	12
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Heavy rains likely impacted the hydrology at the time of the site visit. Seeping from above.
3/26/14 -No indicators of wetland hydrology observed.

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

Project Site: Lynnwood Link Extension City/County: Shoreline/King Sampling Date: 3/21/12 & 7/31/13

Applicant/Owner: Sound Transit State: WA Sampling Point: WSH4-SP1

Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S05, T26N, R4E

Landform (hillslope, terrace, etc.): linear depression Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): A Lat: 47.77536223460 Long: -122.31685488000 Datum: NAD83

Soil Map Unit Name: Urban Land NWI classification: PFO

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: Sample plot is located approximately 8 feet northwest of flag WSH4-5.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	90	yes	FAC
2.			
3.			
4.			
50% = 45, 20% = 18	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Rubus spectabilis*	40	yes	FAC
2.			
3.			
4.			
5.			
50% = 20, 20% = 8	40	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Phalaris arundinacea*	45	yes	FACW
2. *Glyceria striata*	15	no	OBL
3. *Equisetum telmataeia*	40	yes	FACW
4. *Ranunculus repens*	5	no	FACW
5. *Athyrium filix-femina*	40	yes	FAC
6.			
7.			
8.			
9.			
10.			
11.			
50% = 55, 20% = 22	110	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	40	yes	FACU
2.			
50% = 20, 20% = 8	40	= Total Cover	

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 =
FACW species	x2 =
FAC species	x3 =
FACU species	x4 =
UPL species	x5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: The 2012 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH4-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-17	10YR 2/1	100					Si Loam	high organics
17-20	10YR 3/1	70					v Sa Loam	with gravel and cobbles
	10YR 4/2	30						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☒ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	2
Water Table Present?	Yes	☒	No	☐	Depth (inches):	surface
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Sulfidic odor in portions of wetland.

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

Project Site: Lynnwood Link Extension City/County: Shoreline/King Sampling Date: 3/21/12 & 7/31/13

Applicant/Owner: Sound Transit State: WA Sampling Point: WSH4-SP2

Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S05, T26N, R4E

Landform (hillslope, terrace, etc.): small terrace (shelf) on hillslope Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A Lat: 47.77541550900 Long: -122.31689681300 Datum: NAD83

Soil Map Unit Name: Urban Land NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: The sample plot is located approximately 18 feet upslope of WSH4-SP1 on a shelf of the hillslope. The overall hillslope is an approximately 30% slope.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	40	yes	FAC
2. *Pseudotsuga menzesii*	25	yes	FACU
3.			
4.			
50% = 22.5, 20% = 9	65	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Equisetum telmateia*	10	yes	FACW
2. *Calystegia sepium*	20	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 15, 20% = 6	30	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	90	yes	FACU
2.			
50% = 45, 20% = 9	90	= 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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2012 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation. Red alder is overhanging from wetland.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH4-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100					Gr Sa Loam	
6-19	2.5Y 4/2	100					Gr Sa Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators are present.

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

Project Site: Lynnwood Link Extension City/County: Shoreline/King Sampling Date: 7/31/13
Applicant/Owner: Sound Transit State: WA Sampling Point: WSH4-SP3
Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S05, T26N, R4E
Landform (hillslope, terrace, etc.): linear depression Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sample plot is located approximately 25 feet west-northwest from the northwest corner of the red house, east of ditch in the wetland, approximately 15 feet west-northwest of flag WSH4-9.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Equisetum telmataeia*	90	yes	FACW
2. *Athyrium filix-femina*	55	yes	FAC
3. *Chamerion angustifolium*	5	no	FACU
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
50% = 75, 20% = 30	150	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	15	yes	FACU
2. _____			
50% = 7.5, 20% = 3	15	= Total Cover	
% Bare Ground in Herb Stratum 0			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	67	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: The 2012 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH4-SP3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 2/1	100					Si Loam	high organics
15-20	10YR 2/1	80					Si Loam	
	10YR 4/2	20					Gr Sa Loam	with cobbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Organics in first layer include partially decomposed woody pieces.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	15
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project Site: Lynnwood Link Extension City/County: Shoreline/King Sampling Date: 7/16/13
Applicant/Owner: Sound Transit State: WA Sampling Point: WSH5-SP1
Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S05, T26N, R4E
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): convex Slope (%): 3
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: The data was orignially collected in March of 2012, but the original sample plot could not be relocated, so data was recollected. The sample plot is located on the west side of McAleer Creek, approximately 30 feet west northwest of the outlet.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix scouleriana*	30	yes	FAC
2. *Alnus rubra*	5	no	FAC
3. *Betula papyrifera*	45	yes	FAC
4. _____	_____	_____	_____
50% = 40, 20% = 16	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Sorbus aucuparia*	2	no	FACU
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = 1, 20% = 0.4	_____	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Phalaris arundinacea*	90	yes	FACW
2. *Equisetum telmateia*	50	yes	FACW
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = 70, 20% = 28	140	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	5	no	FACU
2. _____	_____	_____	_____
50% = 2.5, 20% = 1	5	= Total Cover	
% Bare Ground in Herb Stratum 10			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH5-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100					Sa Loam	
10-18	10Y 3/1	90	10YR 4/6	10	C	M	Gr Sand	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Redox concentrations in upper part of lower layer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project Site: Lynnwood Link Extension | City/County: Shoreline/King | Sampling Date: 3/21/12 & 7/16/13

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WSH5-SP2

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S05, T26N, R4E

Landform (hillslope, terrace, etc.): slope | Local relief (concave, convex, none): none | Slope (%): 45

Subregion (LRR): A | Lat: 47.77676142620 | Long: -122.31717815600 | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: The sample plot is located west of the wetland and McAleer Creek, on the I-5 slope.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	80	yes	FAC
2. *Pdeudotsuga menzeisii*	20	yes	FACU
3.			
4.			
50% = 50, 20% = 20	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	75	yes	FACU
2. *Hedera helix*	2	no	NL (UPL)
50% = 38.5, 20% = 15.4	77	= 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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Moss covers approximately 40% of the sample plot. The 1988 Region 9 National Wetland Plant List and 1993 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WSH5-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/3	100					Loam	
9-18	5Y 5/2	85	10YR 4/6	15	C	M	Gr Sa Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	9

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project Site: Lynnwood Link Extension | City/County: ML Terrace/Snohomish | Sampling Date: 3/27/12 & 7/31/13

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WMT1-SP1

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S32, T27N, R4E

Landform (hillslope, terrace, etc.): _____ | Local relief (concave, convex, none): convex | Slope (%): 2

Subregion (LRR): A | Lat: 47.77842833220 | Long: -122.31656532200 | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: PFO

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located approximately 40 feet southwest of McAleer Creek inlet/culvert. It is located on the northwest side of the wetland, approximately 10 feet west of McAleer Creek.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	60	yes	FAC
2. *Betula sp*	15	yes	-
3.			
4.			
50% = 37.5, 20% = 15	75	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Rubus spectabilis*	25	yes	FAC
2.			
3.			
4.			
5.			
50% = 12.5, 20% = 5	25	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Equisetum telmateia*	75	yes	FACW
2. *Athyrium filix-femina*	50	yes	FAC
3. *Ranunculus repens*	35	yes	FACW
4. *Polystichum munitum*	10	no	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 85, 20% = 34	170	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	25	yes	FACU
2.			
50% = 7.5, 20% = 3	25	= Total Cover	

% Bare Ground in Herb Stratum _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT1-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100	-	-	-	-	Silt Loam	
5-9	10YR 4/1	80	10YR 4/6	20	C	M	Gr Sa Loam	
9-18	10Y 4/1	60	10YR 4/6	40	C	M	v. Sa Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	13
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Soil saturation was at 15 inches below the surface during the 7/31/13 site investigation.

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 3/27/12 & 7/31/13

Applicant/Owner: Sound Transit State: WA Sampling Point: WMT1-SP2

Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S32, T27N, R4E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 18

Subregion (LRR): A Lat: 47.77849900740 Long: -122.31659300400 Datum: NAD83

Soil Map Unit Name: Urban Land NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located approximately 40 feet west of McAleer Creek inlet/culvert, on the slope northwest of the wetland.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	65	yes	FAC
2. *Pseudotsuga menzeisii*	8	no	FACU
3.			
4.			
50% = 36.5, 20% = 14.6	73	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Polystichum munitum*	5	no	FACU
2. *Equisetum telmateia*	15	yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 10, 20% = 4	20	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	80	yes	FACU
2.			
50% = 40, 20% = 16	80	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Moss covers approximately 40% of the soil surface. Species with 5% or less absolute coverage were not considered dominant. The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT1-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	100					Gr Sa Loam	
9-18	2.5Y 5/2	70	7.5YR 4/6	30	C	M	Gr Sa Loam	Mostly sand

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No hydrology was present during 3/27/12 site investigation

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

Project Site: Lynnwood Link Extension | City/County: ML Terrace/Snohomish | Sampling Date: 3/27/12 & 8/7/13

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WMT2-SP1

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S32, T27N, R4E

Landform (hillslope, terrace, etc.): mid slope | Local relief (concave, convex, none): none | Slope (%): 50

Subregion (LRR): A | Lat: 47.77953531010 | Long: -122.31607243300 | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: PFO

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located on the slope east of McAleer Creek, approximately 40 feet from the stream and 30 feet west of the right-of-way fence, approximately 10 feet northwest of wetland flag WMT2-10.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	70	yes	FAC
2. *Ilex aquifolium*	5	no	NL (UPL)
3.			
4.			
50% = 22.5, 20% = 9	45	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Equisetum hymale*	90	yes	FACW
2. *Rubus ursinus*	70	yes	FACU
3. *Equisetum telmateia*	20	yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 90, 20% = 36	180	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	25	yes	FACU
2.			
50% = 12.5, 20% = 5	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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species	90	x2 =	180
FAC species	40	x3 =	120
FACU species	80	x4 =	320
UPL species	5	x5 =	25
Column Totals:	215 (A)		645 (B)

Prevalence Index = B/A = 3.0

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☒ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT2-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Sa loam	
6-12	2.5Y 4/2		10YR 5/6		C	M	Gr Sa Loam	
12+								Extremely compacted soil

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Very compacted soils

Depth (inches): at 12 inches below the surface

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Restrictive layer/extremely compated at 12 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	10
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	0-12

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Soils were saturated from the surface to 12 inches below the surface (water was seeping in from the upgradient side of the sample plot). Water seeping in from upgradient side. .

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

Project Site: Lynnwood Link Extension | City/County: ML Terrace/Snohomish | Sampling Date: 3/27/12 & 8/7/13

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WMT2-SP2

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S32, T27N, R4E

Landform (hillslope, terrace, etc.): flat bench | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): A | Lat: 47.77955318300 | Long: -122.31597964400 | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located east of the wetland on a flat bench, approximately 5 feet southwest of the right-of-way fence, approximately 20 feet (60 degrees) northeast of flag WMT2-10.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pseudotsuga menzeisii*	65	yes	FACU
2. *Prunus emerginata*	10	no	FACU
3. *Populus balsamifera*	10	no	FAC
4. *Acer spp.*	5	no	-
50% = 45, 20% = 18	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Polystichum munitum*	5	no	FACU
2. *Rubus ursinus*	70	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 37.5, 20% = 15	75	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	40	yes	FACU
2.			
50% = 20, 20% = 8	40	= 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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT2-SP2

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-2							Duff	
2-10	10YR 3/3	100					Sa Loam	with cobbles
10-18	10YR 3/4	100					Sa Loam	with cobbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Inclusions of other colors from 2-8 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators observed.

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 8/7/13
Applicant/Owner: Sound Transit State: WA Sampling Point: WMT2-SP3
Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S32, T27N, R4E
Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **The sample plot is located approximately in riverine HGM on west side of McAleer Creek, approximately 10 feet south from Pacific willow.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	75	yes	FAC
2. *Alnus rubra*	20	yes	FAC
3. *Salix lucida*	10	no	FACW
4. ____	____	____	____
50% = 52.5, 20% = 21	105	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Populus balsamifera (seedlings)*	2	no	FAC
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = 12.5, 20% = 5	2	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Iris pseudacorus*	20	yes	OBL
2. *Phalaris arundinacea*	8	yes	FACW
3. *Equisetum telmateia*	8	yes	FACW
4. *Ranunculus repens*	5	no	FAC
5.	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = 85, 20% = 34	41	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	20	yes	FACU
2. ____	____	____	____
50% = 7.5, 20% = 3	20	= Total Cover	
% Bare Ground in Herb Stratum 60			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT2-SP3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100	-	-	-	-	Loam	
3-5	10YR 4/1	40	10YR 3/6	60	C	M	Sand	compacted
5-15	10YR 3/1	90	10YR 3/6	10	C	M	Sand	compacted with gravell and small cobble
15-20	10YR 3/1	10					Sa Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Redox from second layer streaking down to third layer

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	17
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	11

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: .

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 3/28/12 & 8/7/13

Applicant/Owner: Sound Transit State: WA Sampling Point: WMT3-SP1

Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S32, T27N, R4E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A Lat: 47.78429623900 Long: -122.31451165100 Datum: NAD83

Soil Map Unit Name: Indianola loamy sand NWI classification: PFO

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located near a patch of skunk cabbage, approximately 25 feet west of the right-of-way fence, 15 feet west of a hemlock on a stump, and 25 feet south of remnant high visibility fence.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla (on stump)*	15	no	FACU
2. *Prunus emerginata (on hummock)*	40	yes	FACU
3. *Alnus rubra*	75	yes	FAC
4. _____	_____	_____	_____
50% = 65, 20% = 26	130	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Rubus spectabilis*	80	yes	FAC
2. *Sorbus aucuparia (sapling)*	2	no	NL (UPL)
3. *Thuja plicata (sapling)*	2	no	FAC
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = 42, 20% = 16.8	84	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Athyrium filix-femina*	70	yes	FAC
2. *Lysichiton americanus*	20	yes	OBL
3. *Polystichum munitum*	2	no	FACU
4. *Equisetum telmataeia*	5	no	FACW
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = 48.5, 20% = 19.4	97	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	

% Bare Ground in Herb Stratum 60

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT3-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/1	100					Si Loam	
11-18	10YR 2/1	100					Si Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: High concentrations of organic matter with varying degrees of decomposition.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	17
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	6

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Wetland hydrology is presumed, based on the presence of water-stained leaves and saturation within 18 inches during March 2012 visit.

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

Project Site: Lynnwood Link Extension | City/County: ML Terrace/Snohomish | Sampling Date: 3/28/12 & 8/7/13

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WMT3-SP2

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S32, T27N, 4E

Landform (hillslope, terrace, etc.): _____ | Local relief (concave, convex, none): convex | Slope (%): 15

Subregion (LRR): A | Lat: 47.78444675300 | Long: -122.31462495000 | Datum: NAD83

Soil Map Unit Name: Indianola loamy sand | NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located northwest of the wetland, approximately 15 feet north of remnant high visibility fence.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	40	yes	FAC
2.			
3.			
4.			
50% = 20, 20% = 8	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Equisetum telmateia*	25	yes	FACW
2. *Calystegia sepium*	70	yes	FAC
3. *Equisetum telmateia*	50	yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 72.5, 20% = 29	145	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	90	yes	FACU
2.			
50% = 45.5, 20% = 18	90	= 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:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT3-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					Sa Loam	
3-18	2.5Y 4/2	95	10YR 4/6	5	C	M	v. Sa Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches):

Water Table Present? Yes ☐ No ☐ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators observed.

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 3/29/12
Applicant/Owner: Sound Transit State: WA Sampling Point: WMT4-SP1
Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S32, T27N, R4E
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): none Slope (%): 3
Subregion (LRR): A Lat: 47.77989034900 Long: -122.31826331600 Datum: NAD83
Soil Map Unit Name: Alderwood-Urban Land NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **The sample plot is located approximately 30 feet west of the large retaining wall and approximately 15 feet east of the right-of-way fence, near a red alder. Raining during the site investigation and heavy rains the night before.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	40	yes	FAC
2. _____			
3. _____			
4. _____			
50% = 20, 20% = 8	40	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *Rubus spectabilis*	80	yes	FAC
2. _____			
3. _____			
4. _____			
5. _____			
50% = 40, 20% = 16	80	= Total Cover	
Herb Stratum (Plot size: _____)			
1. *Athyrium filix-femina*	20	yes	FAC
2. *Polystichum munitum*	2	no	FACU
3. *Phalaris arundinacea*	2	no	FACW
4. *Equisetum fluviatile*	2	no	OBL
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
50% = 13, 20% = 5.2	26	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. *Rubus armeniacus*	50	yes	FACU
2. _____			
50% = 25, 20% = 10	50	= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 1988 Region 9 National Wetland Plant List and 1993 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL Sampling Point: WMT4-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					Loam	
5-16	10Y 3/1	100					Gr Sand	
16-18	10GY 4/1	30					v. Sa Loam	
	5Y 3/1	70					v. Sa Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☒ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	4
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 3/29/12
Applicant/Owner: Sound Transit State: WA Sampling Point: WMT4-SP2
Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S32, T27N, R4E
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): convex Slope (%): 2
Subregion (LRR): A Lat: 47.77988545100 Long: -122.31817586200 Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **The sample plot is located approximately 6 feet west of the wall and approximately 25 feet east of WMT4-SP1. Heavy rains the previous night and light rain during the site investigation.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	75	yes	FAC
2.			
3.			
4.			
50% = 37.5, 20% = 15	75	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Rubus spectabilis*	5	no	FAC
2.			
3.			
4.			
5.			
50% = 2.5, 20% = 1	5	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Polystichum munitum*	5	no	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 2.5, 20% = 1	5	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	85	yes	FACU
2. *Hedera helix*	2	no	FACU
50% = 43.5, 20% = 17.4	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	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 1988 Region 9 National Wetland Plant List and 1993 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT4-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/2	100					Gr Sa Loam	Primarily large quarry spalls

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Quarry spalls associated with the retaining wall compose much of the substrate.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☐	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	7
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Much of the observed hydrology is likely associated with runoff from the wall.

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

Project Site: Lynnwood Link Extension | City/County: ML Terrace/Snohomish | Sampling Date: 04/03/12 & 12/13/13

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WMT5-SP1

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S29, T27N, R4E

Landform (hillslope, terrace, etc.): _____ | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): A | Lat: 47.80006460900 | Long: -122.31539030600 | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: PEM

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located in emergent community in center of the open area.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	20	yes	FAC
2. *Betula sp.*	2	no	-
3.			
4.			
50% = 11, 20% = 4	22	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Lonicera involucrata*	5	no	FAC
2. *Cornus sericea*	2	no	FACW
3.			
4.			
5.			
50% = 3.5, 20% = 1.4	7	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Juncus effusus*	70	yes	FACW
2. *Phalaris arundinacea*	50	yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 60, 20% = 24	120	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	8	yes	FACU
2.			
50% = 4, 20% = 2	8	= Total Cover	

% Bare Ground in Herb Stratum _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT5-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2						Sa Loam	
4-7	10Y 4/1	85	10YR 4/6	15	C	M	Cl Loam	
7-18	10Y 5/1	40	7.5YR 4/6	60	C	M	Gr Sa Loam	very sandy

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☒ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Inclusions in the 3rd layer (10YR 3/1 gravelly sandy loam). The two lower layers are very compacted. Soil colors variable in area. Cobbles in upper 7 inches observed during the 12-13-13 visit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: There is standing water in adjacent micro-depressions. On 12-13-13 - soil saturated to the surface and 5 inches to free water in the soil pit.

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 04/03/12 & 12/13/13

Applicant/Owner: Sound Transit State: WA Sampling Point: WMT5-SP2

Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S29, T27N, R4E

Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 40

Subregion (LRR): A Lat: 47.80008890100 Long: -122.31554498100 Datum: NAD83

Soil Map Unit Name: Urban Land NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located on the southbound I-5 off-ramp fill slope, west northwest of the wetland, approximately 25 feet soutwest of a Douglas fir.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	70	yes	FAC
2. *Pseudotsuga menzesii*	2	no	FACU
3. *Betula sp*	8	no	-
4.			
50% = 40, 20% = 16	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Forsythia sp. (ornamental)*	60	yes	NO
2. *Prunus emerginata (sapling)*	8	no	FACU
3.			
4.			
5.			
50% = 34, 20% = 13.6	68	= Total Cover	
Herb Stratum (Plot size: 2M)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	50	yes	FACU
2.			
50% = 25, 20% = 10	50	= Total Cover	

% Bare Ground in Herb Stratum 80

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT5-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/3	100					Sa Loam	
9-18	2.5Y 4/3	100					Gr Sa Loam	very sandy

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators observed.

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 12/13/13
Applicant/Owner: Sound Transit State: WA Sampling Point: WMT5-SP3
Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S29, T27N, R4E
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **The sample plot is located in the southeast portion of the wetland, approximately 35 feet northeast (30 degrees) from wetland boundary flag WMT5-23, at the north end of fallen Sitka willow/edge of red-osier dogwood.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix sitchensis*	40	yes	FACW
2. *Populus tremuloides*	20	yes	FAC
3. *Alnus rubra*	5	no	FAC
4. ____	____	____	____
50% = 32, 20% = 13	65	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Cornus sericea*	50	yes	FACW
2. *Lonicera involucrata*	25	yes	FAC
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = 38, 20% = 15	75	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. ____	____	____	____
2. ____	____	____	____
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Solanum dulcamara*	10	yes	FAC
2. *Rubus armeniacus*	5	no	FACU
50% = 7.5, 20% = 3	15	= Total Cover	
% Bare Ground in Herb Stratum 90			

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	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation. Leaf litter covered the bare ground and moss covered 10% of the soil surface.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT5-SP3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100					Gr Sa Loam	
6-12	10YR 3/1	95	7.5YR 4/6	5	C	M	Gr Sa Loam	
12-16	2.5Y 3/1	90	2.5Y 5/6	10	C	M	Gr Sa Loam	more sand than upper layers

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Extremely compacted soils below 16 inches

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	14
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	9

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project Site: Lynnwood Link Extension | City/County: ML Terrace/Snohomish | Sampling Date: 4/3/12 & 12/13/13

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WMT6-SP1

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S29, T27N, R4E

Landform (hillslope, terrace, etc.): _____ | Local relief (concave, convex, none): concave | Slope (%): 5

Subregion (LRR): A | Lat: 47.80057207800 | Long: -122.31572022100 | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: PFO

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **Sample plot is located approximately 60 feet east of ROW fence near City Hall. Centrally in wetland, approximately 200 feet northeast of City Hall.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	70	yes	FAC
2. *Salix lucida*	35	yes	FACW
3.			
4.			
50% = 52.5, 20% = 21	105	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Rubus spectabilis*	30	yes	FAC
2.			
3.			
4.			
5.			
50% = 15, 20% = 6	30	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Equisetum telmateia*	55	yes	FACW
2. *Dryopteris expansa*	15	no	FACW
3. *Athyrium filix-femina*	20	yes	FAC
4. *Epilobium ciliatum*	2	no	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 46, 20% = 18.4	92	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	10	yes	FACU
2.			
50% = 5, 20% = 2	10	= Total Cover	

% Bare Ground in Herb Stratum 50

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL Sampling Point: WMT6-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/1	100					Si Loam	high organics
7-18	10G 5/1	100					Gr Sa Loam	very sandy

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☒ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	13
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Water seeping throughout profile.

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 4/3/12 & 12/13/13

Applicant/Owner: Sound Transit State: WA Sampling Point: WMT6-SP2

Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S29, 27N, R4E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): none Slope (%): 8

Subregion (LRR): A Lat: 47.80053681300 Long: -122.31562003700 Datum: NAD83

Soil Map Unit Name: Urban Land NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located approximately 30 feet east of WMT6-SP1 and 30 feet west of the I-5 off-ramp on a "ledge" of the fill slope.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	80	yes	FAC
2. *Pseudotsuga menzesii*	5	no	FACU
3.			
4.			
50% = 42.5, 20% = 17	85	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Rubus spectabilis*	5	no	FAC
2.			
3.			
4.			
5.			
50% = 2.5, 20% = 1	5	= Total Cover	
Herb Stratum (Plot size: 2M)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	60	yes	FACU
2.			
50% = 30, 20% = 12	60	= Total Cover	

% Bare Ground in Herb Stratum 80

Dominance Test Worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Species with 5% or less absolute coverage were not considered dominant. TThe 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT6-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					Loam	trash in layer
5-18	2.5Y 5/3	100					Gr Sa Loam	very sandy, very compacted at 12 inches

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators present.

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 4/3/12 & 12/19/13

Applicant/Owner: Sound Transit State: WA Sampling Point: WMT7-SP1

Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S28, T27N, R4E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): A Lat: 47.80279636900 Long: -122.31334645800 Datum: NAD83

Soil Map Unit Name: Urban Land NWI classification: PFO

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located on east side of the wetland, approximately 5 feet southeast of the right-of-way fence.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	30	yes	FAC
2. *Acer macrophyllum (overhanging from upland)*	75	n/a*	FACU
3. *Sorbus aucuparia (overhanging from upland)*	20	n/a*	NL (UPL)
4. *Prunus emarginata (overhanging from upland)*	10	n/a*	FACU
50% = 15, 20% = 6	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Rubus spectabilis*	75	yes	FAC
2. *Lonicera involucrata*	40	yes	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = 57.5, 20% = 23	115	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	20	yes	FACU
2. _____	_____	_____	_____
50% = 10, 20% = 4	20	= Total Cover	

% Bare Ground in Herb Stratum _____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: *excluded from calculations per chapter 2 guidance The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT7-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					mucky peat	partially/mostly decomposed organics
10-17	10YR 2/2	100					mucky peat	partially/mostly decomposed organics
17-26	10YR 3/1	100					Si Loam	organic matter inclusions

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☒ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	2
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: 12/19/13 - Saturation at 26 inches below the surface.

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 4/3/12 & 12/19/13

Applicant/Owner: Sound Transit State: WA Sampling Point: WMT7-SP2

Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S28, T27N, R4E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): ____ Slope (%): _____

Subregion (LRR): A Lat: 47.80276315100 Long: -122.31324289400 Datum: NAD83

Soil Map Unit Name: Urban Land NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located approximately 30 feet west of I-5 shoulder.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer macrophyllum*	70	yes	FACU
2. *Sorbus aucuparia*	5	no	NL (UPL)
3. _____	_____	_____	_____
4. _____	_____	_____	_____
50% = 37.5, 20% = 15	75	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Rubus spectabilis*	10	yes	FAC
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = 5, 20% = 2	10	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = _____, 20% = _____	_____	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	20	yes	FACU
2. _____	_____	_____	_____
50% = 10, 20% = 4	20	= Total Cover	

% Bare Ground in Herb Stratum 80

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT7-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					Loam	
5-16	2.5Y 5/4	60					Gr Sa Loam	very sandy
	5Y 4/1	40					Clay Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators present.

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 5/16/14
Applicant/Owner: Sound Transit State: WA Sampling Point: WMT9-SP1
Investigator(s): K. Seckel, C. Worsley Section, Township, Range: S32, T27N, R4E
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave Slope (%): 3
Subregion (LRR): A Lat: 47.783075 Long: -122.315731 Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **The sample plot is located in a roadside ditch north of a patch of broadleaf cattail approximately 8-feet east of the I-5 northbound on-ramp, south of Mountlake Terrace Transit Center.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =	0	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Juncus effusus*	60	yes	FACW
2. *Typha latifolia*	20	no	OBL
3. *Holcus lanatus*	15	no	FAC
4. *Unknown (Grass)*	15	no	-
5. *Festuca rubra*	10	no	FAC
6. *Poa pratensis*	5	no	FAC
7. *Schedonorus arundinaceus*	2	no	FAC
8. *Vicia americana*	2	no	FAC
9.			
10.			
11.			
50% = 62.5, 20% = 26	129	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1.			
2.			
50% = , 20% =		= Total Cover	

% Bare Ground in Herb Stratum 0

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	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL Sampling Point: WMT1-SP9

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	100	-	-	-	-	Silt Loam	
2-9	2.5Y 5/1	85	2.5Y 5/6	15	C	M	Loamy sand	
9-15	5Y 5/1	99	7.5YR 6/8	1	C	M	Loamy sand	compacted

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Meets the Hydric Soil Indicator A11

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	12
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Soil saturation was to the surface. Small pockets of inundation observered adjacent to the pit.

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 5/16/14
Applicant/Owner: Sound Transit State: WA Sampling Point: WMT9-SP2
Investigator(s): K. Seckel, C. Worsley Section, Township, Range: S32, T27N, R4E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 27
Subregion (LRR): A Lat: 47.783075 Long: -122.315731 Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **The sample plot is located east of the wetland on a slope approximately 25 feet west of the I-5 northbound on-ramp, south of Mountlake Terrace Transit Center. Western serviceberry to the east and west of the plot.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer macrophyllum*	15	yes	FACU
2. *Pseudotsuga menziessi*	2	yes	FACU
3.			
4.			
50% = 9, 20% = 2	17	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Amelanchier alnifolia*	8	yes	FACU
2.			
3.			
4.			
5.			
50% = 4, 20% = 1	8	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Unknown (Grass)*	70		-
2. *Vicia hirsuta*	40	yes	UPL
3. *Vicia americana*	25	yes	FAC
4. *AGLA*	10	no	-
5. *Holcus lanatus*	10	no	FAC
6. *Schedonorus arundinaceus*	10	no	FAC
7. *Taraxacum officinale*	2	no	FAC
8. *FEAR*	2	no	FAC
9.			
10.			
11.			
50% = 84.5, 20% = 17	169	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1.			
2.			
50% = ____, 20% = ____	0	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	25	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐** **No ☒**

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2014 National Wetland Plant List and 2010 Supplement were used for this delineation

Project Site: Lynnwood Link Extension

SOIL Sampling Point: WMT2-SP9

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100	-	-	-	-	Sndy Loam	high organic content
3-11	10YR 4/2	100					Lmy sand	
11-17	5Y 5/1	100					Lmy sand	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Gravel and cobble starting at 10 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators present.

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 5/16/14

Applicant/Owner: Sound Transit State: WA Sampling Point: WMT10-SP1

Investigator(s): K. Seckel, C. Worsley Section, Township, Range: S32, T27N, R4E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): A Lat: 47.783075 Long: -122.315731 Datum: NAD83

Soil Map Unit Name: Urban Land NWI classification: PSS

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located west of a keystone retaining wall, west of Sterling/ Savings and Loans, 5 feet west of right-of-way fence.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	60	yes	FAC
2. *2*			
3.			
4.			
50% = 30, 20% = 6	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Cornus alba*	70	yes	FACW
2.			
3.			
4.			
5.			
50% = 35, 20% = 7	70	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Equisetum telmateia*	5	no	FACW
2. *Epilobium ciliatum*	5	no	FACW
3. *Poa trivialis*	5	no	FAC
4. *Taraxacum officinale*	1	no	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 8, 20% = 2	16	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus aremeniacus*	10	yes	FACU
2.			
50% = 5, 20% = 1	10	= Total Cover	
% Bare Ground in Herb Stratum 90			

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	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Species with 5% or less absolute coverage were not considered dominant.The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL Sampling Point: WMT10-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100	-	-	-	-	Sndy Loam	
5-18	10YR 3/2	65					gr lmy sand	
5-18	10YR 3/4	35						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	10.5
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	5

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Soil saturation observed at a depth of 5 inches. Free standing water in pit at 10.5 inches.

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 6-2-14
Applicant/Owner: Sound Transit State: WA Sampling Point: WMT10-SP2
Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S28, T27N, R4E
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 25
Subregion (LRR): A Lat: 47.780608 Long: -122.316213 Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **The sample plot is located west of a keystone retaining wall, west of Sterling/ Savings and Loans, 25 feet west of right-of-way fence.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer macrophyllum*	70	yes	FACU
2. *Alnus rubra*	2	no	FAC
3.	2	no	FAC
4.			
50% = 37, 20% = 18	74	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Salix scouleriana*	10	yes	FAC
2. *Populus balsamifera*	5	no	FAC
3.			
4.			
5.			
50% = 7.5, 20% = 2	15	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Equisetum telmateia*	15	yes	FACW
2. *Holcus lanatus*	15	yes	FAC
3. *Agrostis capillaris*	5	no	FAC
4. *Vicia americana*	2	no	FAC
5. *Galium aparine*	2	no	FACU
6.			
7.			
8.			
9.			
10.			
11.			
50% = 19.5, 20% = 3.9	39	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	70	yes	FACU
2.			
50% = 35, 20% = 7	70	= Total Cover	

% Bare Ground in Herb Stratum 80

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	60	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒** **No ☐**

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT10-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	2.5Y 4/2	100					v.sand.loam	w/ cobbles and gravel

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators present.

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 5/16/14
Applicant/Owner: Sound Transit State: WA Sampling Point: WMT11-SP1
Investigator(s): K. Seckel, C. Worsley Section, Township, Range: S32, T27N, R4E
Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): A Lat: 47.783285 Long: -122.314565 Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **The sample plot is located in swale, 50 feet southeast of road, 8 feet east of a single Scotch broom on southwest bank of the swale.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = , 20% =		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Phalris arundinacea*	100	yes	FACW
2. *Solanum dulcamara*	2	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 51, 20% = 10.5	102	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	40	yes	FACU
2.			
50% = 20, 20% = 4	40	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x1 =	0
FACW species	100	x2 =	200
FAC species	2	x3 =	6
FACU species	40	x4 =	160
UPL species	0	x5 =	0
Column Totals:	142 (A)		366 (B)

Prevalence Index = B/A = 2.58

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☒ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2013 Region 9 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL Sampling Point: WMT11-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Sdy cl loam	
6-9	10YR 3/2						Loamy sand	
9-18	10YR 4/2	90	10YR 5/8	10	C	M	Loamy sand	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Meets hydric soil indicator A11, Depleted Below Dark Surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☒ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	20.5
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	13

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Soils were saturated from the surface to 13 inches below the surface with a water talbe present at approximately 20 inches. Wetland was delineated during the dry season.

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

Project Site: Lynnwood Link Extension City/County: ML Terrace/Snohomish Sampling Date: 5/16/14
Applicant/Owner: Sound Transit State: WA Sampling Point: WMT11-SP2
Investigator(s): K. Seckel, C. Worsley Section, Township, Range: S32, T27N, R4E
Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **The sample plot is located in grassy field 10 feet northeast of wetland, and 60 feet southeast of road.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			-
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Agrostis capillaris*	70	yes	FAC
2. *Taraxacum officinale*	25	yes	FACU
3. *Poa pratensis*	20	yes	FAC
4. *Holcus lanatus*	8	no	FAC
5. *Festuca arundinacea*	8	no	FAC
6. *Vicia americana*	2	no	FAC
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
50% = 66.5, 20% = 13.3	133	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 0			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	66	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: The 2013 Region 9 National Wetland Plant List and 2010 Supplement w3ere used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WMT11-SP2

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-18	10YR 2/2						Sandy loam	lg cobbles at 12 inches and greater

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators observed.

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

Project Site: Lynnwood Link Extension | City/County: Lynnwood/Snohomish | Sampling Date: 4/5/13 & 1/27/14

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WLY3-SP1

Investigator(s): M. Maynard | Section, Township, Range: S21, T27N, R4E

Landform (hillslope, terrace, etc.): swale at toe of fill slope | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): A | Lat: 47.80787823300 | Long: -122.30477705600 | Datum: NAD83

Soil Map Unit Name: UrbanLand | NWI classification: PSS

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located in a hardhack patch near the center of the wetland, approximately 10 feet west of trash rack outlet.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pseudotsuga menziesii (overhanging from buffer)*	40	n/a*	FACU
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Spiraea douglasii*	90	yes	FACW
2.			
3.			
4.			
5.			
50% = 45, 20% = 18	90	= Total Cover	
Herb Stratum (Plot size: 2M)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = ____, 20% = ____		= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	5	no	FACU
2.			
50% = 2.5, 20% = 1	5	= Total Cover	

% Bare Ground in Herb Stratum 80

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: *excluded from calculations per chapter 2 guidance Species with 5% or less absolute coverage were not considered dominant. The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WLY3-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	75					Si Loam	
	2.5Y 5/1	23	2.5Y 5/6	2			Cl Loam	
8-20	10YR 2/1	100					Si Loam	high organic content

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☒ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Signs of disturbance (woody debris and inclusions)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	surface
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: 01/27/4 - Small pockets of inundation (0.5 inches) adjacent to sample plot location.

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

Project Site: Lynnwood Link Extension City/County: Lynnwood/Snohomish Sampling Date: 4/5/12 & 1/27/14

Applicant/Owner: Sound Transit State: WA Sampling Point: WLY3-SP2

Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S21, T27N, R4E

Landform (hillslope, terrace, etc.): lower portion of fill slope Local relief (concave, convex, none): convex Slope (%): 15

Subregion (LRR): A Lat: 47.80783324500 Long: -122.30471790300 Datum: NAD83

Soil Map Unit Name: Urban Land NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located approximately 8 feet east-southeast (120 degrees), upslope of the trash trap on fill slope.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pseudotsuga menzesii*	45	yes	FACU
2. *Acer macrophyllum*	20	yes	FACU
3. *Populus balsamifera*	20	yes	FAC
4. *Sequoiadendron giganteum*	2	no	-
50% = 43.5, 20% = 17.4	87	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Ilex aquifolium*	5	no	FACU
2.			
3.			
4.			
5.			
50% = , 20% =	5	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Ranunculus repens*	2	no	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 1, 20% = 0.4	2	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	10	yes	FACU
2. *Hedera helix*	25	yes	NL (UPL)
50% = 17.5, 20% = 7	35	= Total Cover	

% Bare Ground in Herb Stratum 80

Dominance Test Worksheet:

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

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WLY3-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	100					Sa Loam	
10-18	2.5Y 4/4	93	7.5YR 5/8	2			Gr Cl Loam	
			7.5YR 3/1	5				

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators present.

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

Project Site: Lynnwood Link Extension | City/County: Lynnwood/Snohomish | Sampling Date: 4/24/14 & 4/30/14

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WLY3-SP3

Investigator(s): C. Worsley, M. Hall | Section, Township, Range: S21, T27N, R4E

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): A | Lat: _____ | Long: _____ | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **Precipitation is greater than normal this late winter/early spring. The sample plot is located NW of wetland, approximately 12 feet NNW of inlet/pipe in wetland, approximately 10 feet from W fence and approximately 12 feet from N fence.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix matsudana (corkscrew willow)*	70	n/a*	-
2. *Prunus sp. (ornamental)*	5	n/a*	-
3.			
4.			
50% = 38, 20% = 15	75	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Phalaris arundinacea*	8	no	FACW
2. *Calystegia sepium*	45	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 27, 20% = 11	53	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	90	yes	FACU
2.			
50% = 45, 20% = 18	90	= Total Cover	

% Bare Ground in Herb Stratum 90

Dominance Test Worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: *The corkscrew willow is planted in adjcent residential property and cherry is ornamental. Phalaris arundinacea is near wetland boundary. The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WLY3-SP3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/1	100					Si. Loam	
12-13	5Y 3/2	40	10YR 4/6	10	C	M	Si. Loam	
	5Y 5/2	40	10YR 4/6	10	C	M	Si. Loam	
13-19	2.5Y 3/1	85	10YR 3/6	15	C	M	Si. Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Soil is disturbed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	12.5
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	12

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: Revisited the site and checked hydrology on 04/30/14. Free water was at 16 inches below the surface and soil saturation was at 15 inches below the surface.

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

Project Site: Lynnwood Link Extension City/County: Lynnwood/Snohomish Sampling Date: 4/24/14
Applicant/Owner: Sound Transit State: WA Sampling Point: WLY3-SP4
Investigator(s): C. Worsley, M. Hall Section, Township, Range: S21, T27N, R4E
Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): A Lat: _____ Long: _____ Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Precipitation is greater than normal this late winter/early spring. The sample plot is located on access road, E of wetland, approximately 50 feet SW of access gate.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pseudostuga menziesii*	35	yes	FACU
2. *Sorbus aucuparia*	5	no	NL (UPL)
3. *Alnus rubra*	2	no	FAC
4. *Acer macrophyllum*	5	no	FACU
50% = 24, 20% = 9	47	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Ilex aquifolium*	2	no	FACU
2. *Oemleria cerasiformis*	2	no	FACU
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
50% = 2, 20% = 1	4	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Ranunculus repens*	80	yes	FAC
2. *Equisetum arvense*	40	yes	FAC
3. *Cirsium arvense*	5	no	FAC
4. *Holcus lanatus*	5	no	FAC
5. *Poa pratensis*	30	no	FAC
6. *Phalaris arundinacea*	2	no	FACW
7. *Taraxacum officinale*	2	no	FACU
8. *Agrostis capillaris*	30	no	FAC
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
50% = 97, 20% = 39	194	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	8	yes	FACU
2. *Hedera helix*	2	no	FACU
50% = 5, 20% = 2	10	= Total Cover	
% Bare Ground in Herb Stratum 5			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐** **No ☒**

Remarks: Species with 5% or less absolute coverage were not considered dominant. All trees and shrubs are growing S of sample plot on I-5 fill slope. The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WLY3-SP4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100						partially decomposed wood chips
6-10	10YR 4/3	100					gr. sa. loam	w. angular cobbles (fill from maint. road)
10-14	10YR 2/2	100						partially decomposed wood chips
14-19	2.5Y 4/1	85	7.5YR 3/4	15	C	PL	gr. sa. loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Soil is disturbed being due to the maintenance access road. Some minerals were present in the partially decomposed wood chip layers. The 6-10 inch layer was compacted fill from the maintenance access road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	3 to 6

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: Saturation limited from 3 to 6 inches below the surface. This was confined to upper layer immediately above the compacted (2nd) layer. Water seeped in to bottom of pit from top layer filling the pit with 1 inch of water (at 18 inches below the surface). This limited saturation was likely a result of recent precipitation events, not groundwater.

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

Project Site: Lynnwood Link Extension City/County: Lynnwood/Snohomish Sampling Date: 4/9/12
Applicant/Owner: Sound Transit State: WA Sampling Point: WLY4-SP1
Investigator(s): M. Maynard Section, Township, Range: S21, T27N, R4E
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): A Lat: 47.81675583500 Long: -122.30002669800 Datum: NAD83
Soil Map Unit Name: McKenna Gravelly Silt Loam NWI classification: PEM fringe
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **The sample plot is located east of the parking lot, approximately 20 feet west of Scriber Creek in reed canarygrass.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	30	yes	FAC
2.			
3.			
4.			
50% = 15, 20% = 6	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Salix lucida*	10	yes	FACW
2. *Cornus sericea*	25	yes	FACW
3.			
4.			
5.			
50% = 17.5, 20% = 7	35	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Phalaris arundinacea*	75	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 37.5, 20% = 15	75	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 10			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: The 1988 Region 9 National Wetland Plant List and 1993 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL Sampling Point: WLY4-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/1						Mu Silt	with high organic content

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☒ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Organics are at various stages of decomposition

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	3
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks:

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

Project Site: Lynnwood Link Extension City/County: Lynnwood/Snohomish Sampling Date: 4/9/12
Applicant/Owner: Sound Transit State: WA Sampling Point: WLY4-SP2
Investigator(s): M. Maynard Section, Township, Range: S21, T27N, R4E
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): A Lat: 47.81685512600 Long: -122.30019184700 Datum: NAD83
Soil Map Unit Name: McKenna Gravelly Silt Loam NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **The sample plot is located near the base of a large black cottonwood, approximately 45 feet northwest of WLY4-SP1.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	50	yes	FAC
2. *Pseudotsuga menzesii*	20	yes	FACU
3. *Alnus rubra*	10	no	FAC
4. *Malus sp.*	15	no	NL (UPL)
50% = 42.5, 20% = 17	95	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Cornus sericea*	5	no	FACW
2. *Ilex aquifolium*	5	no	NL (UPL)
3. *Prunus lusitanica*	10	yes	NL (UPL)
4. _____	_____	____	____
5. _____	_____	____	____
50% = 10, 20% = 4	20	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. _____	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Hedera helix*	80	yes	NL (UPL)
2. *Rubus armeniacus*	70	yes	FACU
50% = 75, 20% = 30	150	= 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:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	20	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☐ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 1988 Region 9 National Wetland Plant List and 1993 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WLY4-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/1	100					Loam	
14-18	10YR 3/2	100					Loam	w. cobbles

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☐

Remarks: Concrete rubble throughout area.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators present.

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

Project Site: Lynnwood Link Extension | City/County: Lynnwood/Snohomish | Sampling Date: 7/14/14

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WLY4-SP3

Investigator(s): M. Maynard, C. Worsley | Section, Township, Range: S21, T27N, R4E

Landform (hillslope, terrace, etc.): flat | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): A | Lat: _____ | Long: _____ | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: PSS

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

Are Vegetation ☐, Soil ☒, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located along Scriber Creek in finger of wetland adjacent to the toe of slope near property boundary (6 feet north of toe of slope) betweem wetland flags 25 and 28.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	80	yes	FAC
2. *Populus balsemifera*	10	yes	FAC
3.			
4.			
50% = 45, 20% = 9	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Rubus spectabilis*	2	no	FAC
2. *Cornus alba*	2	no	FACW
3. *Spiraea douglasii*	2	no	FACW
4.			
5.			
50% = 3, 20% = 0.6	6	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Equisetum telmateia*	2	no	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 1, 20% = 0.2	2	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Solanum dulcamara*	15	yes	FAC
2. *Rubus armeniacus*	5	no	FACU
50% = 10, 20% = 2	20	= Total Cover	
% Bare Ground in Herb Stratum 85			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2014 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL Sampling Point: WLY4-SP3

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-2	10YR 2/2						loam	with decomposed organic matter
2-17	10YR 5/1	75	10YR 3/6	15	C	M	sndy loam	with gravels
17-20	10Y 5/1	65	10YR 3/6	35	C	M	sndy loam	with gravels

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Meets the hydric soil indicator for A11, Depleted Below Dark Surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☒ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	19
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	9

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Observed water-stained leaves, free water in pit at 19 inches, saturated at 9 inches.

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

Project Site: Lynnwood Link Extension City/County: Lynnwood/Snohomish Sampling Date: 8/29/14

Applicant/Owner: Sound Transit State: WA Sampling Point: WLY4-SP4

Investigator(s): M. Maynard, K. Seckel Section, Township, Range: S21, T27N, R4E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 10

Subregion (LRR): A Lat: 47.812946 Long: -122.296440 Datum: NAD83

Soil Map Unit Name: Urban Land NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located 15 feet upslope of wetland flag WLY4-28 and 10 feet downslope of chain link fence.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus rubra*	65	yes	FAC
2. *Polystichum munitum*	5	no	FACU
3.			
4.			
50% = 35, 20% = 7	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Laburnum sp.*	50	yes	NL (UPL)
2.			
3.			
4.			
5.			
50% = 25, 20% = 5	50	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Geranium robertianum*	50	yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 25, 20% = 5	50	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	50	yes	FACU
2.			
50% = 25, 20% = 5	50	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test Worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation

☐ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0[1]

☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ 5 - Wetland Non-Vascular Plants[1]

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: Moss covered 50 percent of the herbacious sample plot. Species with 5% or less absolute coverage were not considered dominant. The 2014 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WLY4-SP4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-17	10YR 3/3	100					Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: compacted

Depth (inches): at 14 inches

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators present.

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

Project Site: Lynnwood Link Extension City/County: Lynnwood/Snohomish Sampling Date: 7/16/14
Applicant/Owner: Sound Transit State: WA Sampling Point: WLY4-SP5
Investigator(s): M. Maynard, K. Seckel Section, Township, Range: S21,T27N, R4E
Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): A Lat: ____ Long: ____ Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: PSS
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☒, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **The sample plot is located on the left bank of Scriber Creek approximately 14 feet southwest of paved Scriber Creek Trail, and approximately 20 feet wet of wetland flag WLY4-21B.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. ____			
2. ____			
3. ____			
4. ____			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Spiraea douglasii*	50	yes	FACW
2. *Salix sitchensis*	35	yes	FACW
3. *Lonicera involucrata*	20	yes	FAC
4. *Cornis alba*	10	no	FACW
5. ____			
50% = 57.5, 20% = 11.5	115	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Oenanthe sarmentosa*	60	yes	OBL
2. *Callitriche heterophylla*	30	yes	OBL
3. *Athyrium cyclosorum*	2	no	FAC
4. ____			
5. ____			
6. ____			
7. ____			
8. ____			
9. ____			
10. ____			
11. ____			
50% = 46, 20% = 9.2	92	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. ____			
2. ____			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum ____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0[1]
☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ 5 - Wetland Non-Vascular Plants[1]
☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Algal mats were observed over 15 percent of the sample plot. Species with 5% or less absolute coverage were not considered dominant. The 2014 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WLY4-SP5

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-18	10YR 2/1						vry silty lm	high decomposed organic content

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Meets the hydric soil indicator for A4, hydrogen sulfide.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	4
Water Table Present?	Yes	☒	No	☐	Depth (inches):	surface
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Four inches of inundation, strong sulfidic odor.

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

Project Site: Lynnwood Link Extension | City/County: Lynnwood/Snohomish | Sampling Date: 4/17/12 & 1/27/14

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WLY6-SP1

Investigator(s): M. Maynard | Section, Township, Range: S21, T27N, R4E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): none | Slope (%): 1

Subregion (LRR): A | Lat: 47.81175844700 | Long: -122.29768042500 | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: PFO

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located in the southwest portion of the wetland, approximately 30 feet east of 208th St SW.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lucida*	90	yes	FACW
2. *Alnus rubra*	15	no	FAC
3.			
4.			
50% = 52.5, 20% = 21	105	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Lonicera involucrata*	60	yes	FAC
2.			
3.			
4.			
5.			
50% = 30, 20% = 12	60	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Carex sp.*	2	no	-
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 1, 20% = 0.4	2	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	10	yes	FACU
2.			
50% = 5, 20% = 2	10	= Total Cover	

% Bare Ground in Herb Stratum 80

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WLY6-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	80	5YR 4/6	20	C	M	Si Loam	
4-9	5Y 4/1	60	7.5YR 4/6	40	C	M	Cl Loam	
9-18	5Y 4/1	80	7.5YR 4/6	20	C	M	Cl Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	2
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: 01-27-14 - Saturated to the surface, 1 inch of free water in pit.

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

Project Site: Lynnwood Link Extension | City/County: Lynnwood/Snohomish | Sampling Date: 4/17/12 & 1/27/14

Applicant/Owner: Sound Transit | State: WA | Sampling Point: WLY6-SP2

Investigator(s): M. Maynard | Section, Township, Range: S21, T27N, R4E

Landform (hillslope, terrace, etc.): fill slope (top) | Local relief (concave, convex, none): convex | Slope (%): 3

Subregion (LRR): A | Lat: 47.81164518500 | Long: -122.29775300300 | Datum: NAD83

Soil Map Unit Name: Urban Land | NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located southwest of the wetland , approximately 10 feet east of 208th St SW. At edge of maintained grass ROW for 208th St SW.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Holcus lanatus*	40	yes	FAC
2. *Cardamine oligosperma*	20	yes	FAC
3. *Dactylis glomerata*	15	no	FACU
4. *Taraxacum officinale*	2	no	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 38.5, 20% = 15.4	77	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	45	yes	FACU
2.			
50% = 22.5, 20% = 9	45	= Total Cover	

% Bare Ground in Herb Stratum 5

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	66	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Grass is mowed/maintained. The 2013 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL

Sampling Point: WLY6-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/1	100					Loam	
14-18	10YR 3/2	100					Gr Sa Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators present.

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

Project Site: Lynnwood Link Extension City/County: Lynnwood/Snohomish Sampling Date: 6/6/14

Applicant/Owner: Sound Transit State: WA Sampling Point: WLY7-SP1

Investigator(s): M. Maynard, C. Worsley Section, Township, Range: S21, T27N, R4E

Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): A Lat: 47.812704 Long: -122.298140 Datum: NAD83

Soil Map Unit Name: Urban Land NWI classification: PSS

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

Are Vegetation ☐, Soil ☒, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located on northwest portion of the wetland, approximately 10 feet northwest of Interurban Trail, south of 48th Avenue W.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Populus balsamifera*	40	yes	FAC
2. *Salix sitchensis*	20	yes	FACW
3. *Salix scouleriana*	10	yes	FAC
4. *Salix lucida*	10	yes	FACW
5. *Alnus rubra*	10	yes	FAC
50% = 50, 20% = 12	100*	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Juncus effusus*	70	yes	FACW
2. *Lotus corniculatus*	10	no	FAC
3. *Carex stipata*	2	no	OBL
4. *Juncus ensifolius*	2	no	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 42, 20% = 8	84	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus ursinus*	10	yes	FACU
2.			
50% = 5, 20% = 2	10	= Total Cover	

% Bare Ground in Herb Stratum 15

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	7	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	86	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: *Two additional species were identified in the shrub stratum, red-osier dogwood and salmonberry, both at 5 percent coverage. Species with 5% or less absolute coverage were not considered dominant. The 2014 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL Sampling Point: WLY7-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 5/1						clay loam	
8-13	10YR 3/2	97	10YR 4/6	3	C	M	sndy loam	
13-18	10YR 3/3	90	10YR 4/6	10	C	M	sndy loam	disturbed

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Cobble and gravel start at 13 inches below surface. Entire site, including sample plot have been disturbed within the last 10 years. Per Regional Supplement prodedure for difficult hydric soils, 1) the site meets the dominance text for vegetation, 2) the site meets two primary hydrologic indicators, 3) the site is in a level area (0 percent slope), and 4(b)(7) the soil is problematic in that it has been disturbed within the last 10 years.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☒ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	8

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Observed water-stained leaves, saturated at 8 inches.

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

Project Site: Lynnwood Link Extension City/County: Lynnwood/Snohomish Sampling Date: 6/6/14

Applicant/Owner: Sound Transit State: WA Sampling Point: WLY7-SP2

Investigator(s): M. Maynard Section, Township, Range: S21, T27N, R4E

Landform (hillslope, terrace, etc.): fill slope Local relief (concave, convex, none): concave Slope (%): 3

Subregion (LRR): A Lat: 47.812704 Long: -122.298140 Datum: NAD83

Soil Map Unit Name: Urban Land NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located northwest of the wetland, approximately 22 feet east of red alder and asphalt edge.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	25	yes	FAC
2.			
3.			
4.			
50% = 12.5, 20% = 2.5	25	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Cytisus scoparious*	10	yes	UPL
2. *Pseudotsuga menziesii*	5	no	FACU
3. *Salix scouleriana*	5	no	FACW
4. *Populus sp.*	2	no	-
5.			
50% = 11, 20% = 2.2	22	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Holcus lanatus*	70	yes	FAC
2. *Melilotus officinalis*	15	yes	FACU
3. *Trifolium pratense*	15	yes	FACU
4. *Agrostis scabra*	5	no	FAC
5. *Melilotus albus*	30	yes	NL (UPL)
6.			
7.			
8.			
9.			
10.			
11.			
50% = 67.5, 20% = 13.5	135	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus armeniacus*	20	yes	FACU
2.			
50% = 10, 20% = 2	20	= Total Cover	

% Bare Ground in Herb Stratum 5

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x1 =
FACW species	x2 =
FAC species	x3 =
FACU species	x4 =
UPL species	x5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ 1 – Rapid Test for Hydrophytic Vegetation

☐ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0[1]

☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ 5 - Wetland Non-Vascular Plants[1]

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2014 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL Sampling Point: WLY7-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	5Y 5/1	85	10YR 4/4	15			Gr Lmy snd	with cobble
9-14	5Y 4/2	97	10YR 3/6	3			Gr Lmy snd	with cobble

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: compacted

Depth (inches): 14

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators present.

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

Project Site: Lynnwood Link Extension City/County: Lynnwood/Snohomish Sampling Date: 7/16/14
Applicant/Owner: Sound Transit State: WA Sampling Point: WLY8-SP1
Investigator(s): K. Seckel, M. Maynard Section, Township, Range: S21, T27N, R4E
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): A Lat: 47.812946 Long: -122.296440 Datum: NAD83
Soil Map Unit Name: Urban Land NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **The sample plot is located in a slight depression at the east end of the wetland, approximately 15 feet of the paved edge of the Interurban Trail and approximately 6 feet south WLY8-2.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1.			
2.			
3.			
4.			
5.			
50% = 3, 20% = 0.6	6	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Eliocharis palustris*	90	yes	OBL
2. *Agrostis stolinifera*	5	no	FAC
3. *Holcus lanatus*	5	no	FAC
4. *Lotus corniculatus*	3	no	FAC
5. *Juncus tenuis*	3	no	FAC
6.			
7.			
8.			
9.			
10.			
11.			
50% = 53, 20% = 10.6	106	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1.			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 5			

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	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2014 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL Sampling Point: WLY8-SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	95	10YR 4/6	5	C	M	gv slt loam	with gravels
4-12	2.5Y 5/2	90	10YR 4/6	10	C	M	gv cl loam	with gravels

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: compacted

Depth (inches): 12

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Gravel, cobble, angular rock throughout soils. Likely fill. Meets hydric soil indicator F6, Redox Dark Surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	19
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	9

Wetland Hydrology Present? **Yes** ☒ **No** ☐

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

Remarks: Meets wetland hydrology primary indicator B6, surface soil cracks, and secondary indicators C9, saturation visible on aerial imagery, and D2, geomorphic position.

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

Project Site: Lynnwood Link Extension City/County: Lynnwood/Snohomish Sampling Date: 7/16/14

Applicant/Owner: Sound Transit State: WA Sampling Point: WLY8-SP2

Investigator(s): M. Maynard, K. Seckel Section, Township, Range: S21, T27N, R4E

Landform (hillslope, terrace, etc.): lower portion of fill slope Local relief (concave, convex, none): convex Slope (%): 4

Subregion (LRR): A Lat: 47.812946 Long: -122.296440 Datum: NAD83

Soil Map Unit Name: Urban Land NWI classification: Upland

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

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

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

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

Remarks: **The sample plot is located on slope of WLY8 SE of wetland flag WLY8-14, approximately 25 feet south of Interurban Trail paved edge in patch of Scotch broom.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 5M)			
1. *Cytisus scoparius*	70	yes	UPL
2.			
3.			
4.			
5.			
50% = 35, 20% = 7	70	= Total Cover	
Herb Stratum (Plot size: 2M)			
1. *Festuca rubra*	15	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 7.5, 20% = 1.5	15	= Total Cover	
Woody Vine Stratum (Plot size: 5M)			
1. *Rubus ursinus*	75	yes	FACU
2.			
50% = 37.5, 20% = 7.5	75	= Total Cover	

% Bare Ground in Herb Stratum 5

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	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: Species with 5% or less absolute coverage were not considered dominant. The 2014 National Wetland Plant List and 2010 Supplement were used for this delineation.

Project Site: Lynnwood Link Extension

SOIL Sampling Point: WLY8-SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100					Gr Slt Loam	
7-14	10YR 4/1	20					Gr Slt Loam	
	10YR 4/2	80					Gr Slt Loam	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: compacted

Depth (inches): at 14 inches

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☐	No	☒	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):	

Wetland Hydrology Present? **Yes** ☐ **No** ☒

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

Remarks: No primary or secondary wetland hydrology indicators present.

ATTACHMENT D

Wetland Rating Forms

Wetland name or number WSE1 _____

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WSE1 Date of site visit: 03/09/12; 04/22/14

Rated by: M Maynard Trained by Ecology? Yes X No _____ Date of training: 04/06

SEC: 29 TOWNSHIP: 26N RANGE: 4E Is S/T/R in Appendix D? Yes _____ No X

Map of wetland unit: Figure _____ Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I _____ II _____ III X IV _____

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	16
Score for Hydrologic Functions	16
Score for Habitat Functions	10
TOTAL Score for Functions	42

Category based on SPECIAL CHARACTERISTICS of Wetland I _____ II _____ Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	
Riverine	**X**
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WSE1 _____

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

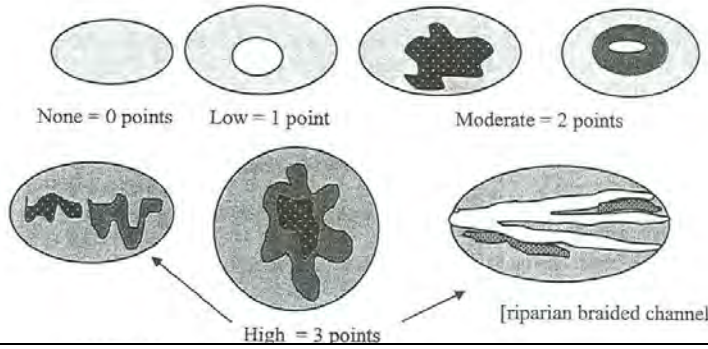
If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number WSE1 _____

R	Riverine and Freshwater Tidal Fringe Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
R 1	**Does the wetland have the potential to improve water quality?** *(see p.52)*	
	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: • Depressions cover > 3/4 area of wetland ..... points = 8 • Depressions cover > 1/2 area of wetland ..... points = 4 **(If depressions > 1/2 of area of unit draw polygons on aerial photo or map)** • Depressions present but cover < 1/2 area of wetland. ..... points = 2 • No depressions present ..... points = 0	**Figure ___** 0
	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height): • Trees or shrubs > 2/3 area of the unit ..... points = 8 • Trees or shrubs > 1/3 area of the wetland ..... points = 6 • Ungrazed, herbaceous plants > 2/3 area of unit ..... points = 6 • Ungrazed herbaceous plants > 1/3 area of unit ..... points = 3 • Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit ..... points = 0 **Aerial photo or map showing polygons of different vegetation types**	**Figure ___** 8
	Add the points in the boxes above	8
R 2	**Does the wetland have the opportunity to improve water quality?** *(see p. 53)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ____ The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality. ____ Other _____ YES multiplier is 2 NO multiplier is 1	Multiplier 2
◆	**TOTAL – Water Quality Functions** Multiply the score from R1 by R2; then ***add score to table on p. 1***	16
	HYDROLOGIC FUNCTIONS – Indicators that wetland functions to reduce flooding and stream erosion.	
R 3	**Does the wetland have the potential to reduce flooding and erosion?** *(see p.54)*	
	R 3.1 Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit) / (average width of stream between banks).* • If the ratio is more than 20 ..... points = 9 • If the ratio is between 10 – 20 ..... points = 6 • If the ratio is 5- <10 ..... points = 4 • If the ratio is 1- <5 ..... points = 2 • If the ratio is < 1 ..... points = 1 **Aerial photo or map showing average widths**	**Figure ___** 1
	R 3.2 Characteristics of vegetation that slow down water velocities during floods: *Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description. (polygons need to have >90% cover at person height NOT Cowardin classes):* • Forest or shrub for > 1/3 area OR herbaceous plants > 2/3 area ..... points = 7 • Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area ..... points = 4 • Vegetation does not meet above criteria ..... points = 0 **Aerial photo or map showing polygons of different vegetation types**	**Figure ___** 7
	Add the points in the boxes above	8
R 4	**Does the wetland have the opportunity to reduce flooding and erosion?** *(see p.57)* Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* __X__ There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. ____ There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding ____ Other _____ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)* YES multiplier is 2 NO multiplier is 1	Multiplier 2
◆	**TOTAL – Hydrologic Functions** Multiply the score from R3 by R4; then ***add score to table on p. 1***	16

Comments:

Wetland name or number WSE1 _____

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ____ Aquatic Bed ____ Emergent plants ____ Scrub/shrub (areas where shrubs have > 30% cover) __X__ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ____ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 0
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ____ Permanently flooded or inundated — 4 or more types present points = 3 __X__ Seasonally flooded or inundated — 3 or more types present.....points = 2 __X__ Occasionally flooded or inundated — 2 types present.....points = 1 ____ Saturated only — 1 type present .....points = 0 ____ Permanently flowing stream or river in, or adjacent to, the wetland __X__ Seasonally flowing stream in, or adjacent to, the wetland ____ **Lake-fringe wetland..... = 2 points** ____ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 2
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ____ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ____ Standing snags (diameter at the bottom > 4 inches) in the wetland ____ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ____ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	0
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	3

H 2	**Does the wetland have the opportunity to provide habitat for many species?**	(only 1 score per box)
	H 2.1 Buffers *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** __X__ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 Corridors and Connections *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). __X__ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). __X__ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	3
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3 • There is at least 1 wetland within 1/2 mile .....points = 2 • There are no wetlands within 1/2 mile.....points = 0	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	7
	TOTAL for H 1 from page 8	3
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	10

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WSE3

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WSE3 Date of site visit: 03/14/12; 07/02/13

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 20 TOWNSHIP: 26N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	14
Score for Hydrologic Functions	10
Score for Habitat Functions	8
TOTAL Score for Functions	32

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WSE3 _____

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   __X__ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

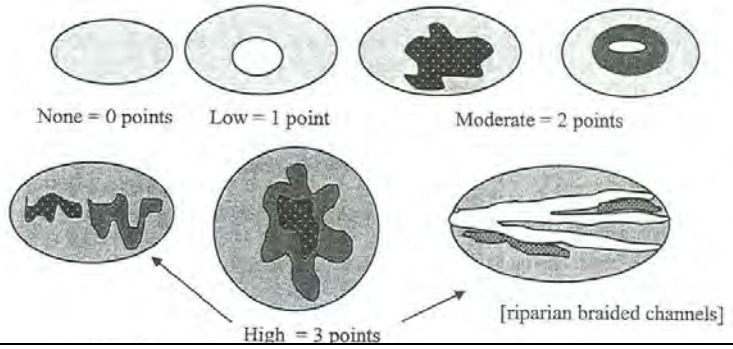
Wetland name or number WSE3 _____

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 3
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 2
	Total for D 1 *Add the points in the boxes above*	7
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier <u>2</u>
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	14
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	5

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ___ Wetland is in a headwater of a river or stream that has flooding problems. X Wetland drains to a river or stream that has flooding problems ___ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	10

Comments:

Wetland name or number WSE3 _____

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ____ Aquatic Bed __X__ Emergent plants ____ Scrub/shrub (areas where shrubs have > 30% cover) ____ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ____ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 0
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ____ Permanently flooded or inundated — 4 or more types present points = 3 __X__ Seasonally flooded or inundated — 3 or more types present.....points = 2 ____ Occasionally flooded or inundated — 2 types present.....points = 1 __X__ Saturated only — 1 type present .....points = 0 ____ Permanently flowing stream or river in, or adjacent to, the wetland ____ Seasonally flowing stream in, or adjacent to, the wetland ____ **Lake-fringe wetland..... = 2 points** ____ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	0
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ____ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ____ Standing snags (diameter at the bottom > 4 inches) in the wetland ____ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ____ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	0
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	1

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** __X__ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). _X__ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). __X_ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	3
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3 • There is at least 1 wetland within 1/2 mile .....points = 2 • There are no wetlands within 1/2 mile.....points = 0	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	7
	TOTAL for H 1 from page 8	1
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	8

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WSE4

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WSE4 Date of site visit: 03/14/12; 07/02/13

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 20 TOWNSHIP: 26N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	14
Score for Hydrologic Functions	16
Score for Habitat Functions	10
TOTAL Score for Functions	40

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WSE4

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

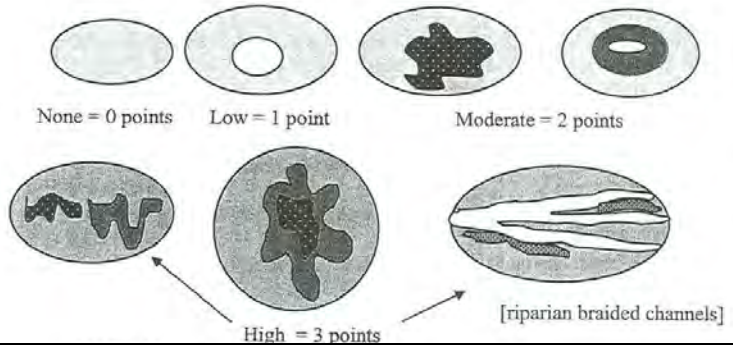
Wetland name or number WSE4

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 3
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 2
	Total for D 1 *Add the points in the boxes above*	7
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?**	*(see p. 44)*
	Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging _X_ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	Multiplier 2
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	14
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	3
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	8

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ___ Wetland is in a headwater of a river or stream that has flooding problems. X Wetland drains to a river or stream that has flooding problems ___ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	16

Comments:

Wetland name or number WSE4

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ____ Aquatic Bed ____ Emergent plants ____ Scrub/shrub (areas where shrubs have > 30% cover) __X__ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* __X__ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 1
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ____ Permanently flooded or inundated — 4 or more types present points = 3 __X__ Seasonally flooded or inundated — 3 or more types present.....points = 2 ____ Occasionally flooded or inundated — 2 types present.....points = 1 __X__ Saturated only — 1 type present .....points = 0 ____ Permanently flowing stream or river in, or adjacent to, the wetland ____ Seasonally flowing stream in, or adjacent to, the wetland ____ **Lake-fringe wetland..... = 2 points** ____ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ____ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ____ Standing snags (diameter at the bottom > 4 inches) in the wetland ____ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ____ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	0
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	3

Wetland name or number WSE4

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** __X__ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report* http://wdfw.wa.gov/hab/phslist.htm)

Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?

NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).

____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).

____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).

_X___ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).

__X_ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*

____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

3

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3
- There is at least 1 wetland within 1/2 mile .....points = 2
- There are no wetlands within 1/2 mile.....points = 0

3

H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4* **7**

TOTAL for H 1 from page 8 **3**

◆ **Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1*** **10**

Comments:

Wetland name or number WSE4

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover*)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WSE4

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WSE5

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WSE5 Date of site visit: 03/19/12; 07/09/13

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 20 TOWNSHIP: 26N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	14
Score for Hydrologic Functions	10
Score for Habitat Functions	12
TOTAL Score for Functions	36

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WSE5

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

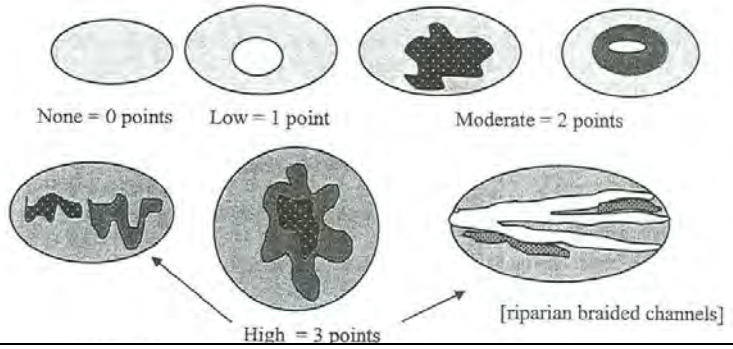
Wetland name or number WSE5

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 5
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 0
	Total for D 1 *Add the points in the boxes above*	7
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier <u>2</u>
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	14
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	5

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____X Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	10

Comments:

Wetland name or number WSE5

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed ___ Emergent plants ___ Scrub/shrub (areas where shrubs have > 30% cover) _X_ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ___X___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 1
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 _X_ Seasonally flooded or inundated — 3 or more types present.....points = 2 ___ Occasionally flooded or inundated — 2 types present.....points = 1 _X_ Saturated only — 1 type present .....points = 0 _X_ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 2
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ___ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) _X_ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	1
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	5

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** __X__ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report* http://wdfw.wa.gov/hab/phslist.htm)

Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?

NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).

____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).

____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).

__X__ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).

__X__ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*

____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

3

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3
- There is at least 1 wetland within 1/2 mile .....points = 2
- There are no wetlands within 1/2 mile.....points = 0

3

	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	7
	TOTAL for H 1 from page 8	5
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	12

Comments:

Wetland name or number WSE5

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover*)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WSE6

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WSE6 Date of site visit: 03/19/12; 07/09/13

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 20 TOWNSHIP: 26N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	12
Score for Hydrologic Functions	18
Score for Habitat Functions	8
TOTAL Score for Functions	38

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WSE6

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

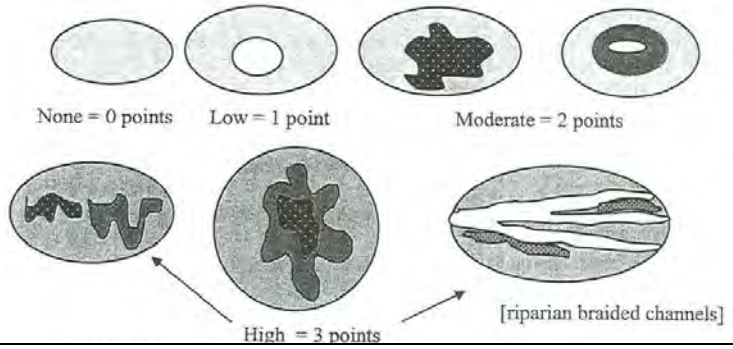
Wetland name or number WSE6

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 3
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 3
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 0
	Total for D 1 *Add the points in the boxes above*	6
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier 2
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	12
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	4
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	5
	Total for D 3 *Add the points in the boxes above*	9

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ___ Wetland is in a headwater of a river or stream that has flooding problems. ___ Wetland drains to a river or stream that has flooding problems X Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	18

Comments:

Wetland name or number WSE6

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the potential to provide habitat for many species?**	
	H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ____ Aquatic Bed ____ Emergent plants ____X Scrub/shrub (areas where shrubs have > 30% cover) ____ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ____ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 0
	H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ____ Permanently flooded or inundated — 4 or more types present points = 3 ____ Seasonally flooded or inundated — 3 or more types present.....points = 2 X___ Occasionally flooded or inundated — 2 types present.....points = 1 ____X Saturated only — 1 type present .....points = 0 ____ Permanently flowing stream or river in, or adjacent to, the wetland ____ Seasonally flowing stream in, or adjacent to, the wetland ____ **Lake-fringe wetland..... = 2 points** ____ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 Richness of Plant Species *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	0
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 Special Habitat Features *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ____ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ____ Standing snags (diameter at the bottom > 4 inches) in the wetland ____ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ____ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	0
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	1

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** __X__ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report* *http://wdfw.wa.gov/hab/phslist.htm*)

Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?

NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).

____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).

____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).

__X__ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).

__X__ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*

____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

3

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3
- There is at least 1 wetland within 1/2 mile .....points = 2
- There are no wetlands within 1/2 mile.....points = 0

3

H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4* 7

TOTAL for H 1 from page 8 1

◆ **Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1*** 8

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WSE7

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WSE7 Date of site visit: 03/19/12; 07/09/13

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 20 TOWNSHIP: 26N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	14
Score for Hydrologic Functions	10
Score for Habitat Functions	11
TOTAL Score for Functions	35

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WSE7

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

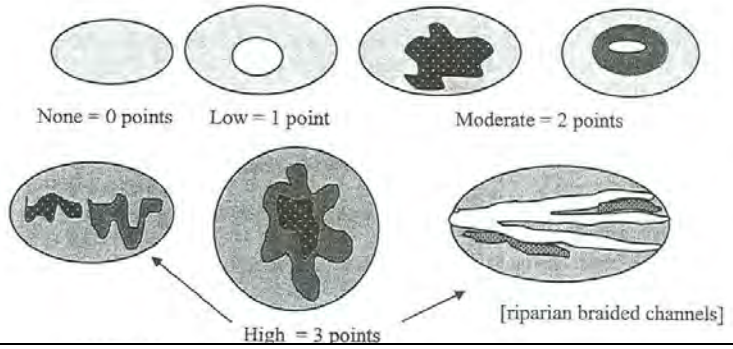
Wetland name or number WSE7

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 3
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 2
	Total for D 1 *Add the points in the boxes above*	7
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier <u>2</u>
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	14
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	5

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ___ Wetland is in a headwater of a river or stream that has flooding problems. __2__ Wetland drains to a river or stream that has flooding problems ___ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	10

Comments:

Wetland name or number WSE7

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed __X__ Emergent plants __X__ Scrub/shrub (areas where shrubs have > 30% cover) ___ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 3 structures..... points = 2 2 structures..... points = 1 1 structure ..... points = 0	**Figure ___** 1
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated 4 or more types present points = 3 __X__ Seasonally flooded or inundated 3 or more types present.....points = 2 ___ Occasionally flooded or inundated 2 types present.....points = 1 __X__ Saturated only 1 type present .....points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 1
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ___ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	0
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	4

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** __X__ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*
Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?
NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
__X__ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
__X__ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*
____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

3

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3
- There is at least 1 wetland within 1/2 mile .....points = 2
- There are no wetlands within 1/2 mile.....points = 0

3

	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	7
	TOTAL for H 1 from page 8	4
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	11

Comments:

Wetland name or number WSE7

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WSE8

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WSE8 Date of site visit: 03/21/12; 07/11/13

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 20 TOWNSHIP: 26N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	18
Score for Hydrologic Functions	10
Score for Habitat Functions	15
TOTAL Score for Functions	43

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WSE8

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

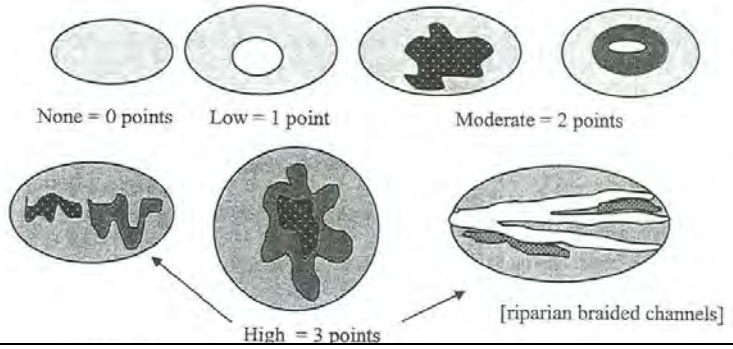
Wetland name or number WSE8

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 5
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 2
	Total for D 1 *Add the points in the boxes above*	9
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier <u>2</u>
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	18
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	5

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ___ Wetland is in a headwater of a river or stream that has flooding problems. X Wetland drains to a river or stream that has flooding problems ___ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	10

Comments:

Wetland name or number WSE8

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the potential to provide habitat for many species?**	
	H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed ___ Emergent plants __X__ Scrub/shrub (areas where shrubs have > 30% cover) X___ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* X___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 2
	H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 __X__ Seasonally flooded or inundated — 3 or more types present.....points = 2 ___ Occasionally flooded or inundated — 2 types present.....points = 1 X___ Saturated only — 1 type present .....points = 0 __X__ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 2
	H 1.3 Richness of Plant Species *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 1
	H 1.5 Special Habitat Features *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* X___ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) X___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	2
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	8

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*
Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?
NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
__X__ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
__X__ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*
____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

3

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3
- There is at least 1 wetland within 1/2 mile .....points = 2
- There are no wetlands within 1/2 mile.....points = 0

3

H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4* 7

TOTAL for H 1 from page 8 8

◆ **Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1*** 15

Comments:

Wetland name or number WSE8

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WSH1

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WSH1 Date of site visit: 03/15/12; 07/16/14

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 17 TOWNSHIP: 26N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III IV X

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	10
Score for Habitat Functions	7
TOTAL Score for Functions	27

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") IV

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WSH1

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   ____X The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

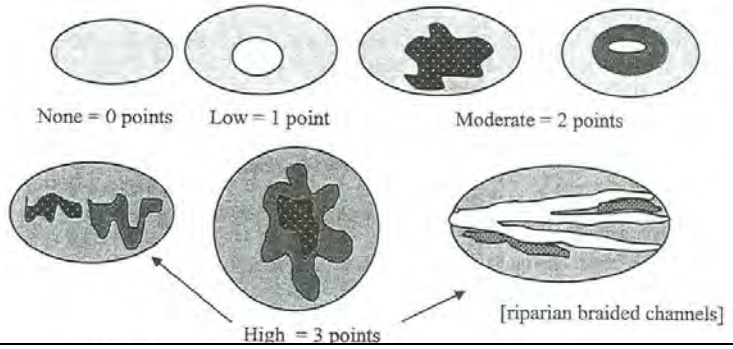
Wetland name or number WSH1

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 1
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 2
	Total for D 1 *Add the points in the boxes above*	5
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?**	*(see p. 44)*
	Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other _____ YES multiplier is 2 NO multiplier is 1	Multiplier 2
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	10
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	5

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ___ Wetland is in a headwater of a river or stream that has flooding problems. X Wetland drains to a river or stream that has flooding problems ___ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	10

Comments:

Wetland name or number WSH1

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed _X_ Emergent plants ___ Scrub/shrub (areas where shrubs have > 30% cover) ___ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 0
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 _X_ Seasonally flooded or inundated — 3 or more types present.....points = 2 ___ Occasionally flooded or inundated — 2 types present.....points = 1 _X_ Saturated only — 1 type present .....points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ___ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* _X_ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	1
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	3

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** __X__ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). ____ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3 • There is at least 1 wetland within 1/2 mile .....points = 2 • There are no wetlands within 1/2 mile.....points = 0	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	4
	TOTAL for H 1 from page 8	3
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	7

Comments:

Wetland name or number WSH1

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WSH1

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WSH2

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WSH2 Date of site visit: 03/15/12; 03/26/14

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 17 TOWNSHIP: 26N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	6
Score for Hydrologic Functions	20
Score for Habitat Functions	8
TOTAL Score for Functions	34

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WSH2

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

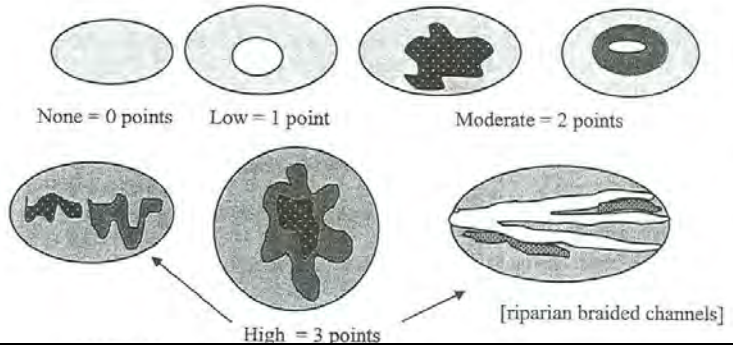
Wetland name or number WSH2

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 1
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 0
	Total for D 1 *Add the points in the boxes above*	3
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier <u>2</u>
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	6
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	3
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	5
	Total for D 3 *Add the points in the boxes above*	10

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	20

Comments:

Wetland name or number WSH2

These questions apply to wetlands of all HGM classes.		**Points**
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	(only 1 score per box)
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed __X__ Emergent plants ___ Scrub/shrub (areas where shrubs have > 30% cover) __X__ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 3 structures..... points = 2 2 structures..... points = 1 1 structure ..... points = 0	**Figure ___** 1
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated 4 or more types present points = 3 __X__ Seasonally flooded or inundated 3 or more types present.....points = 2 ___ Occasionally flooded or inundated 2 types present.....points = 1 __X__ Saturated only 1 type present .....points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 1
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ___ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	0
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	4

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** __X__ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). ____ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3 • There is at least 1 wetland within 1/2 mile .....points = 2 • There are no wetlands within 1/2 mile.....points = 0	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	4
	TOTAL for H 1 from page 8	4
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	8

Comments:

Wetland name or number WSH2

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WSH2

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WSH3

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WSH3 Date of site visit: 03/15/12; 03/27/14

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 17 TOWNSHIP: 26N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	14
Score for Hydrologic Functions	16
Score for Habitat Functions	5
TOTAL Score for Functions	35

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WSH3

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

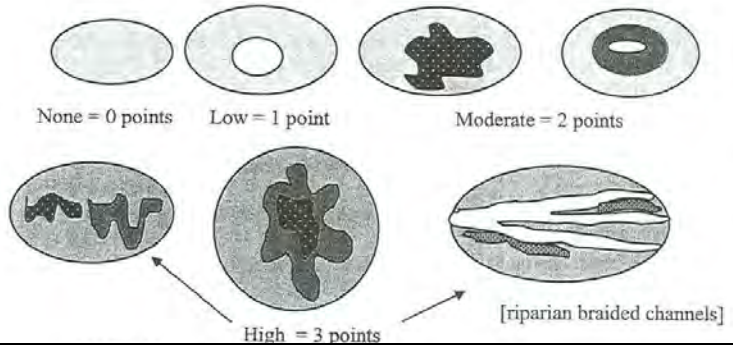
Wetland name or number WSH3

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 3
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 2
	Total for D 1 *Add the points in the boxes above*	7
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier 14
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	3
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	8

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	16

Comments:

Wetland name or number WSH3

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed __X__ Emergent plants ___ Scrub/shrub (areas where shrubs have > 30% cover) ___ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 0
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 __X__ Seasonally flooded or inundated — 3 or more types present.....points = 2 ___ Occasionally flooded or inundated — 2 types present.....points = 1 __X__ Saturated only — 1 type present .....points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	 0
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ___ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	 0
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	1

Wetland name or number WSH3

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report* *http://wdfw.wa.gov/hab/phslist.htm*)

Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?

NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).

____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).

____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).

____ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).

____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*

____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

0

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3
- There is at least 1 wetland within 1/2 mile .....points = 2
- There are no wetlands within 1/2 mile.....points = 0

3

	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	1
	TOTAL for H 1 from page 8	4
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	5

Comments:

Wetland name or number WSH3

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover*)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WSH3

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WSH4

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WSH4 Date of site visit: 03/25/12; 07/31/13

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 5 TOWNSHIP: 26N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	14
Score for Hydrologic Functions	10
Score for Habitat Functions	13
TOTAL Score for Functions	37

Category based on SPECIAL CHARACTERISITCS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WSH4

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

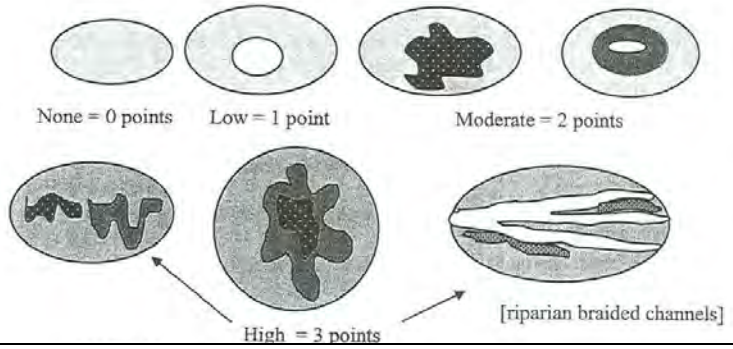
Wetland name or number WSH4

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 3
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 2
	Total for D 1 *Add the points in the boxes above*	7
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier <u>2</u>
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	14
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	5

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ___ Wetland is in a headwater of a river or stream that has flooding problems. __X__ Wetland drains to a river or stream that has flooding problems ___ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	10

Comments:

Wetland name or number WSH4

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the potential to provide habitat for many species?**	
	H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed __X__ Emergent plants ___ Scrub/shrub (areas where shrubs have > 30% cover) __X__ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 1
	H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 __X__ Seasonally flooded or inundated — 3 or more types present.....points = 2 ___ Occasionally flooded or inundated — 2 types present.....points = 1 __X__ Saturated only — 1 type present .....points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 Richness of Plant Species *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 1
	H 1.5 Special Habitat Features *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* __X__ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	1
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	5

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** __X__ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*
Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?
NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
__X_ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
__X_ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*
____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

3

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3
- There is at least 1 wetland within 1/2 mile .....points = 2
- There are no wetlands within 1/2 mile.....points = 0

3

H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4* 8

TOTAL for H 1 from page 8 5

◆ **Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1*** 13

Comments:

Wetland name or number WSH4

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover*)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WSH4

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WSH5

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WSH5 Date of site visit: 03/21/12; 07/16/13

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 5 TOWNSHIP: 26N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	12
Score for Hydrologic Functions	6
Score for Habitat Functions	15
TOTAL Score for Functions	33

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WSH5

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number WSH5

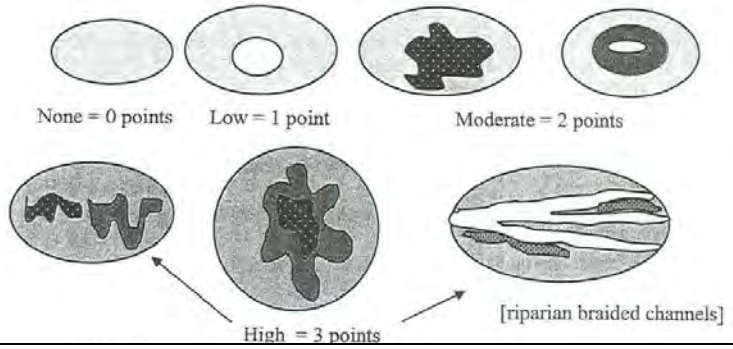
D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 1
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 5
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 0
	Total for D 1 *Add the points in the boxes above*	6
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier 2
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	12
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	0
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	3

Wetland name or number WSH5

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ___ Wetland is in a headwater of a river or stream that has flooding problems. __X__ Wetland drains to a river or stream that has flooding problems ___ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	6

Comments:

Wetland name or number WSH5

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed ___ Emergent plants ___ Scrub/shrub (areas where shrubs have > 30% cover) X Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 1
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 X Seasonally flooded or inundated — 3 or more types present.....points = 2 X Occasionally flooded or inundated — 2 types present.....points = 1 X Saturated only — 1 type present .....points = 0 X Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 3
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) X Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	2
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	7

Wetland name or number WSH5

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report* *http://wdfw.wa.gov/hab/phslist.htm*)

Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?

NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).

____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).

____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).

_X___ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).

__X_ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*

____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

3

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3
- There is at least 1 wetland within 1/2 mile .....points = 2
- There are no wetlands within 1/2 mile.....points = 0

3

	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	8
	TOTAL for H 1 from page 8	7
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	15

Comments:

Wetland name or number WSH5

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WSH5

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WMT1

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WMT1 Date of site visit: 03/27/12; 08/07/13

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 32 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	12
Score for Hydrologic Functions	6
Score for Habitat Functions	15
TOTAL Score for Functions	33

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WMT1

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

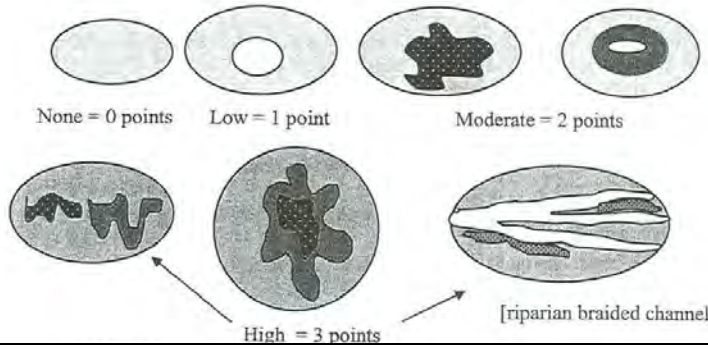
Wetland name or number WMT1

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 1
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 5
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 0
	Total for D 1 *Add the points in the boxes above*	6
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?**	*(see p. 44)*
	Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	Multiplier 2
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	12
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	0
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	3

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ___ Wetland is in a headwater of a river or stream that has flooding problems. __X__ Wetland drains to a river or stream that has flooding problems ___ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	6

Comments:

Wetland name or number WMT1

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ____ Aquatic Bed ____ Emergent plants ____ Scrub/shrub (areas where shrubs have > 30% cover) __X__ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* __X__ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 1
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ____ Permanently flooded or inundated — 4 or more types present points = 3 __X__ Seasonally flooded or inundated — 3 or more types present.....points = 2 __X__ Occasionally flooded or inundated — 2 types present.....points = 1 __X__ Saturated only — 1 type present .....points = 0 __X__ Permanently flowing stream or river in, or adjacent to, the wetland ____ Seasonally flowing stream in, or adjacent to, the wetland ____ **Lake-fringe wetland..... = 2 points** ____ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 3
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* __X__ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) __X__ Standing snags (diameter at the bottom > 4 inches) in the wetland ____ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ____ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	2
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	7

Wetland name or number WMT1

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** __X__ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*
Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?
NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
__X__ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
_X__ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*
____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

3

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3
- There is at least 1 wetland within 1/2 mile .....points = 2
- There are no wetlands within 1/2 mile.....points = 0

3

	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	8
	TOTAL for H 1 from page 8	7
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	15

Comments:

Wetland name or number WMT1

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WMT1

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WMT2

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WMT2 Date of site visit: 03/27/12; 08/07/13

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 32 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	16
Score for Hydrologic Functions	16
Score for Habitat Functions	14
TOTAL Score for Functions	46

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	

Wetland HGM Class used for Rating	
Depressional	
Riverine	**X**
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	X

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WMT2

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

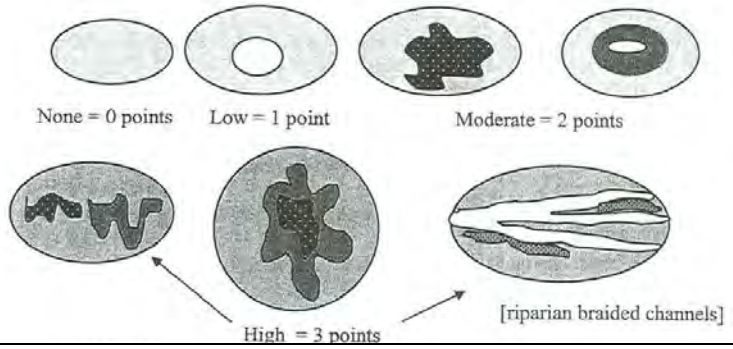
If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number WMT2

R	Riverine and Freshwater Tidal Fringe Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
R 1	**Does the wetland have the potential to improve water quality?** *(see p.52)*	
	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: • Depressions cover > 3/4 area of wetland ..... points = 8 • Depressions cover > 1/2 area of wetland ..... points = 4 **(If depressions > 1/2 of area of unit draw polygons on aerial photo or map)** • Depressions present but cover < 1/2 area of wetland. ..... points = 2 • No depressions present ..... points = 0	**Figure ___** 2
	R 1.2 Characteristics of the vegetation in the unit (areas with >90% cover at person height): • Trees or shrubs > 2/3 area of the unit ..... points = 8 • Trees or shrubs > 1/3 area of the wetland ..... points = 6 • Ungrazed, herbaceous plants > 2/3 area of unit ..... points = 6 • Ungrazed herbaceous plants > 1/3 area of unit ..... points = 3 • Trees, shrubs, and ungrazed herbaceous < 1/3 area of unit ..... points = 0 **Aerial photo or map showing polygons of different vegetation types**	**Figure ___** 6
	Add the points in the boxes above	8
R 2	**Does the wetland have the opportunity to improve water quality?** *(see p. 53)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ____ The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality. ____ Other _____ YES multiplier is 2 NO multiplier is 1	Multiplier 2
◆	**TOTAL – Water Quality Functions** Multiply the score from R1 by R2; then ***add score to table on p. 1***	16
	HYDROLOGIC FUNCTIONS – Indicators that wetland functions to reduce flooding and stream erosion.	
R 3	**Does the wetland have the potential to reduce flooding and erosion?** *(see p.54)*	
	R 3.1 Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of unit) / (average width of stream between banks).* • If the ratio is more than 20 ..... points = 9 • If the ratio is between 10 – 20 ..... points = 6 • If the ratio is 5- <10 ..... points = 4 • If the ratio is 1- <5 ..... points = 2 • If the ratio is < 1 ..... points = 1 **Aerial photo or map showing average widths**	**Figure ___** 1
	R 3.2 Characteristics of vegetation that slow down water velocities during floods: *Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description. (polygons need to have >90% cover at person height NOT Cowardin classes):* • Forest or shrub for > 1/3 area OR herbaceous plants > 2/3 area ..... points = 7 • Forest or shrub for > 1/10 area OR herbaceous plants > 1/3 area ..... points = 4 • Vegetation does not meet above criteria ..... points = 0 **Aerial photo or map showing polygons of different vegetation types**	**Figure ___** 7
	Add the points in the boxes above	8
R 4	**Does the wetland have the opportunity to reduce flooding and erosion?** *(see p.57)* Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. *Note which of the following conditions apply.* __X__ There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding. ____ There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding ____ Other _____ *(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)* YES multiplier is 2 NO multiplier is 1	Multiplier 2
◆	**TOTAL – Hydrologic Functions** Multiply the score from R3 by R4; then ***add score to table on p. 1***	16

Comments:

Wetland name or number WMT2

These questions apply to wetlands of all HGM classes.		Points (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ____ Aquatic Bed ____ Emergent plants ____ Scrub/shrub (areas where shrubs have > 30% cover) __X__ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 3 structures..... points = 2 2 structures..... points = 1 1 structure ..... points = 0	**Figure ___** 1
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ____ Permanently flooded or inundated 4 or more types present points = 3 __X__ Seasonally flooded or inundated 3 or more types present.....points = 2 ____ Occasionally flooded or inundated 2 types present.....points = 1 __X__ Saturated only 1 type present .....points = 0 __X__ Permanently flowing stream or river in, or adjacent to, the wetland ____ Seasonally flowing stream in, or adjacent to, the wetland ____ **Lake-fringe wetland..... = 2 points** ____ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 2
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* __X__ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) X Standing snags (diameter at the bottom > 4 inches) in the wetland ____ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ____ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	2
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	6

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). _X___ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). _X__ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	3
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3 • There is at least 1 wetland within 1/2 mile .....points = 2 • There are no wetlands within 1/2 mile.....points = 0	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	8
	TOTAL for H 1 from page 8	6
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	14

Comments:

Wetland name or number WMT2

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WMT3

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WMT3 Date of site visit: 03/28/12; 08/07/13

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 32 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	16
Score for Hydrologic Functions	14
Score for Habitat Functions	11
TOTAL Score for Functions	41

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WMT3

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

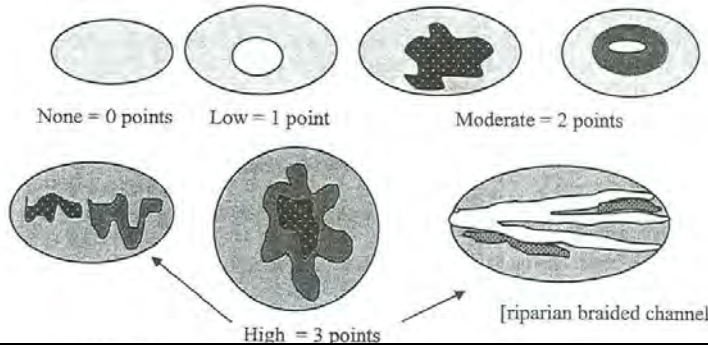
Wetland name or number WMT3

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 3
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 5
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 0
	Total for D 1 *Add the points in the boxes above*	8
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier 2
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	16
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	4
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	7

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ___ Wetland is in a headwater of a river or stream that has flooding problems. ___ Wetland drains to a river or stream that has flooding problems X Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	14

Comments:

Wetland name or number WMT3

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed ___ Emergent plants ___ Scrub/shrub (areas where shrubs have > 30% cover) X Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 3 structures..... points = 2 2 structures..... points = 1 1 structure ..... points = 0	**Figure ___** 1
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated 4 or more types present points = 3 ___ Seasonally flooded or inundated 3 or more types present.....points = 2 X Occasionally flooded or inundated 2 types present.....points = 1 X Saturated only 1 type present .....points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* X Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	2
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	5

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*
Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?
NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
_X___ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*
____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

1

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3
- There is at least 1 wetland within 1/2 mile .....points = 2
- There are no wetlands within 1/2 mile.....points = 0

3

H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4* 6

TOTAL for H 1 from page 8 5

◆ **Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1*** 11

Comments:

Wetland name or number WMT3

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WMT4

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WMT4 Date of site visit: 03/29/12

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 32 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	16
Score for Hydrologic Functions	6
Score for Habitat Functions	12
TOTAL Score for Functions	34

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WMT4

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

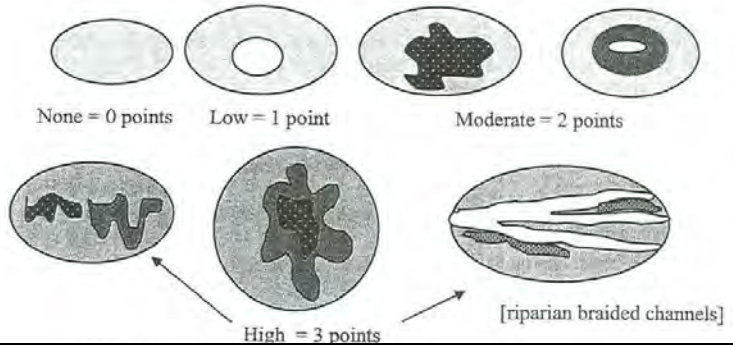
Wetland name or number WMT4

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 1
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 5
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 2
	Total for D 1 *Add the points in the boxes above*	8
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?**	*(see p. 44)*
	Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	Multiplier 2
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	16
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	0
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	3

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ___ Wetland is in a headwater of a river or stream that has flooding problems. __X__ Wetland drains to a river or stream that has flooding problems ___ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	6

Comments:

Wetland name or number WMT4

These questions apply to wetlands of all HGM classes.		Points (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed ___ Emergent plants X Scrub/shrub (areas where shrubs have > 30% cover) ___ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 0
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 X Seasonally flooded or inundated — 3 or more types present.....points = 2 ___ Occasionally flooded or inundated — 2 types present.....points = 1 X Saturated only — 1 type present .....points = 0 X Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 2
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	1
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	4

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). __X__ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). __X__ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	3
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3 • There is at least 1 wetland within 1/2 mile .....points = 2 • There are no wetlands within 1/2 mile.....points = 0	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	8
	TOTAL for H 1 from page 8	4
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	12

Comments:

Wetland name or number WMT4

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WMT5

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WMT5 Date of site visit: 04/3/12; 12/13/13

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 29 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure Estimated size

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	14
Score for Hydrologic Functions	7
Score for Habitat Functions	9
TOTAL Score for Functions	30

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WMT5

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

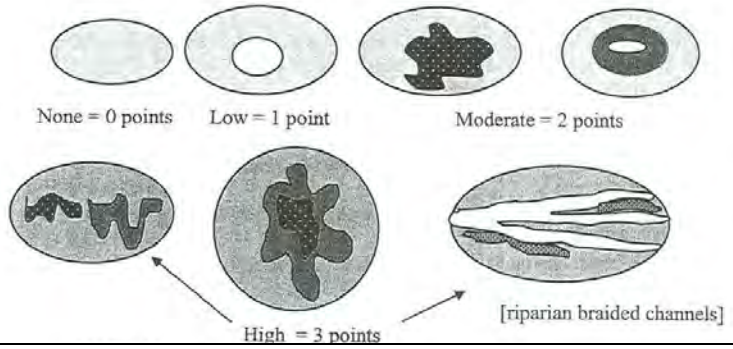
Wetland name or number WMT5

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 5
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 0
	Total for D 1 *Add the points in the boxes above*	7
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier <u>2</u>
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	14
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	5
	Total for D 3 *Add the points in the boxes above*	7

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 1
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	7

Comments:

Wetland name or number WMT5

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed __X__ Emergent plants ___ Scrub/shrub (areas where shrubs have > 30% cover) __X__ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* __X__ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 2
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 __X__ Seasonally flooded or inundated — 3 or more types present.....points = 2 ___ Occasionally flooded or inundated — 2 types present.....points = 1 __X__ Saturated only — 1 type present .....points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 1
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ___ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	0
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	5

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). ____ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3 • There is at least 1 wetland within 1/2 mile .....points = 2 • There are no wetlands within 1/2 mile.....points = 0	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	4
	TOTAL for H 1 from page 8	5
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	9

Comments:

Wetland name or number WMT5

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WMT5

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WMT6

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WMT6 Date of site visit: 04/3/12; 12/13/13

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 29 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	14
Score for Hydrologic Functions	7
Score for Habitat Functions	9
TOTAL Score for Functions	30

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WMT6

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

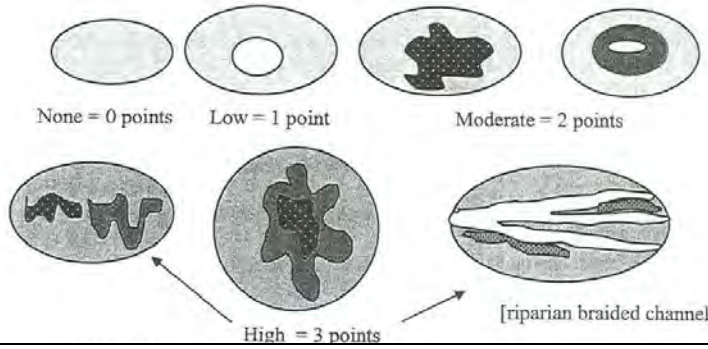
Wetland name or number WMT6

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 5
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 0
	Total for D 1 *Add the points in the boxes above*	7
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?**	*(see p. 44)*
	Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	Multiplier 2
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	14
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	5
	Total for D 3 *Add the points in the boxes above*	7

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 1
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	7

Comments:

Wetland name or number WMT6

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ____ Aquatic Bed ____ Emergent plants ____ Scrub/shrub (areas where shrubs have > 30% cover) __X__ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* __X__ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 1
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ____ Permanently flooded or inundated — 4 or more types present points = 3 __X__ Seasonally flooded or inundated — 3 or more types present.....points = 2 ____ Occasionally flooded or inundated — 2 types present.....points = 1 __X__ Saturated only — 1 type present .....points = 0 ____ Permanently flowing stream or river in, or adjacent to, the wetland ____ Seasonally flowing stream in, or adjacent to, the wetland ____ **Lake-fringe wetland..... = 2 points** ____ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* __X__ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) __X__ Standing snags (diameter at the bottom > 4 inches) in the wetland ____ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ____ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	2
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	5

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). ____ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3 • There is at least 1 wetland within 1/2 mile .....points = 2 • There are no wetlands within 1/2 mile.....points = 0	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	4
	TOTAL for H 1 from page 8	5
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	9

Comments:

Wetland name or number WMT6

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover*)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WMT6

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WMT7

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WMT7 Date of site visit: 04/3/12; 12/19/13

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 28 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	14
Score for Hydrologic Functions	7
Score for Habitat Functions	11
TOTAL Score for Functions	32

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WMT7

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

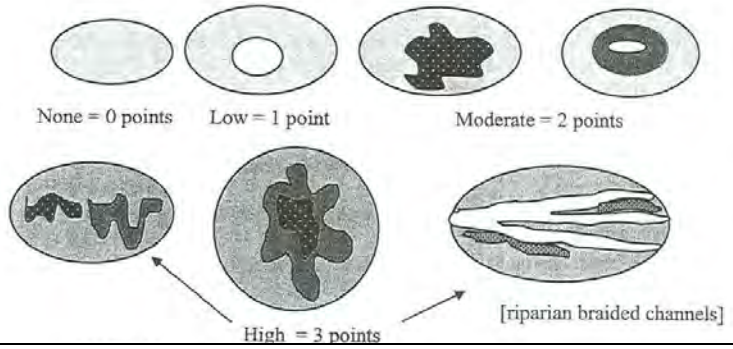
Wetland name or number WMT7

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 5
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 0
	Total for D 1 *Add the points in the boxes above*	7
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier <u>2</u>
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	14
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	5
	Total for D 3 *Add the points in the boxes above*	7

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 1
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	7

Comments:

Wetland name or number WMT7

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the potential to provide habitat for many species?**	
	H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed ___ Emergent plants ___ Scrub/shrub (areas where shrubs have > 30% cover) __X__ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* __X__ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 1
	H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 __X__ Seasonally flooded or inundated — 3 or more types present.....points = 2 ___ Occasionally flooded or inundated — 2 types present.....points = 1 __X__ Saturated only — 1 type present .....points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 Richness of Plant Species *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 Special Habitat Features *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* __X__ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	1
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	4

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** __X__ Buffer does not meet any of the criteria above..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*
Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?
NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
__X_ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
__X_ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*
____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

3

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3
- There is at least 1 wetland within 1/2 mile .....points = 2
- There are no wetlands within 1/2 mile.....points = 0

3

	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	7
	TOTAL for H 1 from page 8	4
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	11

Comments:

Wetland name or number WMT7

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WMT7

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WMT8

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WMT8 Date of site visit: 04/3/12

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 28 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III IV X

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	4
Score for Hydrologic Functions	3
Score for Habitat Functions	7
TOTAL Score for Functions	14

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") IV

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	
Riverine	
Lake-fringe	
Slope	**X**
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WMT8

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

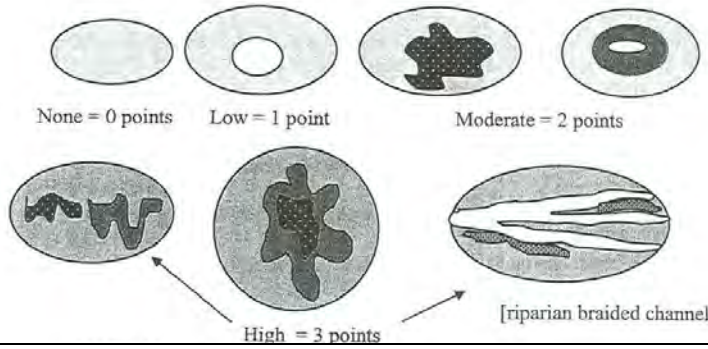
If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number WMT8

S	Slope Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box) *(see p.64)*
S 1	**Does the wetland have the <u>potential</u> to improve water quality?**	
	S 1.1 Characteristics of average slope of unit: • Slope is 1% or less *(a 1% slope has a 1 ft. vertical drop in elevation for every 100 ft. horizontal distance)*..... points = 3 • Slope is 1% - 2% ..... points = 2 • Slope is 2% - 5%. ..... points = 1 • Slope is greater than 5% ..... points = 0	1
	S 1.2 The soil 2 inches below the surface (or duff layer) is clay, organic *(Use NRCS definitions).* YES = 3 points NO = 0 points	0
	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.* • Dense, uncut, herbaceous vegetation > 90% of the wetland area..... points = 6 • Dense, uncut, herbaceous vegetation > 1/2 of area ..... points = 3 • Dense, woody, vegetation > 1/2 of area..... points = 2 • Dense, uncut, herbaceous vegetation > 1/4 of area ..... points = 1 • Does not meet any of the criteria above for vegetation ..... points = 0 **Aerial photo or map with vegetation polygons**	**Figure ___** 1
	Total for S 1 *Add the points in the boxes above*	2
S 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** *(see p. 67)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields, logging, or orchards within 150 ft. of wetland __X__ Residential, urban areas, or golf courses are within 150 ft. upslope of wetland ___ Other _____ YES multiplier is 2 NO multiplier is 1	Multiplier 2
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from S1 by S2; then ***add score to table on p. 1***	4
	HYDROLOGIC FUNCTIONS – Indicators that wetland functions to reduce flooding and stream erosion.	
S 3	**Does the wetland have the <u>potential</u> to reduce flooding and stream erosion?** *(see p.68)*	
	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms: *Choose the points appropriate for the description that best fits conditions in the wetland (stems of plants should be thick enough (usually > 1/8in), or dense enough to remain erect during surface flows).* • Dense, uncut, **rigid** vegetation covers > 90% of the area of the wetland..... points = 6 • Dense, uncut, **rigid** vegetation> 1/2 area of wetland..... points = 3 • Dense, uncut, **rigid** vegetation > 1/4 area..... points = 1 • More than 1/4 of area is grazed, mowed, tilled, or vegetation is not rigid ..... points = 0	1
	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows. The slope has small surface depressions that can retain water over at least 10% of its area. YES = 2 points NO = 0 points	2
	Add the points in the boxes above	3
S 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** *(see p. 70)* Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? *Note which of the following conditions apply.* ___ Wetland has surface runoff that drains to a river or stream that has flooding problems ___ Other _____ *(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam)* YES multiplier is 2 NO multiplier is 1	Multiplier 1
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from S3 by S4; then ***add score to table on p. 1***	3

Comments:

Wetland name or number WMT8

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ____ Aquatic Bed ____ Emergent plants ____ Scrub/shrub (areas where shrubs have > 30% cover) X Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 1
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ____ Permanently flooded or inundated — 4 or more types present points = 3 X Seasonally flooded or inundated — 3 or more types present.....points = 2 ____ Occasionally flooded or inundated — 2 types present.....points = 1 X Saturated only — 1 type present .....points = 0 ____ Permanently flowing stream or river in, or adjacent to, the wetland ____ Seasonally flowing stream in, or adjacent to, the wetland ____ **Lake-fringe wetland..... = 2 points** ____ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ____ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ____ Standing snags (diameter at the bottom > 4 inches) in the wetland ____ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ____ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	0
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	3

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). ____ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3 • There is at least 1 wetland within 1/2 mile .....points = 2 • There are no wetlands within 1/2 mile.....points = 0	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	4
	TOTAL for H 1 from page 8	3
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	7

Comments:

Wetland name or number WMT8

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WMT9

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WMT9 Date of site visit: 05/16/14

Rated by: C. Worsley Trained by Ecology? Yes X No Date of training: 11/05

SEC: 32 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III IV X

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	6
Score for Hydrologic Functions	4
Score for Habitat Functions	7
TOTAL Score for Functions	17

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") IV

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WMT9

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

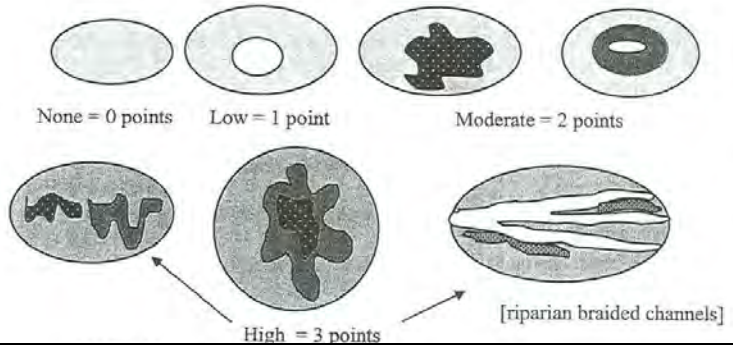
Wetland name or number WMT9

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 1
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 0
	Total for D 1 *Add the points in the boxes above*	3
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft __X__ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ___ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier <u>2</u>
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	6
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	0
	Total for D 3 *Add the points in the boxes above*	2

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ___ Wetland is in a headwater of a river or stream that has flooding problems. X Wetland drains to a river or stream that has flooding problems ___ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	4

Comments:

Wetland name or number WMT9

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed X Emergent plants ___ Scrub/shrub (areas where shrubs have > 30% cover) ___ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 0
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 X Seasonally flooded or inundated — 3 or more types present.....points = 2 ___ Occasionally flooded or inundated — 2 types present.....points = 1 X Saturated only — 1 type present .....points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ___ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	0
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	2

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*
Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?
NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
____ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*
____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

0

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3
- There is at least 1 wetland within 1/2 mile .....points = 2
- There are no wetlands within 1/2 mile.....points = 0

3

	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	5
	TOTAL for H 1 from page 8	2
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	7

Comments:

Wetland name or number WMT9

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WMT9

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WMT10

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WMT10 Date of site visit: 06/02/14

Rated by: C. Worsley Trained by Ecology? Yes X No Date of training: 11/05

SEC: 32 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III IV X

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	12
Score for Hydrologic Functions	8
Score for Habitat Functions	9
TOTAL Score for Functions	29

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") IV

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WMT10

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

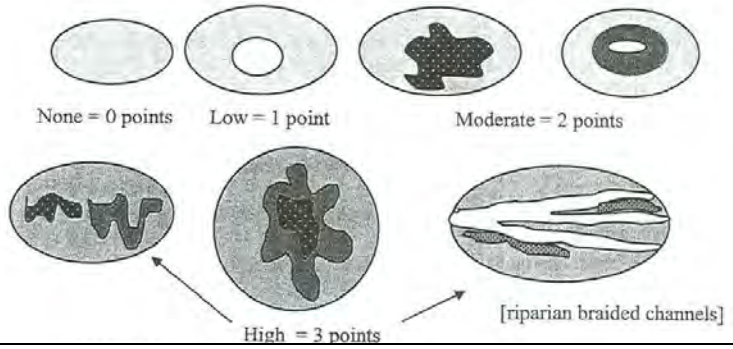
Wetland name or number WMT10

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 3
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 3
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 0
	Total for D 1 *Add the points in the boxes above*	6
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier <u>2</u>
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	12
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	4
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	0
	Total for D 3 *Add the points in the boxes above*	4

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ___ Wetland is in a headwater of a river or stream that has flooding problems. X Wetland drains to a river or stream that has flooding problems ___ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	8

Comments:

Wetland name or number WMT10

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed ___ Emergent plants X Scrub/shrub (areas where shrubs have > 30% cover) ___ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 0
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 ___ Seasonally flooded or inundated — 3 or more types present.....points = 2 ___ Occasionally flooded or inundated — 2 types present.....points = 1 X Saturated only — 1 type present .....points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 0
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ___ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	0
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	1

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	1

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report* http://wdfw.wa.gov/hab/phslist.htm)

Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?

NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).

____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).

____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.

____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).

__X_ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).

__X_ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*

____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.

____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

3

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3
- There is at least 1 wetland within 1/2 mile .....points = 2
- There are no wetlands within 1/2 mile.....points = 0

3

	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	8
	TOTAL for H 1 from page 8	1
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	9

Comments:

Wetland name or number WMT10

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover*)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WMT11

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WMT11 Date of site visit: 5/16/14

Rated by: K Seckel Trained by Ecology? Yes X No Date of training: 6/2008

SEC: 32 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size .07 acres**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	22
Score for Hydrologic Functions	4
Score for Habitat Functions	11
TOTAL Score for Functions	37

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	**X**

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WMT11

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

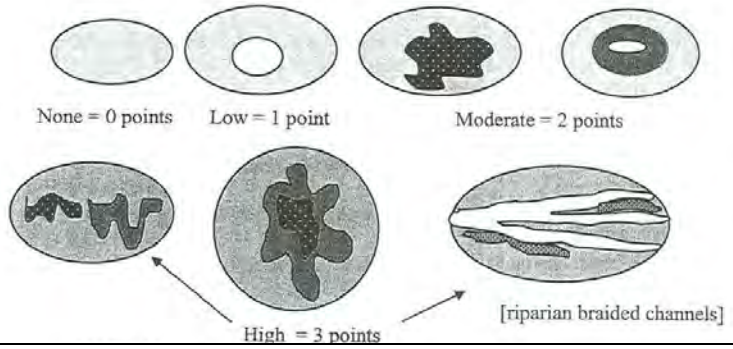
Wetland name or number WMT11

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 5
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 4
	Total for D 1 *Add the points in the boxes above*	11
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging ____ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier <u>2</u>
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	22
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	0
	Total for D 3 *Add the points in the boxes above*	2

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	4

Comments:

Wetland name or number WMT11

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the potential to provide habitat for many species?**	
	H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed ___ Emergent plants __X__ Scrub/shrub (areas where shrubs have > 30% cover) ___ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 0
	H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 __X__ Seasonally flooded or inundated — 3 or more types present.....points = 2 ___ Occasionally flooded or inundated — 2 types present.....points = 1 __X__ Saturated only — 1 type present .....points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland __X__ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 2
	H 1.3 Richness of Plant Species *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 Special Habitat Features *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ___ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	0
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	3

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? (Lk. Ballinger) NO = 0 points	1

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*
Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?
NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
_X__ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
__X__ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*
____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

3

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3
- There is at least 1 wetland within 1/2 mile .....points = 2
- There are no wetlands within 1/2 mile.....points = 0

3

	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	8
	TOTAL for H 1 from page 8	3
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	11

Comments:

Wetland name or number WMT11

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WLY3

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WLY3 Date of site visit: 04/5/12; 01/27/14

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 21 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	10
Score for Hydrologic Functions	16
Score for Habitat Functions	10
TOTAL Score for Functions	36

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WLY3

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

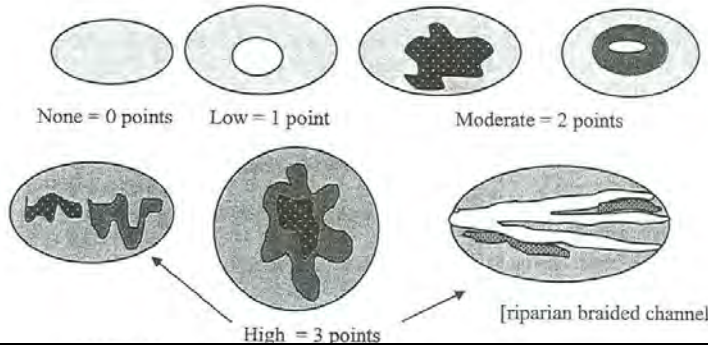
Wetland name or number WLY3

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 1
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 2
	Total for D 1 *Add the points in the boxes above*	5
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier <u>2</u>
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	10
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	3
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	8

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	16

Comments:

Wetland name or number WLY3

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed __X__ Emergent plants __X__ Scrub/shrub (areas where shrubs have > 30% cover) ___ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 1
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* __X__ Permanently flooded or inundated — 4 or more types present points = 3 __X__ Seasonally flooded or inundated — 3 or more types present.....points = 2 __X__ Occasionally flooded or inundated — 2 types present.....points = 1 __X__ Saturated only — 1 type present .....points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 3
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 1
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ___ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	0
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	6

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). ____ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3 • There is at least 1 wetland within 1/2 mile .....points = 2 • There are no wetlands within 1/2 mile.....points = 0	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	4
	TOTAL for H 1 from page 8	6
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	10

Comments:

Wetland name or number WLY3

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WLY3

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WLY4

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WLY4 Date of site visit: 04/9/12; 07/11/14

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 21 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II X III IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	26
Score for Hydrologic Functions	20
Score for Habitat Functions	23
TOTAL Score for Functions	69

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") II

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	X

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WLY4

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

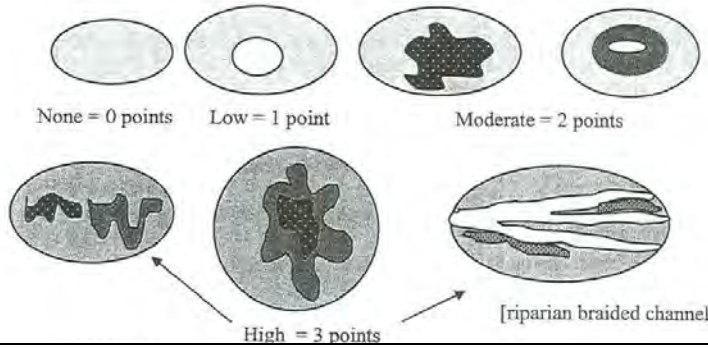
Wetland name or number WLY4

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	4
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 5
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 2
	Total for D 1 *Add the points in the boxes above*	13
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ____ Grazing in the wetland or within 150 ft ____ Untreated stormwater discharges to wetland ____ Tilled fields or orchards within 150 ft. of wetland ____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging __X__ Residential, urban areas, golf courses are within 150 ft. of wetland ____ Wetland is fed by groundwater high in phosphorus or nitrogen ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier <u>2</u>
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	26
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	3
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	5
	Total for D 3 *Add the points in the boxes above*	10

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ___ Wetland is in a headwater of a river or stream that has flooding problems. X Wetland drains to a river or stream that has flooding problems ___ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	20

Comments:

Wetland name or number WLY4

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ____ Aquatic Bed __X__ Emergent plants __X__ Scrub/shrub (areas where shrubs have > 30% cover) __X__ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 4
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ____ Permanently flooded or inundated — 4 or more types present points = 3 __X__ Seasonally flooded or inundated — 3 or more types present.....points = 2 __X__ Occasionally flooded or inundated — 2 types present.....points = 1 __X__ Saturated only — 1 type present .....points = 0 __X__ Permanently flowing stream or river in, or adjacent to, the wetland ____ Seasonally flowing stream in, or adjacent to, the wetland ____ **Lake-fringe wetland..... = 2 points** ____ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 3
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 3
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* __X__ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) __X__ Standing snags (diameter at the bottom > 4 inches) in the wetland ____ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) __X__ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* __X__ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* __X__ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	5
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	16

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** __X__ Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*
Which of the following priority habitats are within 330 ft. (100m) of the wetland unit?
NOTE: the connections do not have to be relatively undisturbed.

____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
__X_ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
__X_ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).*
____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.

If wetland has **3 or more** priority habitats **= 4 points**
If wetland has **2** priority habitats = **3 points**
If wetland has **1** priority habitat **= 1 point** No habitats = 0 points

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)

3

H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)*

- There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5
- The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5
- There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3
- The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3
- There is at least 1 wetland within 1/2 mile .....points = 2
- There are no wetlands within 1/2 mile.....points = 0

3

H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4* 7

TOTAL for H 1 from page 8 16

◆ **Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1*** 23

Comments:

Wetland name or number WLY4

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WLY4

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WLY6

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WLY6 Date of site visit: 04/17/12; 01/27/14

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 21 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	22
Score for Hydrologic Functions	10
Score for Habitat Functions	8
TOTAL Score for Functions	40

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WLY6

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

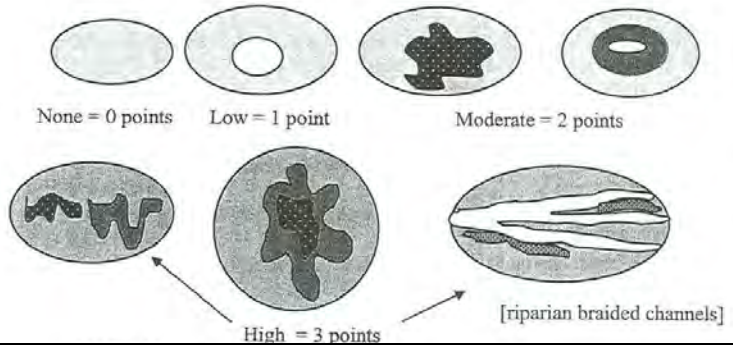
Wetland name or number WLY6

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 5
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 4
	Total for D 1 *Add the points in the boxes above*	11
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* Multiplier 2
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	22
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	5

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	10

Comments:

Wetland name or number WLY6

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed ___ Emergent plants ___ Scrub/shrub (areas where shrubs have > 30% cover) X Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* X The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 — 3 structures..... points = 2 2 structures..... points = 1 — 1 structure ..... points = 0	**Figure ___** 1
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated — 4 or more types present points = 3 X Seasonally flooded or inundated — 3 or more types present.....points = 2 ___ Occasionally flooded or inundated — 2 types present.....points = 1 X Saturated only — 1 type present .....points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	1
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	4

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). ____ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3 • There is at least 1 wetland within 1/2 mile .....points = 2 • There are no wetlands within 1/2 mile.....points = 0	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	4
	TOTAL for H 1 from page 8	4
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	8

Comments:

Wetland name or number WLY6

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WLY6

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WLY7

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WLY7 Date of site visit: 7/16/14

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 21 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	16
Score for Hydrologic Functions	14
Score for Habitat Functions	6
TOTAL Score for Functions	36

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WLY7

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

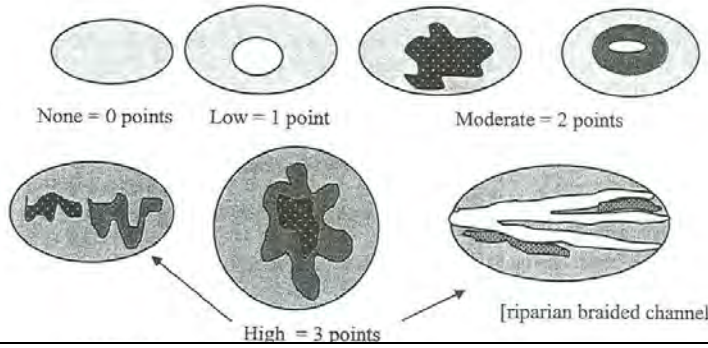
Wetland name or number WLY7

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 3
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 3
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 2
	Total for D 1 *Add the points in the boxes above*	8
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?**	*(see p. 44)*
	Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	Multiplier 2
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	16
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	4
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	7

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	14

Comments:

Wetland name or number WLY7

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the potential to provide habitat for many species?**	
	H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ____ Aquatic Bed ____ Emergent plants X Scrub/shrub (areas where shrubs have > 30% cover) ____ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ____ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 3 structures..... points = 2 2 structures..... points = 1 1 structure ..... points = 0	**Figure ___** 0
	H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ____ Permanently flooded or inundated 4 or more types present points = 3 X Seasonally flooded or inundated 3 or more types present.....points = 2 ____ Occasionally flooded or inundated 2 types present.....points = 1 X Saturated only 1 type present .....points = 0 ____ Permanently flowing stream or river in, or adjacent to, the wetland ____ Seasonally flowing stream in, or adjacent to, the wetland ____ **Lake-fringe wetland..... = 2 points** ____ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 Richness of Plant Species *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 Special Habitat Features *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ____ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ____ Standing snags (diameter at the bottom > 4 inches) in the wetland ____ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ____ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ____ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	0
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	2

Wetland name or number WLY7

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). ____ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). ____ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3 • There is at least 1 wetland within 1/2 mile .....points = 2 • There are no wetlands within 1/2 mile.....points = 0	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	4
	TOTAL for H 1 from page 8	2
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	6

Comments:

Wetland name or number WLY7

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cove*r)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WLY7

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

Wetland name or number WLY8

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WLY8 Date of site visit: 07/16/14

Rated by: M Maynard Trained by Ecology? Yes X No Date of training: 04/06

SEC: 21 TOWNSHIP: 27N RANGE: 4E Is S/T/R in Appendix D? Yes No X

Map of wetland unit: Figure **Estimated size**

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I II III X IV

Category I =	Score > 70
Category II =	Score 51 - 69
Category III =	Score 30 – 50
Category IV =	Score < 30

Score for Water Quality Functions	22
Score for Hydrologic Functions	10
Score for Habitat Functions	6
TOTAL Score for Functions	38

Category based on SPECIAL CHARACTERISTICS of Wetland I II Does not apply X

Final Category (choose the "highest" category from above") III

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics	
Estuarine	
Natural Heritage Wetland	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland HGM Class used for Rating	
Depressional	**X**
Riverine	
Lake-fringe	
Slope	
Flats	
Freshwater Tidal	
Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number WLY8

Classification of Vegetated Wetlands for Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
   NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
   If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
   YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland meet both of the following criteria?
   _____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
   _____ At least 30% of the open water area is deeper than 6.6 (2 m)?
   NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland meet all of the following criteria?
   _____ The wetland is on a slope *(slope can be very gradual)*.
   _____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
   _____ The water leaves the wetland **without being impounded**?
   NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
   NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland meet all of the following criteria?
   _____ The unit is in a valley or stream channel where it gets inundated by overbank flooding from that stream or river.
   _____ The overbank flooding occurs at least once every two years.
   NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
   NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of the year. This means that any outlet, if present is higher than the interior of the wetland.
   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
   No – go to 8 YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

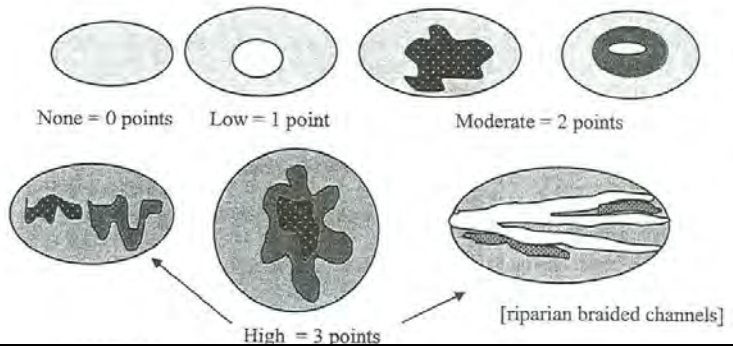
Wetland name or number WLY8

D	Depressional and Flat Wetlands	Points
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)
D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: • Unit is a depression with no surface water leaving it (no outlet)..... points = 3 • Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet ..... points = 2 • Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) ..... points = 1 • Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** 2
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) YES points = 4 NO points = 0	0
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): • Wetland has persistent, ungrazed vegetation > = 95% of area..... points = 5 • Wetland has persistent, ungrazed vegetation > = 1/2 of area..... points = 3 • Wetland has persistent, ungrazed vegetation > = 1/10 of area..... points = 1 • Wetland has persistent, ungrazed vegetation < 1/10 of area..... points = 0 **Map of Cowardin vegetation classes**	**Figure ___** 5
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* • Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 • Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 • Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** 4
	Total for D 1 *Add the points in the boxes above*	11
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?**	*(see p. 44)*
	Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* ___ Grazing in the wetland or within 150 ft ___ Untreated stormwater discharges to wetland ___ Tilled fields or orchards within 150 ft. of wetland ___ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging X Residential, urban areas, golf courses are within 150 ft. of wetland ___ Wetland is fed by groundwater high in phosphorus or nitrogen ___ Other _____ YES multiplier is 2 NO multiplier is 1	Multiplier 2
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	22
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit • Unit is a depression with no surface water leaving it (no outlet)..... points = 4 • Unit has an intermittently flowing, OR highly constricted permanently flowing outlet ..... points = 2 • Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* • Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)* ..... points = 0	2
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* • Marks of ponding are 3 ft. or more above the surface or bottom of the outlet ..... points = 7 • The wetland is a "headwater" wetland..... points = 5 • Marks of ponding between 2 ft. to < 3 ft. from surface or bottom of outlet..... points = 5 • Marks are at least 0.5 ft. to < 2 ft. from surface or bottom of outlet..... points = 3 • Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water points = 1 • Marks of ponding less than 0.5 ft..... points = 0	0
	D 3.3 Contribution of wetland unit to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* • The area of the basin is less than 10 times the area of unit..... points = 5 • The area of the basin is 10 to 100 times the area of the unit ..... points = 3 • The area of the basin is more than 100 times the area of the unit..... points = 0 • Entire unit is in the FLATS class ..... points = 5	3
	Total for D 3 *Add the points in the boxes above*	5

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* ____ Wetland is in a headwater of a river or stream that has flooding problems. ____ Wetland drains to a river or stream that has flooding problems ____ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems ____ Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* Multiplier 2
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	10

Comments:

Wetland name or number WLY8

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the <u>potential</u> to provide habitat for many species?**	
	H 1.1 <u>Vegetation structure</u> *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ___ Aquatic Bed X Emergent plants ___ Scrub/shrub (areas where shrubs have > 30% cover) ___ Forested (areas where trees have > 30% cover) *If the unit has a forested class check if:* ___ The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more..... points = 4 3 structures..... points = 2 2 structures..... points = 1 1 structure ..... points = 0	**Figure ___** 0
	H 1.2 <u>Hydroperiods</u> *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count (see text for descriptions of hydroperiods).* ___ Permanently flooded or inundated 4 or more types present points = 3 X Seasonally flooded or inundated 3 or more types present.....points = 2 ___ Occasionally flooded or inundated 2 types present.....points = 1 X Saturated only 1 type present .....points = 0 ___ Permanently flowing stream or river in, or adjacent to, the wetland ___ Seasonally flowing stream in, or adjacent to, the wetland ___ **Lake-fringe wetland..... = 2 points** ___ **Freshwater tidal wetland..... = 2 points** **Map of hydroperiods**	**Figure ___** 1
	H 1.3 <u>Richness of Plant Species</u> *(see p. 75)*: Count the number of plant species in the wetland that cover at least 10 ft^2 *(different patches of the same species can be combined to meet the size threshold)* *You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.* If you counted: > 19 species ..... points = 2 5 – 19 species..... points = 1 List species below if you want to: < 5 species ..... points = 0 _____ _____ _____ _____	1
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** 0
	H 1.5 <u>Special Habitat Features</u> *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* ___ Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) ___ Standing snags (diameter at the bottom > 4 inches) in the wetland ___ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)* ___ At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ___ Invasive plants cover less than 25% of the wetland area in each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	0
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	2

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use)..... **points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference..... **points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference..... **points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference..... **points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference ..... **points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK ..... **points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK..... **points = 2** ____ Heavy grazing in buffer ..... **points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland)..... **points = 0** X Buffer does not meet any of the criteria above ..... **points = 1** **Arial photo showing buffers**	**Figure ___** 1
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** (go to H 2.3) NO = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (go to H 2.3) NO = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR YES = 1 point • Within 1 mile of a lake greater than 20 acres? NO = 0 points	0

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ____ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ____ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ____ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). __ __ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ____ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). __ __ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ____ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ____ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ____ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ____ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	0
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development.....points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. .....points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile .....points = 3 • There is at least 1 wetland within 1/2 mile .....points = 2 • There are no wetlands within 1/2 mile.....points = 0	3
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	4
	TOTAL for H 1 from page 8	2
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	6

Comments:

Wetland name or number WLY8

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit meet the following criteria for Estuarine wetlands? ____ The dominant water regime is tidal, ____ Vegetated, and ____ With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO __X__	
	SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO = go to SC 1.2	**Cat. 1**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? YES = Category I NO = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland ____ The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating I/II**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ YES _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 NO _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? YES = Category 1 NO __X__ not a Heritage Wetland	**Cat I**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? YES = go to question 3 NO = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? YES = go to question 3 NO = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? YES = Is a bog for purpose of rating NO = go to question 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover*)? YES = Category I NO = Is not a bog for purpose of rating	**Cat. I**

Wetland name or number WLY8

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth. YES = Category I NO = __X__ not a forested wetland with special characteristics	**Cat. I**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ____ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks. ____ The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom.)* YES = Go to SC 5.1 NO __X__ not a wetland in a coastal lagoon SC 5.1 Does the wetland meet all of the following three conditions? ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing) and has less than 20% cover of invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 of the landward edge of the wetland has a 100 ft. buffer of shrub, forest, or un-grazed or un-mowed grassland. ____ The wetland is larger than 1/10 acre (4350 square ft.) YES = Category I NO = Category II	**Cat. I** **Cat. II**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES = Go to SC 6.1 NO __X__ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula -- lands west of SR 103 • Grayland-Westport -- lands west of SR 105 • Ocean Shores-Copalis – lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? YES = Category II NO = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p. 1	**NA**

Comments:

ATTACHMENT E

Wetland Functions and Values Forms

Summary of Functions and Values

Wetland I.D. WSE1 **Project:** Lynnwood Link **Assessed by**: C. Worsley **Date:** 04/22/14

Cowardin Class: PFO **Wetland size:** 0.42 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Receives surface water from stormwater pond to the north, channelized flow in wetland.	1,5	Low. Minimal storage capacity.
Sediment removal	X		Limited pockets of inundation. Sediment from stormwater runoff.	1,3,4,6	Moderate. Wetland is linear with channelized flow.
Nutrient and toxic removal	X		Limited pockets of inundation. Pollutants from stormwater runoff.	1	Moderate. Wetland is linear with channelized flow.
Erosion control & shoreline stabilization	X		Dense vegetation.	1,2,3	Low.
Production of organic matter and its export	X			2,4,6	Low.
General habitat suitability	X		Wetland is surrounded by development, limited buffer.		Low.
Habitat for aquatic invertebrates	X		Surface water present with high interspersion with vegetation.	1,4,5,6	Low.
Habitat for amphibians	X		Wetland is surrounded by development.	1,2,4,6	Low.
Habitat for wetland-associated mammals	X		Wetland is surrounded by development, limited buffer.	1,2,3	Low. Wetland is linear with channelized flow.
Habitat for wetland-associated birds		X	Lacks sufficient open water habitat to provide this function.		
General fish habitat		X	Not associated with fish-bearing water course in a manner that provides habitat.		
Native plant richness		X	Dominant vegetation includes invasives.		
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WSE3 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 07/28/14

Cowardin Class: PEM **Wetland size:** 0.05 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Wetland receives water from adjacent lined ditch and has limited storage capacity.	1	Low.
Sediment removal	X		Only small pockets of inundation. Limited sediment sources.	1,3	Low.
Nutrient and toxic removal	X		Only small pockets of inundation in wetland. Toxicants from stormwater runoff.	1,2,4	Low.
Erosion control & shoreline stabilization		X	Signs of erosion around adjacent lined ditch. Not directly associated with a water course or shoreline.		
Production of organic matter and its export	X		Limited inundation and outlet is confined.	1,5,6	Low.
General habitat suitability	X		Wetland is surrounded by development, limited buffer.	3	Low.
Habitat for aquatic invertebrates		X	Lacks sufficient inundation to provide this function.		
Habitat for amphibians		X	Lacks sufficient inundation to provide this function.		
Habitat for wetland-associated mammals		X	No permanent open water.		
Habitat for wetland-associated birds		X	Lacks sufficient inundation to provide this function.		
General fish habitat		X	Not associated with fish-bearing water course in a manner that provides habitat.		
Native plant richness		X	Wetland is dominated by invasives.		
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WSE4 **Project:** Lynnwood Link **Assessed by**: C. Worsley **Date:** 05/30/14

Cowardin Class: PFO **Wetland size:** 0.12 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X			4,5	Low.
Sediment removal	X		Linear surface water flow through wetland. Sediment from stormwater runoff.	1,3	Moderate.
Nutrient and toxic removal	X		Linear surface water flow through wetland. Pollutants from stormwater runoff.	1,2,5	Moderate.
Erosion control & shoreline stabilization		X	Not directly associated with a water course or shoreline.		
Production of organic matter and its export	X		Limited inundation and outlet is confined.	5,6	Low.
General habitat suitability	X		Wetland is surrounded by development, limited buffer.	3	Low.
Habitat for aquatic invertebrates	X		Surface water present with high interspersion with vegetation.	1,4,5,6	Low.
Habitat for amphibians	X		Surface water present with high interspersion with vegetation.	1,2,4,6	Low.
Habitat for wetland-associated mammals		X	No permanent open water.		
Habitat for wetland-associated birds		X	Lacks open water to provide this function.		
General fish habitat		X	Not associated with fish-bearing water course in a manner that provides habitat.		
Native plant richness		X	Invasives are co-dominant.		
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WSE5 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 07/28/14

Cowardin Class: PFO **Wetland size:** 0.26 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		May occasionally receive floodwater from Thornton Creek. Provides water storage before draining to the stream.	2,4,5	Moderate.
Sediment removal	X		Receives sediments from 5th Ave. This function is limited to a small portion of the wetland.	1,3,4,5	Moderate.
Nutrient and toxic removal	X		Receives pollutants from 5th Ave. This function is limited to a small portion of the wetland.	1,2,3,4	Moderate.
Erosion control & shoreline stabilization	X		Associated with an unnamed stream (SSE1) and Thornton Creek, but there are limited connections to both.	1,2,3	Low.
Production of organic matter and its export	X		Export of organic matter is limited by topography.	1,2,4,5,6	Low.
General habitat suitability	X		Area surrounding wetland is developed and has limited connections to other habitat types.	3	Low.
Habitat for aquatic invertebrates	X		Area of inundation is small, immediately adjacent to 5th Ave, and densely vegetated.	1,4,6	Low.
Habitat for amphibians	X		Area of inundation is small, immediately adjacent to 5th Ave, and densely vegetated	1,2,6	Low.
Habitat for wetland-associated mammals		X	No permanent open water or suitable habitat for wetland-associated mammals.		
Habitat for wetland-associated birds		X	Area of inundation is too small and adjacent to 5th Ave.		
General fish habitat		X	Wetland is not in a topographic position/association with Thornton Creek to provide this function.		
Native plant richness		X	Wetland has multiple Cowardin classes, but is co-dominated with invasves.		
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WSE6 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 07/28/14

Cowardin Class: PSS **Wetland size:** 0.08 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Wetland is a closed depression, but does not receive flood water from a water course.	2,3,5	Low.
Sediment removal	X		Likely receives some sediment from surrounding roads, but has minimal inundation.	1	Moderate.
Nutrient and toxic removal	X		Likely receives some pollutants from surrounding roads, but has minimal inundation.	1	Moderate. Densely vegetated.
Erosion control & shoreline stabilization		X	Not associated with a water course or shoreline.		
Production of organic matter and its export		X	Although the wetland is densely vegetated there is no outlet or inundation (very limited small pockets) to support this function.		
General habitat suitability	X		Wetland is nearly surrounded by maintained vegetation and roadways, but has limited connectivity to the south.	3	Low.
Habitat for aquatic invertebrates		X	Lacks sufficient inundation to support this function.		
Habitat for amphibians		X	Lacks sufficient inundation to support this function.		
Habitat for wetland-associated mammals		X	Lacks sufficient inundation to support this function.		
Habitat for wetland-associated birds		X	Lacks sufficient open water habitat to support this function.		
General fish habitat		X	Not associated with a fish-bearing water course.		
Native plant richness		X	Invasive species are co-dominant.		
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WSE7 **Project:** Lynnwood Link **Assessed by**: C. Worsley **Date:** 07/11/13

Cowardin Class: PSS/PEM **Wetland size:** 0.19 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Wetland is a closed depression, but does not receive flood water from a water course.	2	Low.
Sediment removal	X		Likely receives sediment from surrounding roads.	1,3,4,5	Moderate.
Nutrient and toxic removal	X		Likely receives pollutants from surrounding roads.	1,2,3,4	Moderate.
Erosion control & shoreline stabilization		X	Not associated with a water course or shoreline.		
Production of organic matter and its export	X			1,4,5,6	Low.
General habitat suitability	X		Wetland is surrounded by development, limited buffer.	5	Low.
Habitat for aquatic invertebrates		X	Surface water present with high interspersion with vegetation.	1,4,5,6	Low.
Habitat for amphibians		X	Wetland is surrounded by development.	1,2,4,6	Low.
Habitat for wetland-associated mammals		X	Wetland is isolated by highway and on-off ramps.		
Habitat for wetland-associated birds		X	Lacks sufficient open water habitat to support this function.		
General fish habitat		X	Not associated with a fish-bearing water course.		
Native plant richness		X	Invasive species are co-dominant.		
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WSE8 **Project:** Lynnwood Link **Assessed by**: C. Worsley **Date:** 05/30/14

Cowardin Class: PFO/PSS **Wetland size:** 0.12 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Associated with Thornton Creek.	5,6	Low.
Sediment removal	X		Sediment from stormwater runoff.	1,5	Moderate.
Nutrient and toxic removal	X		Pollutants from stormwater runoff.	1,2,5	Moderate.
Erosion control & shoreline stabilization	X		Associated with Thornton Creek.		Low.
Production of organic matter and its export	X		Limited inundation and outlet is confined.	2,5,6	Moderate.
General habitat suitability	X		Wetland is surrounded by development, limited buffer.	3,5	Low.
Habitat for aquatic invertebrates	X		Surface water present with high interspersion with vegetation.	1,6	Low.
Habitat for amphibians	X		Surface water present with high interspersion with vegetation.	1,4,6	Low.
Habitat for wetland-associated mammals	X		Associated with Thornton Creek.		Low.
Habitat for wetland-associated birds		X	Lacks open water to provide this function.		
General fish habitat	X		Associated with Thornton Creek.	1,4	Low.
Native plant richness	X		Invasive species are co-dominant, but contains two Cowardin classes.	2	Low.
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WSH1 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 07/24/14

Cowardin Class: PEM **Wetland size:** 0.06 acre **Ecology Category:** IV **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Much of the wetland is sloped, but the lower depressional portion has some capacity for storage.		Low.
Sediment removal	X		The sloped portion of the wetland and wetland size limit this function. Receives sediment from stormwater runoff.	1,3,5	Low.
Nutrient and toxic removal	X		The sloped portion of the wetland and wetland size limit this function. Receives pollutants from stormwater runoff.	1,2,4	Low.
Erosion control & shoreline stabilization		X	Not associated with a water course or shoreline.		
Production of organic matter and its export	X		Some organic matter produced and flushed out the outlet. Limited by mowing of vegetation.	1,5,6	Low.
General habitat suitability	X		Most of wetland is mowed and surrounding area is developed.		Low.
Habitat for aquatic invertebrates	X		Limited inundation in lower depression provides low levels of this function.	1,4,6	Low.
Habitat for amphibians		X	Lacks sufficient inundation for this function and is isolated by development.		
Habitat for wetland-associated mammals		X	Lacks sufficient inundation for this function.		
Habitat for wetland-associated birds		X	Lacks open water for this function.		
General fish habitat		X	Not associated with a fish-bearing water course.		
Native plant richness		X	Dominated by native vegetation, but also contains non-native species and maintained ROW grass.		
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WSH2 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 07/24/14

Cowardin Class: PFO/PEM **Wetland size:** 0.37 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Wetland has storage capacity during flood events, but is not associated with a water course.	2,3,5	Low.
Sediment removal	X		Some sediment removal likely occurs, but limited source nearby.	2,3,4,5	Low.
Nutrient and toxic removal	X		May receive pollutants from I-5.	1,2,4	Moderate.
Erosion control & shoreline stabilization		X	Not associated with a water course or shoreline.		
Production of organic matter and its export	X		Some organic matter produced and flushed out the outlet. Limited by mowing of vegetation.	1,2,5,6	Low.
General habitat suitability	X		Located between I-5 and residential structures with sound wall through the wetland.	3,5	Low.
Habitat for aquatic invertebrates	X		Some inundation in ditched portion, but limited duration.	1,4,5,6	Low.
Habitat for amphibians	X		Some inundation in ditched portion, but limited duration.	1,6	Low.
Habitat for wetland-associated mammals		X	Lacks sufficient inundation for this function.		
Habitat for wetland-associated birds		X	Lacks open water for this function.		
General fish habitat		X	Not associated with a fish-bearing water course.		
Native plant richness		X	Invasive species are co-dominant. Maintained ROW and residential lawn are also co-dominant.		
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WSH3 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 07/28/14

Cowardin Class: PEM **Wetland size:** 0.09 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Wetland provides some storage, but is not associated with a water course.	2	Low.
Sediment removal	X		Receives some sediment from I-5.	1,3,5,6	Moderate.
Nutrient and toxic removal	X		Receives some pollutants from I-5.	1,2,3	Moderate.
Erosion control & shoreline stabilization		X	Not associated with a water course or shoreline.		
Production of organic matter and its export	X			5,6	Low.
General habitat suitability	X		Very limited levels of habitat provided	3	Low.
Habitat for aquatic invertebrates	X		Size of wetland and inundation duration limit this function.	1,4,5,6	Low.
Habitat for amphibians	X		Size of wetland and inundation duration limit this function.	1,6	Low.
Habitat for wetland-associated mammals		X	No sufficient inundation for this function.		
Habitat for wetland-associated birds		X	Lacks appropriate open water for this function.		
General fish habitat		X	Not associated with a fish-bearing water course.		
Native plant richness		X	Dominated by reed canarygrass and has very limited diversity.		
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WSH4 **Project:** Lynnwood Link **Assessed by**: C. Worsley **Date:** 06/06/14

Cowardin Class: PFO/PEM **Wetland size:** 0.10 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Limited storage capacity.	4	Low.
Sediment removal	X		Limited sediment sources.	1,3	Low.
Nutrient and toxic removal	X		Limited pollutant sources.	1,4	Low.
Erosion control & shoreline stabilization		X	Not associated with a water course or shoreline.		
Production of organic matter and its export	X		Many sources of input, outlet to McAleer Creek.	1,2,5,6	Moderate.
General habitat suitability	X		Buffer is limited by surrounding development.	3,5	Low.
Habitat for aquatic invertebrates	X			1,5,6	Low.
Habitat for amphibians	X			1,4,6	Low.
Habitat for wetland-associated mammals		X	Lacks sufficient permanent water for this function.		
Habitat for wetland-associated birds		X	Does not have sufficient open water for this function.		
General fish habitat		X	Not associated with a fish-bearing water in a manner that provides habitat.		
Native plant richness	X		Invasive species are co-dominant, but contains two Cowardin classes.	2	Low.
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WSH5 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 07/28/14

Cowardin Class: PFO **Wetland size:** 0.48 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Limited storage capacity because of slopes, but may receive overbank flooding from McAleer Creek.	5,6	Low.
Sediment removal	X		Inundation is limited to micro-depressions.	1,3	Moderate.
Nutrient and toxic removal	X		Inundation is limited to micro-depressions.	1,4	Moderate.
Erosion control & shoreline stabilization	X		Associated with McAleer Creek, but much of the wetland is located above typical flood levels.	1,2,3	Moderate.
Production of organic matter and its export	X		Many tree leaves are dropped directly into McAleer Creek. Some overbank flooding also likely exports organic matter.	1,2,6	Moderate.
General habitat suitability	X		Buffer is limited by surrounding off-ramp, but is forested. Only one Cowardin class and moderate plant diversity.		Low.
Habitat for aquatic invertebrates	X		Inundation is limited to micro-depressions within wetland.	1, 6	Low. Very limited inundation, but associated with McAleer Creek, which provides habitat for aquatic invertebrates.
Habitat for amphibians	X		Inundation is limited to micro-depressions within wetland.	1,4,6	Low. Very limited inundation, but associated with McAleer Creek, which provides habitat for amphibians.
Habitat for wetland-associated mammals	X		Lacks permanent water within wetland, but is associate with McAleer Creek.		Low.
Habitat for wetland-associated birds		X	Does not have appropriate open water to vegetation ratio.		
General fish habitat	X			1,4	Low.
Native plant richness	X		Dominant plants are native and has some diversity of species, but does also have some invasive species.	3	Low.
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WMT1 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 07/24/14

Cowardin Class: PFO **Wetland size:** 0.49 **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Limited storage capacity because of slopes, but may receive overbank flooding from McAleer Creek.	5,6	Low.
Sediment removal	X		Inundation is limited to micro-depressions.	1,3	Moderate.
Nutrient and toxic removal	X		Inundation is limited to micro-depressions.	1,4	Moderate.
Erosion control & shoreline stabilization	X		Associated with McAleer Creek, but much of the wetland is located above typical flood levels.	1,2,3	Moderate.
Production of organic matter and its export	X		Many tree leaves are dropped directly into McAleer Creek. Some overbank flooding also likely exports organic matter.	1,2,6	Moderate.
General habitat suitability	X		Buffer is limited by surrounding off-ramp, but is forested. Only one Cowardin class and moderate plant diversity.		Low.
Habitat for aquatic invertebrates	X		Inundation is limited to micro-depressions within wetland.	1, 6	Low. Very limited inundation, but associated with McAleer Creek, which provides habitat for aquatic invertebrates.
Habitat for amphibians	X		Inundation is limited to micro-depressions within wetland.	1,4,6	Low. Very limited inundation, but associated with McAleer Creek, which provides habitat for amphibians.
Habitat for wetland-associated mammals	X		Lacks permanent water within wetland, but is associate with McAleer Creek.		Low.
Habitat for wetland-associated birds		X	Does not have appropriate open water to vegetation ratio.		
General fish habitat	X			1,4	Low.
Native plant richness	X		Dominant plants are native and has some diversity of species, but does also have some non-native species.	3	Low.
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WMT2 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 07/24/14

Cowardin Class: PFO **Wetland size:** 0.17 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Limited storage capacity because of slopes, but may receive some overbank flooding from McAleer Creek.	5,6	Low.
Sediment removal	X		Inundation is limited to small pockets and much of the sediments are likely removed in buffer.	1,3	Moderate.
Nutrient and toxic removal	X		Inundation is limited to small pockets and much of the toxicants are likely removed in buffer.	1,4	Moderate.
Erosion control & shoreline stabilization	X		Associated with McAleer Creek, but much of the wetland is located above typical flood levels.	1,2,3	Moderate.
Production of organic matter and its export	X		Many tree leaves are dropped directly into McAleer Creek. Some overbank flooding also likely exports organic matter.	1,2,6	Moderate.
General habitat suitability	X		Buffer is limited by surrounding off-ramp, but is forested. Only one Cowardin class and moderate plant diversity.		Low.
Habitat for aquatic invertebrates	X		Inundation is limited to small pockets within wetland.	1, 6	Low. Very limited inundation, but associated with McAleer Creek, which provides habitat for aquatic invertebrates.
Habitat for amphibians	X		Inundation is limited to small pockets within wetland.	1,4,6	Low. Very limited inundation, but associated with McAleer Creek, which provides habitat for amphibians
Habitat for wetland-associated mammals		X	Lacks permanent water within wetland.		
Habitat for wetland-associated birds		X	Does not have appropriate open water to vegetation ratio.		
General fish habitat	X			1,4	Low.
Native plant richness	X		Dominant plants are native and has some diversity of species, but does also have multiple non-native species present.	3	Low.
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WMT3 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 7/24/14

Cowardin Class: PFO **Wetland size:** 0.07 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Wetland is a closed depression and has minimal storage capacity, but does not appear to receive flood waters.	2,3,5	Low.
Sediment removal		X	Lacks a source of sediments.		
Nutrient and toxic removal		X	Lacks a source of nutrients and pollutants.		
Erosion control & shoreline stabilization		X	Not associated with a water course.		
Production of organic matter and its export	X		Produces organic matter, but lacks an outlet to export through.	1,2	Moderate.
General habitat suitability	X		The wetland buffer to the southeast is developed and wetland has one Cowardin class.	3	Low.
Habitat for aquatic invertebrates		X	May have some seasonal inundation but only saturation observed.		
Habitat for amphibians		X	May have some seasonal inundation but only saturation observed.		
Habitat for wetland-associated mammals		X	No permanent water.		
Habitat for wetland-associated birds		X	No open water.		
General fish habitat		X	Not associated with a fish-bearing water course.		
Native plant richness	X		Dominant plants are native.	1,3	Moderate.
Educational or scientific use		X	No educational or scientific values provided.		
Uniqueness & heritage		X	Wetland does not contain T&E species.		

Summary of Functions and Values

Wetland I.D. WMT5 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 07/24/14

Cowardin Class: PFO/PEM **Wetland size:** 0.34 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		The wetland has storage capacity, but is limited by outlet (catch basin) near north end.	2,4,5	Low. Not associated with a water course.
Sediment removal	X		Limited interspersion of water and vegetation and sediment sources.	3	Low.
Nutrient and toxic removal	X		May receive pollutants from I-5 and off-ramp. Pockets of inundation in wetland.	1,2,4	Moderate.
Erosion control & shoreline stabilization		X	Not associated with a water course or shoreline.		
Production of organic matter and its Export	X		Limited inundation and opportunity for export.	1,2,5	Low.
General habitat suitability	X		Wetland is surrounded by highway/off-ramp.	1	Low.
Habitat for aquatic invertebrates	X		Small pockets of inundation in center of wetland	1,4,5	Low.
Habitat for amphibians		X	Likely insufficient inundation for amphibians.		
Habitat for wetland-associated mammals		X	No permanent open water.		
Habitat for wetland-associated birds		X	No open water suitable for wetland-associated birds.		
General fish habitat		X	Not associated with a fish-bearing watercourse.		
Native plant richness	X		Some Cowardin class diversity, but has several non-native species present.	1,2,3	Low.
Educational or scientific use		X	No public access or educational value.		
Uniqueness & heritage		X	Not used by T&E species.		

Summary of Functions and Values

Wetland I.D. WMT6 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 0/24/14

Cowardin Class: PFO **Wetland size:** 1.12 acres **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Much of the wetland is sloped and there is limited inundation within the wetland.	5	Low.
Sediment removal	X		The wetland has small areas of inundation and limited sources of sediment.	3,5	Low.
Nutrient and toxic removal	X		Surrounding roadways provide sources of pollutants, but wetland has small areas of inundation.	1,2,4	Low. Some areas of dense vegetation.
Erosion control & shoreline stabilization		X	Not associated with a water course or shoreline.		
Production of organic matter and its export	X		Limited opportunity for export (export to a ditch and catch basin).	1,2,3,5,6	Moderate.
General habitat suitability	X		Surrounding area is developed and wetland lacks Cowardin class diversity.	3	Low.
Habitat for aquatic invertebrates	X		The wetland has small areas of inundation.	1,5,6	Low.
Habitat for amphibians		X	Areas of inundation are likely to small and lack the necessary duration for amphibians.		
Habitat for wetland-associated mammals		X	No permanent water.		
Habitat for wetland-associated birds		X	No open water. Areas of inundation are below tree cover and behind fence.		
General fish habitat		X	Not associated with a fish-bearing water course.		
Native plant richness	X		Dominant plants are mostly native.	1	Low.
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WMT7 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 07/24/14

Cowardin Class: PFO **Wetland size:** 0.42 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X			2,4,5	Low.
Sediment removal	X		Minimal sources of sediment input.	5	Low.
Nutrient and toxic removal	X		Surrounding roadways provide some source of pollutants, wetland has small areas of inundation.	1,2,4,5	Low.
Erosion control & shoreline stabilization		X	Wetland outlets to a small stream, but is not adjacent to a water course or shoreline.		
Production of organic matter and its export	X		Organic matter is produced and there is an outlet, but likely little is exported.	2,6	Low.
General habitat suitability	X		Most of surrounding area is developed.	3	Low.
Habitat for aquatic invertebrates		X	Insufficient inundation to support this function.		
Habitat for amphibians		X	Insufficient inundation to support this function.		
Habitat for wetland-associated mammals		X	Insufficient permanent water to support this function.		
Habitat for wetland-associated birds		X	Insufficient open water to support this function.		
General fish habitat		X	Not associated with a fish-bearing water course.		
Native plant richness	X		Wetland is forested and has multiple strata.	1,3	Low.
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WMT9 **Project:** Lynnwood Link **Assessed by**: C. Worsley **Date:** 05/16/14

Cowardin Class: PEM **Wetland size:** 0.03 acre **Ecology Category:** IV **Local Rating:** IV

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Wetland is associated with roadside ditch.		Low.
Sediment removal	X		Roadway runoff likely provides sediment input.	3,5	Low.
Nutrient and toxic removal	X		Adjacent roadway provides a source of pollutants.	1,2,4	Moderate.
Erosion control & shoreline stabilization		X	Not associated with a water course or shoreline.		
Production of organic matter and its export	X		Organic matter is produced, catch basin provides outlet.	1,5,6	Low.
General habitat suitability	X		Most of surrounding area is developed.	3	Low.
Habitat for aquatic invertebrates		X	Insufficient inundation to support this function.		
Habitat for amphibians		X	Insufficient inundation to support this function.		
Habitat for wetland-associated mammals		X	No permanent water to support this function.		
Habitat for wetland-associated birds		X	No open water to support this function.		
General fish habitat		X	Not associated with a fish-bearing water course.		
Native plant richness		X	Invasive species are co-dominant. Wetland is within maintained portion of ROW.		
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WMT10 **Project:** Lynnwood Link **Assessed by**: C. Worsley **Date:** 06/02/14

Cowardin Class: PSS **Wetland size:** 0.03 acre **Ecology Category:** IV **Local Rating:** IV

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X			3	Low.
Sediment removal	X		Minimal sources of sediment input.		Low.
Nutrient and toxic removal	X		Adjacent roadway provides a source of pollutants.	1	Low.
Erosion control & shoreline stabilization		X	Not associated with a water course or shoreline.		
Production of organic matter and its export	X		Organic matter is produced but there is no outlet.	2,6	Low.
General habitat suitability	X		Most of surrounding area is developed.	3	Low.
Habitat for aquatic invertebrates		X	No inundation to support this function.		
Habitat for amphibians		X	No inundation to support this function.		
Habitat for wetland-associated mammals		X	No permanent water to support this function.		
Habitat for wetland-associated birds		X	No open water to support this function.		
General fish habitat		X	Not associated with a fish-bearing water course.		
Native plant richness		X	Invasive species are co-dominant.		
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WMT11 **Project:** Lynnwood Link **Assessed by**: C. Worsley **Date:** 05/16/14

Cowardin Class: PSS **Wetland size:** 0.07 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Linear ditch wetland with seasonal stream flow through.	3,6	Low.
Sediment removal	X		Minimal sources of sediment input.		Low.
Nutrient and toxic removal	X		Seasonal stream likely provides a source of pollutants.	1,2,4	Low.
Erosion control & shoreline stabilization	X		Associated with stream SMT1.	1,2	Low.
Production of organic matter and its export	X			1,5	Low.
General habitat suitability	X			3	Low.
Habitat for aquatic invertebrates		X	Insufficient inundation to support this function.		
Habitat for amphibians		X	Insufficient inundation to support this function.		
Habitat for wetland-associated mammals		X	No permanent water to support this function.		
Habitat for wetland-associated birds		X	No open water to support this function.		
General fish habitat		X	Not associated with a fish-bearing water course.		
Native plant richness		X	Invasive species are co-dominant.		
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WLY3 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 07/21/14

Cowardin Class: PSS/PEM/PUB **Wetland size:** 0.26 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Wetland provides storage during storm events. Area is generally flat with a ditch feature.	2,4,5	Moderate. An elevated culvert provides opportunity for storage.
Sediment removal	X		Sparse vegetation through most of wetland. Dense Spiraea at southwest end of wetland.	2,5	Moderate. Would provide higher levels of function if outlet was located further to the south.
Nutrient and toxic removal	X		Lacks dense herbaceous vegetation.	1,2,5	Moderate. Vegetation and storage duration likely limit function level.
Erosion control & shoreline stabilization		X	Wetland is not associated with a water course or shoreline.		
Production of organic matter and its Export	X		Wetland has limited amounts of vegetation and outlet culvert is elevated.	2,5	Low.
General habitat suitability	X		Wetland has 1 Cowardin class and limited diversity.	3	Low. Much of the buffer is disturbed.
Habitat for aquatic invertebrates	X			1,2,5,6	Moderate. Water depth fluctuates frequently.
Habitat for amphibians	X		Development limit this function.	1,6	Low.
Habitat for wetland-associated mammals	X		Shallow banks and low habitat diversity limits this function.	3	Low. Very low levels of this function provided.
Habitat for wetland-associated birds	X		Low habitat diversity limits this function.	3,6	Low. Mallards observed in wetland.
General fish habitat		X	Wetland is not associated with a fish bearing water.		
Native plant richness	X		Co-dominant vegetation is native, but diversity is very limited.	1	Low.
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WLY4 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 07/21/14

Cowardin Class: PFO/PSS/PEM **Wetland size:** ~17 acres **Ecology Category:** II **Local Rating:** II

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Wetland receives flood flows from Scriber Creek. Wetland is large and can store flood waters.	2,4,5,6	High.
Sediment removal	X		Dense vegetation and high interspersion between vegetation and water.	2,3,4,5,6	High. Some sediment deposition observed at north end of wetland in/near Scriber Creek.
Nutrient and toxic removal	X		Wetland likely receives toxins from surrounding areas and has dense vegetation, high interspersion, and large size.	1,2,3,4,5	High.
Erosion control & shoreline stabilization	X		Dense woody and herbaceous vegetation.	1,2,3	High. Associated with Scriber Creek
Production of organic matter and its Export	X		Dense deciduous vegetation, but constricted outlet limits export.	2,3,4,5,6	High.
General habitat suitability	X		Evidence of wildlife use observed and high degree of Cowardin class interspersion, but surrounding area is highly developed.	3,4,5,6,7	Moderate.
Habitat for aquatic invertebrates	X		Permanent and seasonal inundation with high habitat interspersion and multiple water depths.	1,2,4,5,6	High.
Habitat for amphibians	X		Permanent and seasonal inundation with high habitat interspersion and multiple water depths.	1,2,4,6	High.
Habitat for wetland-associated mammals	X		Beaver activity observed. Diverse vegetation and habitats.	1,2,3,4,5,7	High.
Habitat for wetland-associated birds	X		Good habitat complexity, but limited deep open water features.	2,3,4,6	High.
General fish habitat	X		Likely provides refuge and feeding. Much of the inundated areas is likely seasonal.	1,2,4	Moderate. Associated with Scriber Creek
Native plant richness	X		Somewhat limited in species diversity. Much of wetland is not mature.	1,2,3	Moderate. Some invasive species throughout.
Educational or scientific use	X		Trails near and through wetland. Parking available.	2,3	Low.
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		Scriber Creek in the wetland is mapped as “modeled” for Chinook and steelhead. (Could be present if barriers downstream were removed.)

Summary of Functions and Values

Wetland I.D. WLY6 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 07/21/14

Cowardin Class: PFO **Wetland size:** 0.04 acre **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Wetland is a closed depression that receives stormwater runoff from under 208th St.	2,3,5	Moderate. Not associated with a water course.
Sediment removal	X		Wetland has limited inundation, only small pockets.	5	Low.
Nutrient and toxic removal	X		Wetland has limited inundation, only small pockets.	1,2	Low. Few herbaceous plants.
Erosion control & shoreline stabilization		X	Not associated with a water course or shoreline.		
Production of organic matter and its Export	X		No outlet observed. Trees are deciduous.	2,5	Low. Only small pockets of inundation.
General habitat suitability	X		Surrounding area is generally developed or disturbed.	3	Low. Only one Cowardin class.
Habitat for aquatic invertebrates	X		Very limited inundation and primarily woody vegetation.	1,5	Low.
Habitat for amphibians		X	Likely insufficient inundation in the wetland.		
Habitat for wetland-associated mammals		X	No permanent inundation.		
Habitat for wetland-associated birds		X	No open water.		
General fish habitat		X	Not associated with a fish bearing water.		
Native plant richness	X		Only one Cowardin class and limited diversity.	1	Low.
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WLY7 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 07/21/14

Cowardin Class: PSS **Wetland size:** 0.15 **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Provides limited storage, but does not receive flood waters.	2,3,5	Low. Wetland is small and shallow.
Sediment removal	X		Compacted soils and nearby soil disturbances.	1,4	Low. Wetland is small and shallow.
Nutrient and toxic removal	X		May provide low levels of this function. A nearby paved area is occasionally used by motorized vehicles.	2, 5	Low. Wetland is small and shallow.
Erosion control & shoreline stabilization		X	Not associated with a water course or shoreline.		
Production of organic matter and its Export	X		Organic matter is produced, but limited and wetland lacks an outlet.	2,5	Low.
General habitat suitability	X		Much of the surrounding area has been disturbed or is recreational paved trail.	3	Low.
Habitat for aquatic invertebrates	X		Most of area that appears to be inundated is bare ground.	1,6	Low.
Habitat for amphibians		X	Likely insufficient inundation in the wetland.		
Habitat for wetland-associated mammals		X	No permanent water within wetland.		
Habitat for wetland-associated birds		X	Insufficient habitat for wetland associated birds.		
General fish habitat		X	Not associated with a fish bearing water.		
Native plant richness	X		Dominated by native shrubs/saplings.		Low.
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

Summary of Functions and Values

Wetland I.D. WLY8 **Project:** Lynnwood Link **Assessed by**: M Maynard **Date:** 7/24/14

Cowardin Class: PEM **Wetland size:** 0.08 **Ecology Category:** III **Local Rating:** III

Function/Value	Occurrence Y	Occurrence N	Rationale	Indicators present	Comments
Flood flow alteration	X		Wetland likely receives little flood flow. Wetland has little storage capacity.	2,3	Low.
Sediment removal	X		Limited sediment sources and area for deposition in wetland.	1,2,3,5	Low.
Nutrient and toxic removal	X		Limited nutrient/toxicant sources and wetland is small.	2,4	Low.
Erosion control & shoreline stabilization		X	Not associated with a water course or shoreline		
Production of organic matter and its Export	X		No outlet for export of organic matter.	1,4,5	Low.
General habitat suitability	X		Low general habitat functions provided, but does connect to other habitats.	3	Low.
Habitat for aquatic invertebrates	X		No permanent inundation and very little cover.	1,4,6	Low.
Habitat for amphibians		X	Likely lacks sufficient inundation and structure for amphibian habitat.		
Habitat for wetland-associated mammals		X	No permanent water present		
Habitat for wetland-associated birds		X	Lacks open water and/or aquatic bed. Also limited in size.		
General fish habitat		X	Not associated with a fish-bearing water		
Native plant richness	X		Limited diversity of vegetation	1	Low.
Educational or scientific use		X	Wetland does not provide educational or scientific value.		
Uniqueness & heritage		X	Wetland does not contain T&E species or critical habitat.		

ATTACHMENT F

Delineated and Estimated Wetland and Streams

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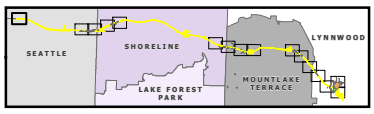
Feet

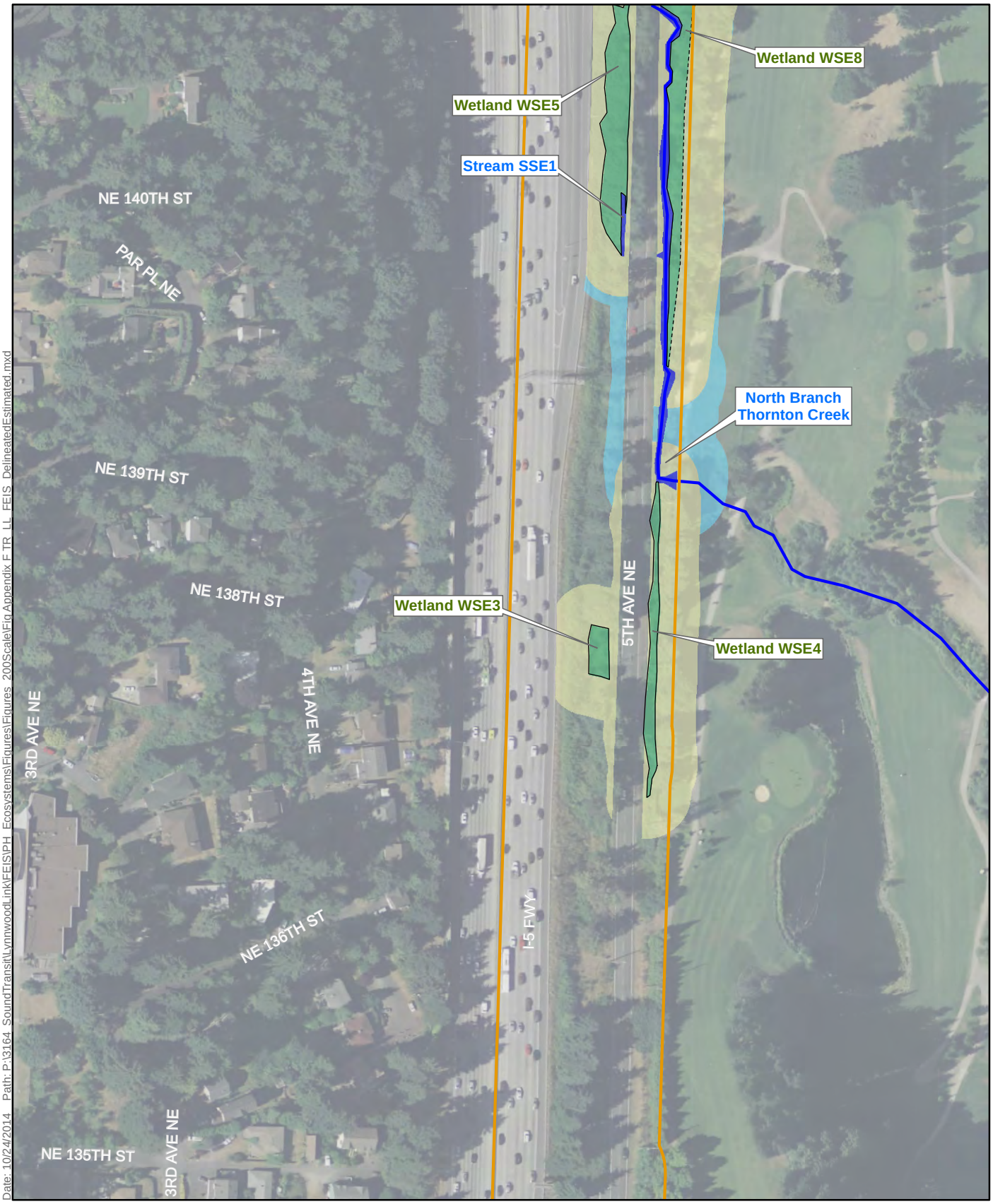


Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 1
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension



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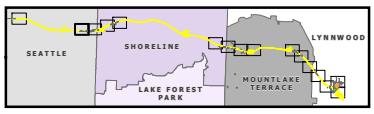
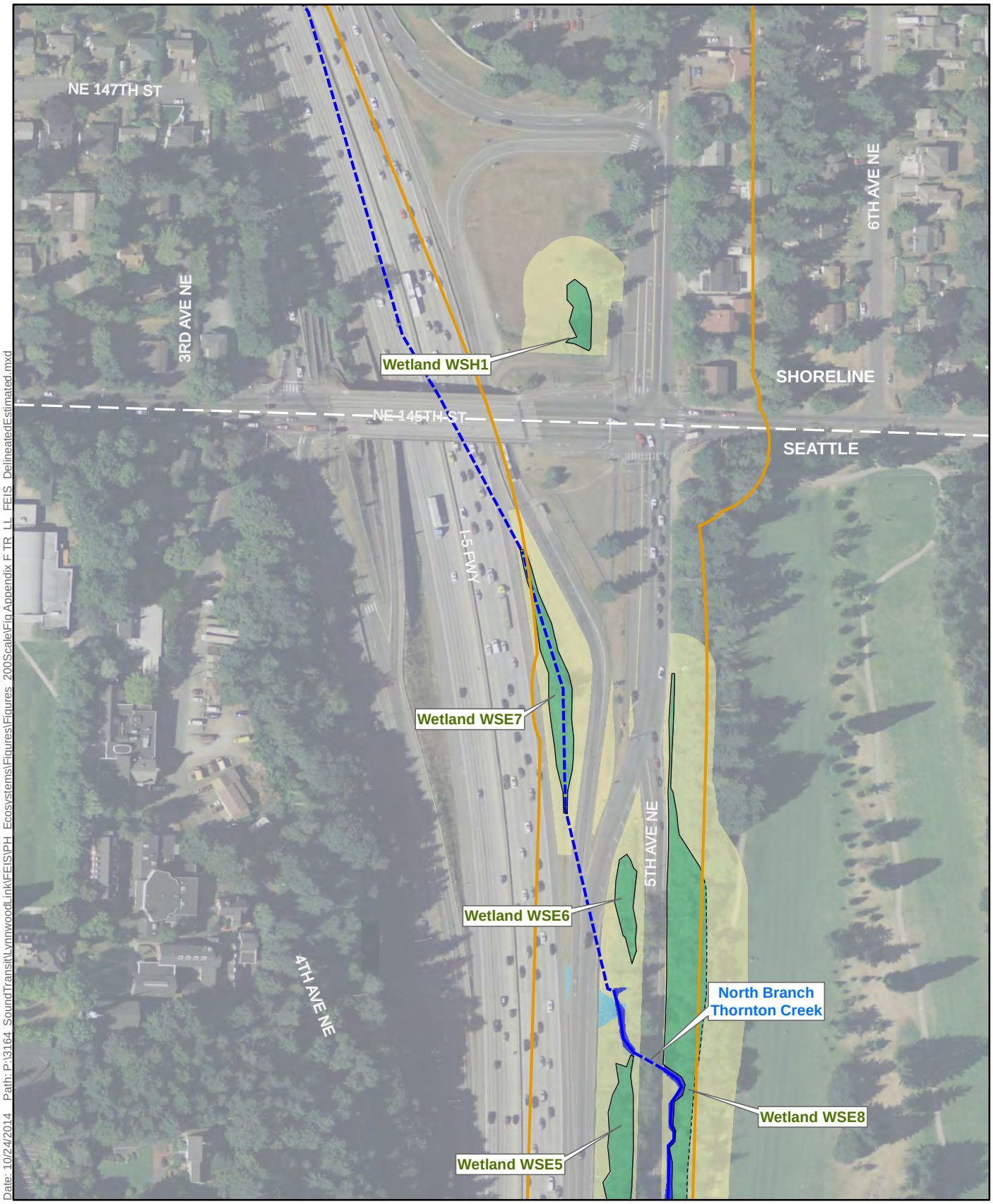


Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 2
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension



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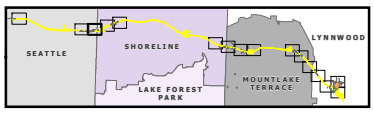
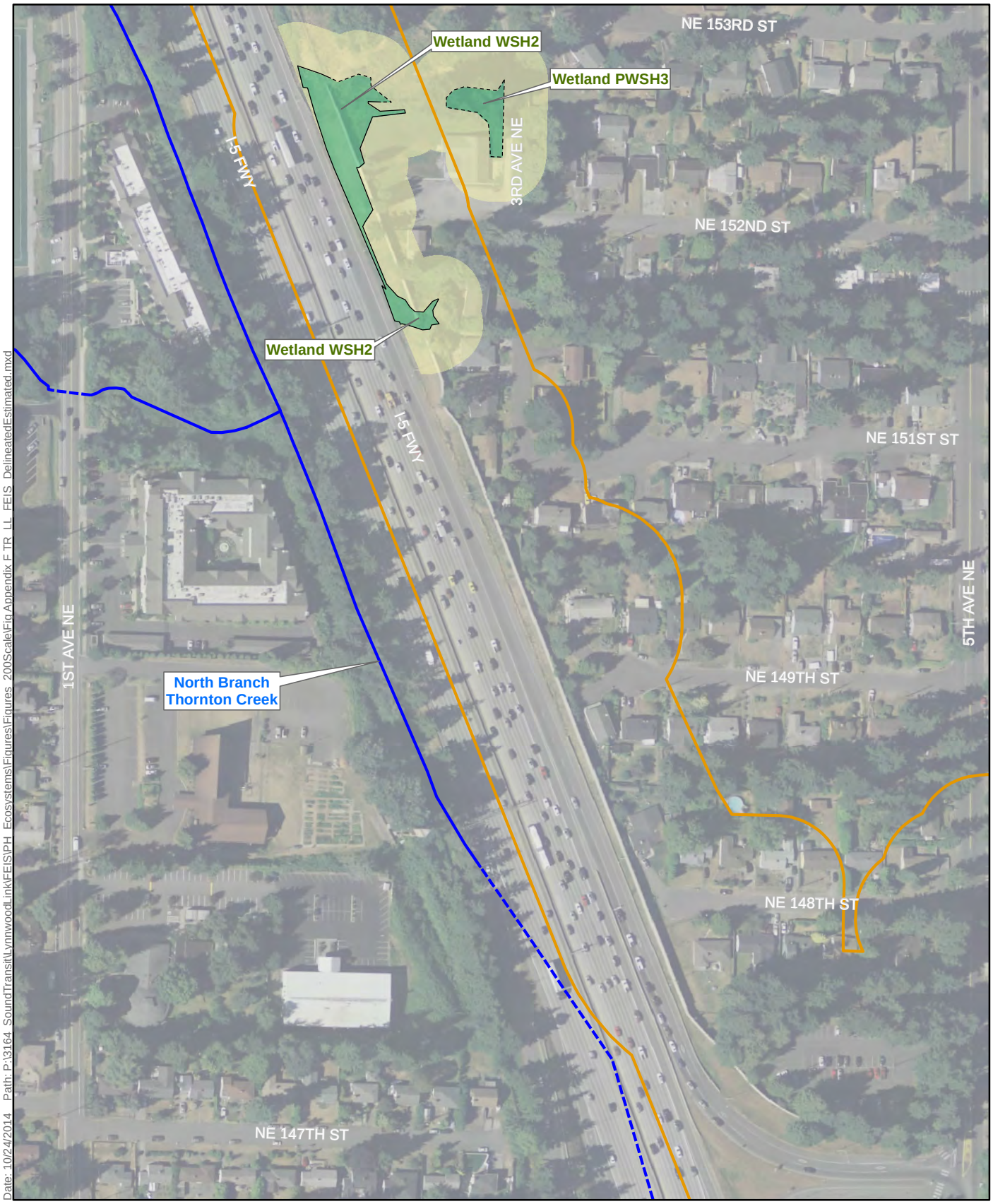


Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 3
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension



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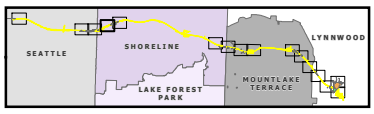
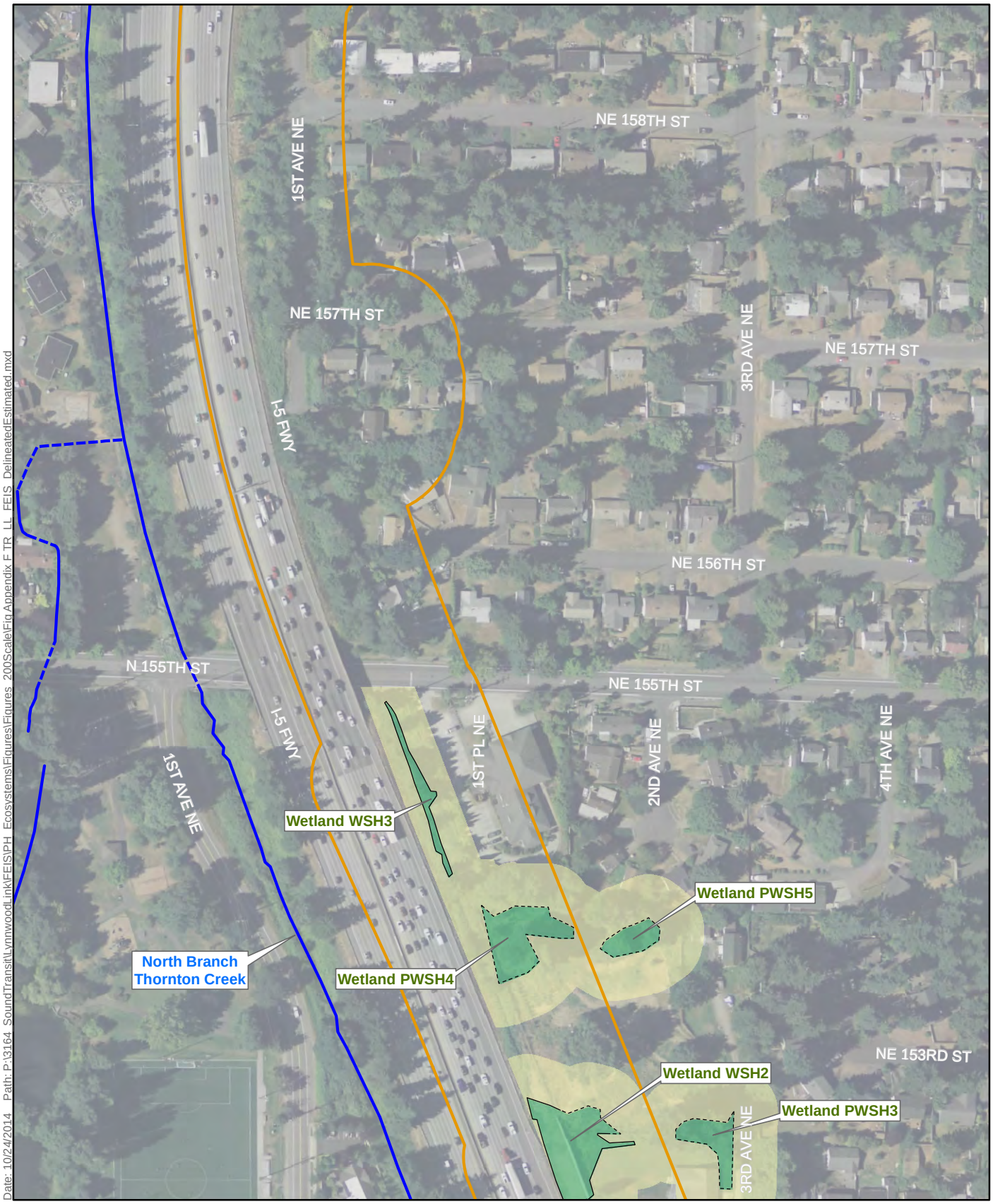


Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 4
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension



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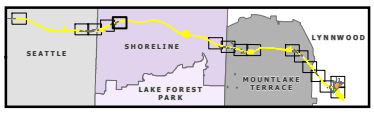
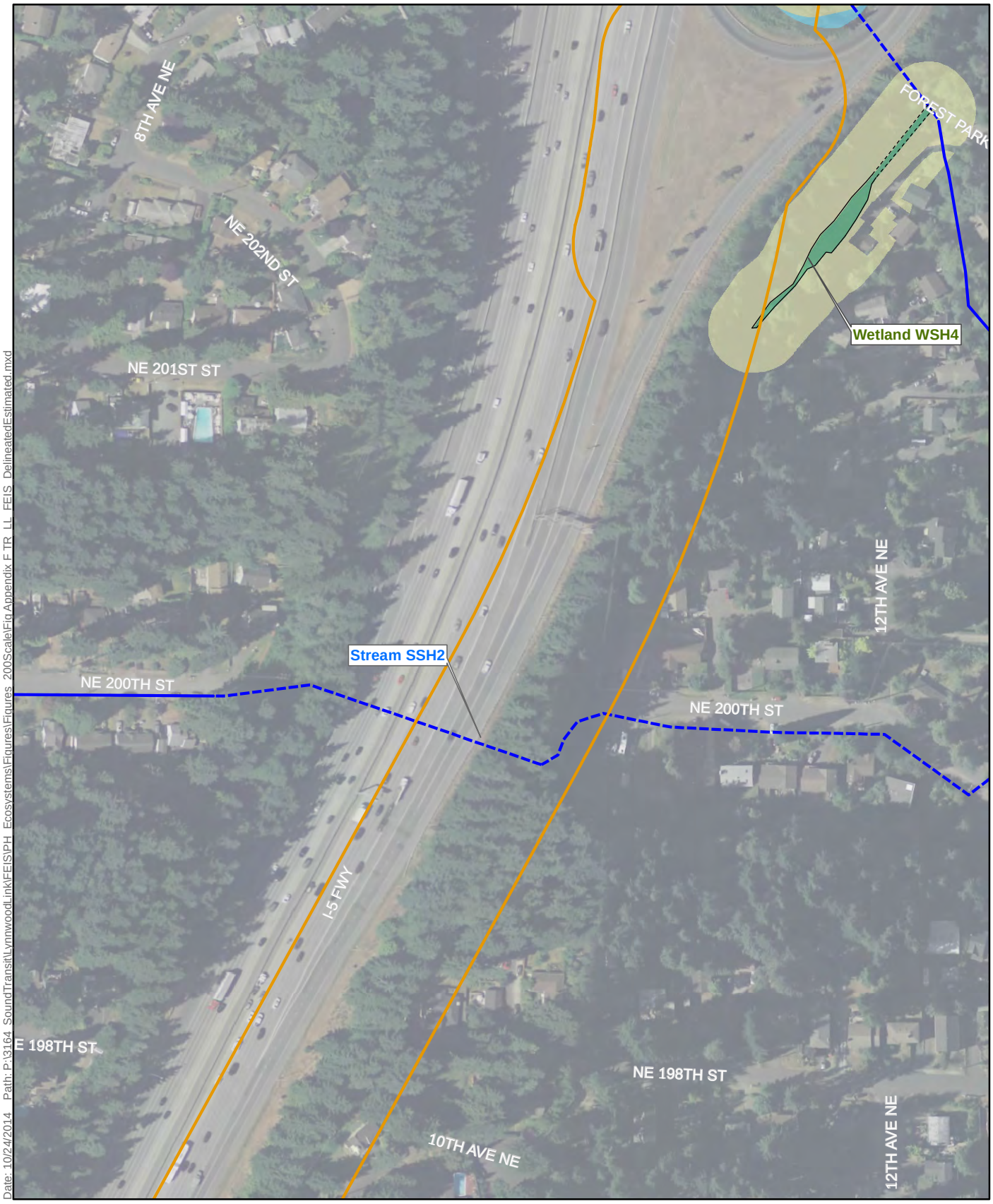


Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 5
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension



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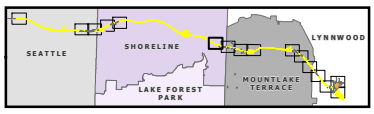
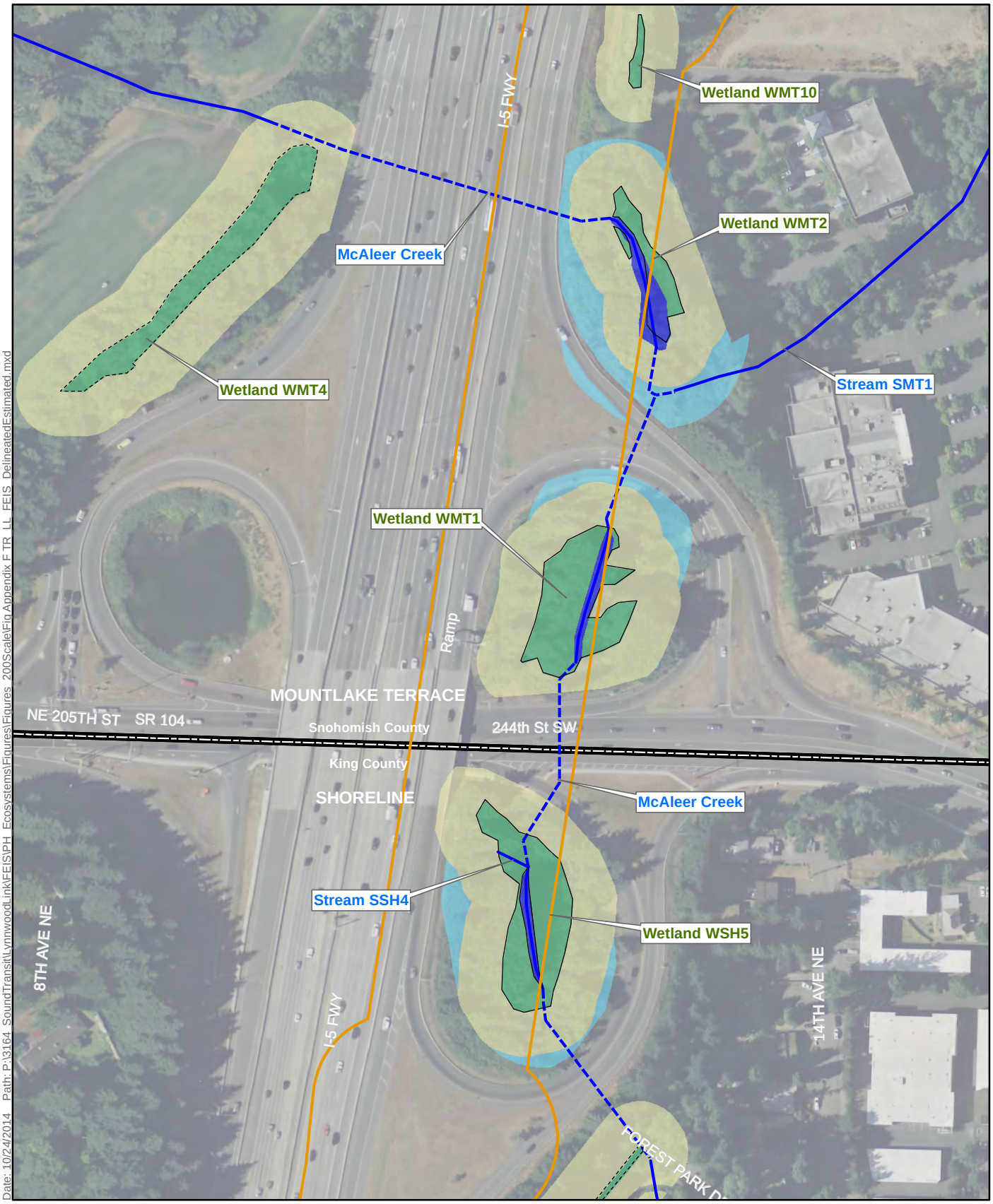


Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 6
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension



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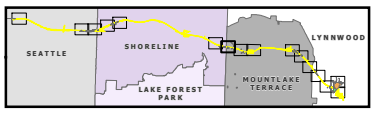
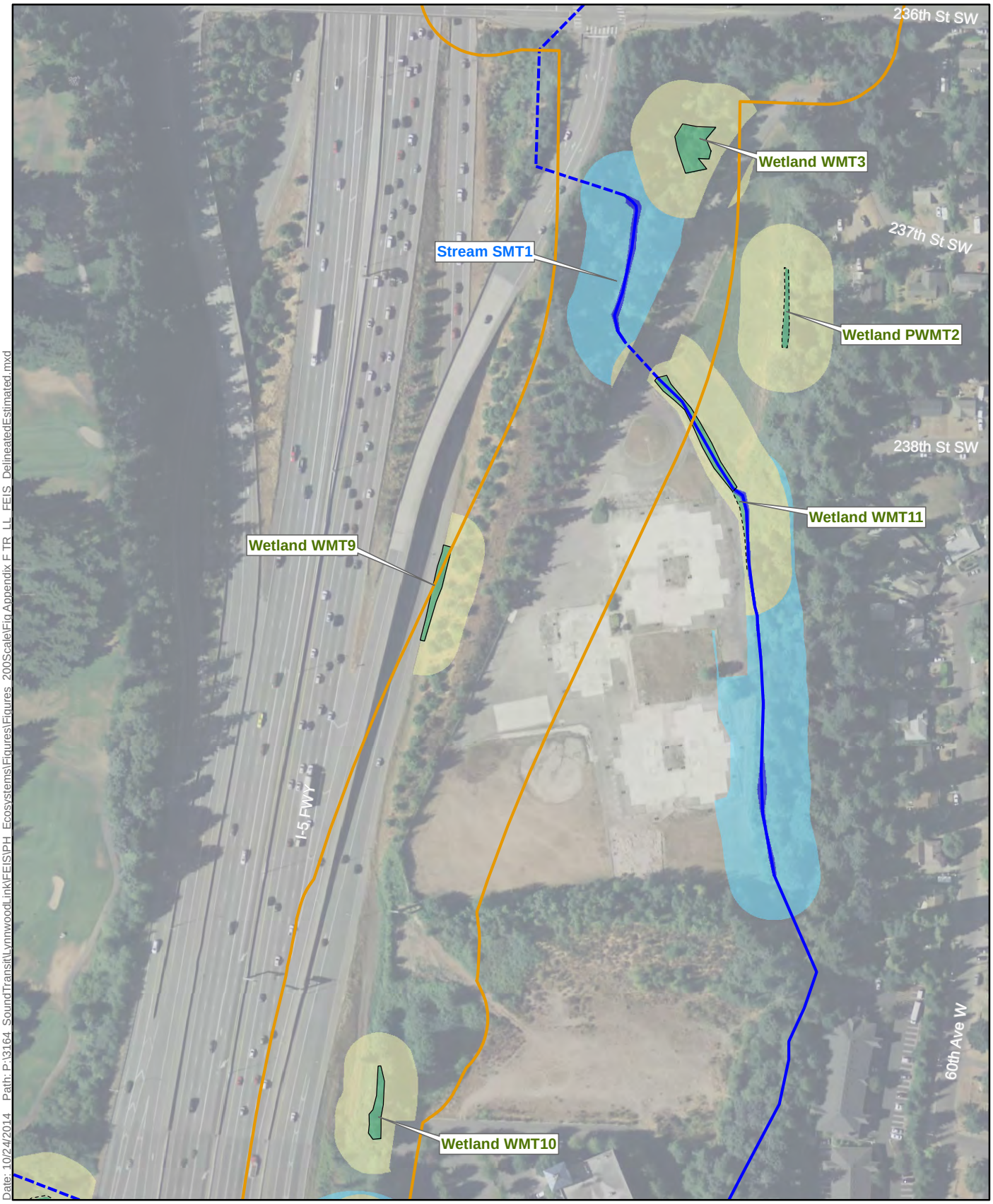


Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 7
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension



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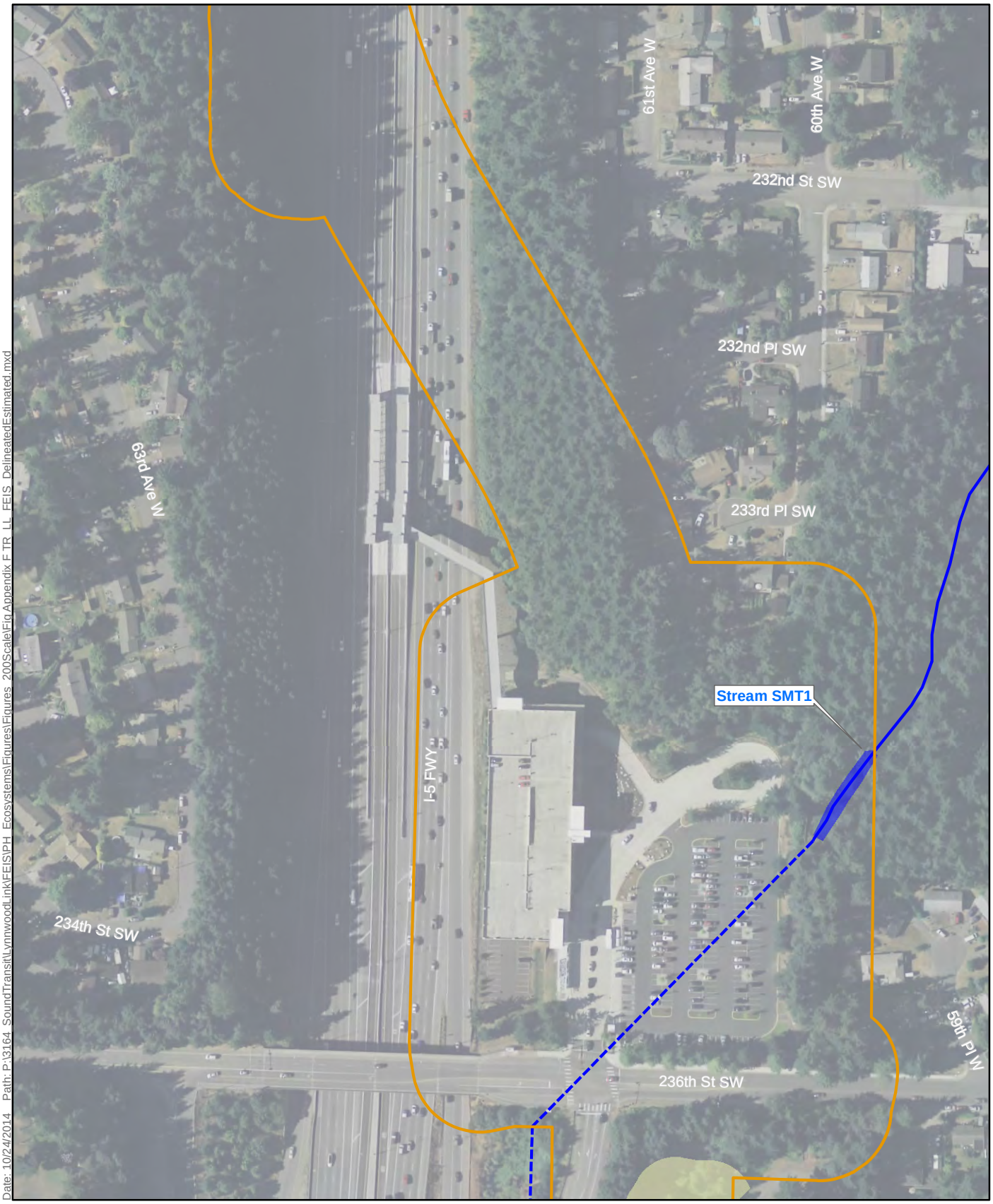
SEATTLE SHORELINE LAKE FOREST PARK MOUNTLAKE TERRACE LYNNWOOD

Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 8
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension



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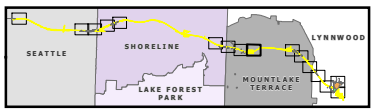

Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 9
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension

Date: 10/24/2014 Path: P:\3164 SoundTransit\LynnwoodLink\FEIS\PH Ecosystems\Figures\Figures 200Scale\Fig Appendix F TR LL FEIS DelineatedEstimated.mxd

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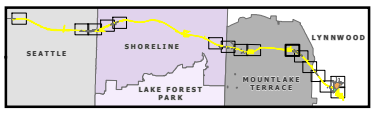

Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 10
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension

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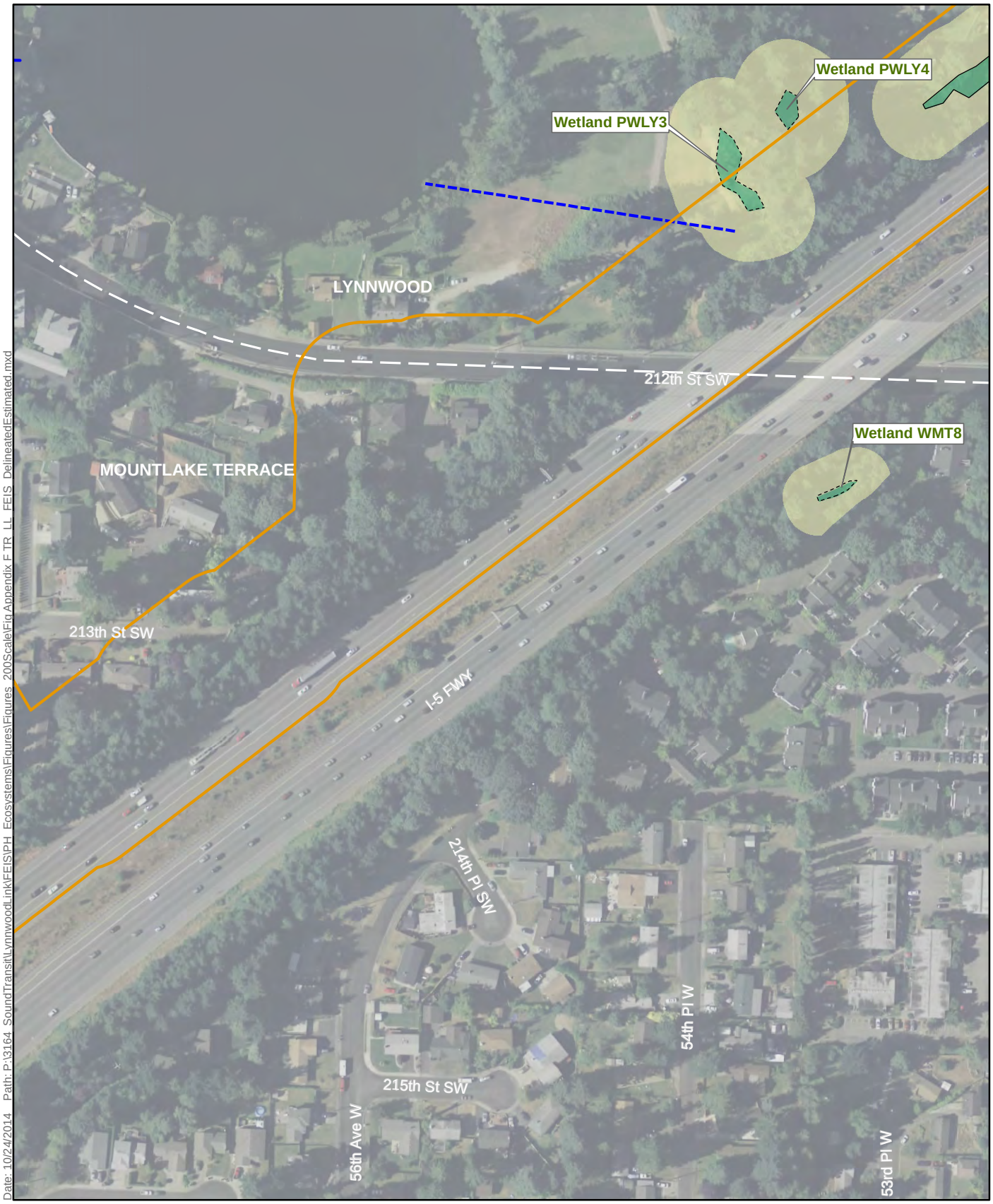
SEATTLE SHORELINE LYNNWOOD LAKE FOREST PARK MOUNTLAKE TERRACE

Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 11
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension



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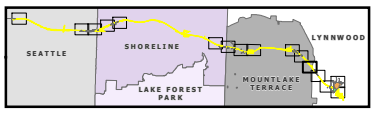
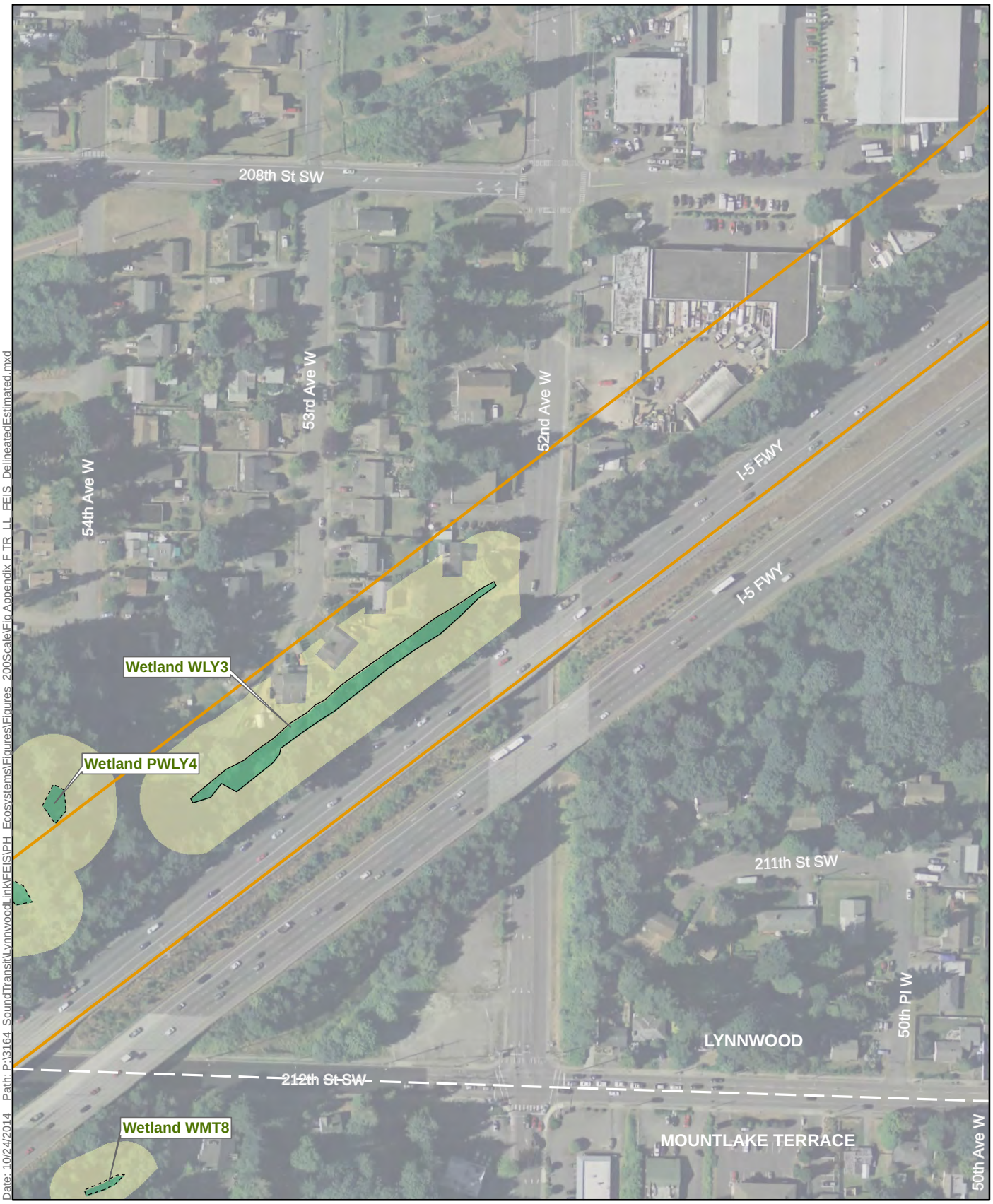


Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 12
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension



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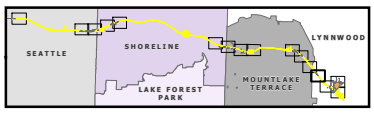
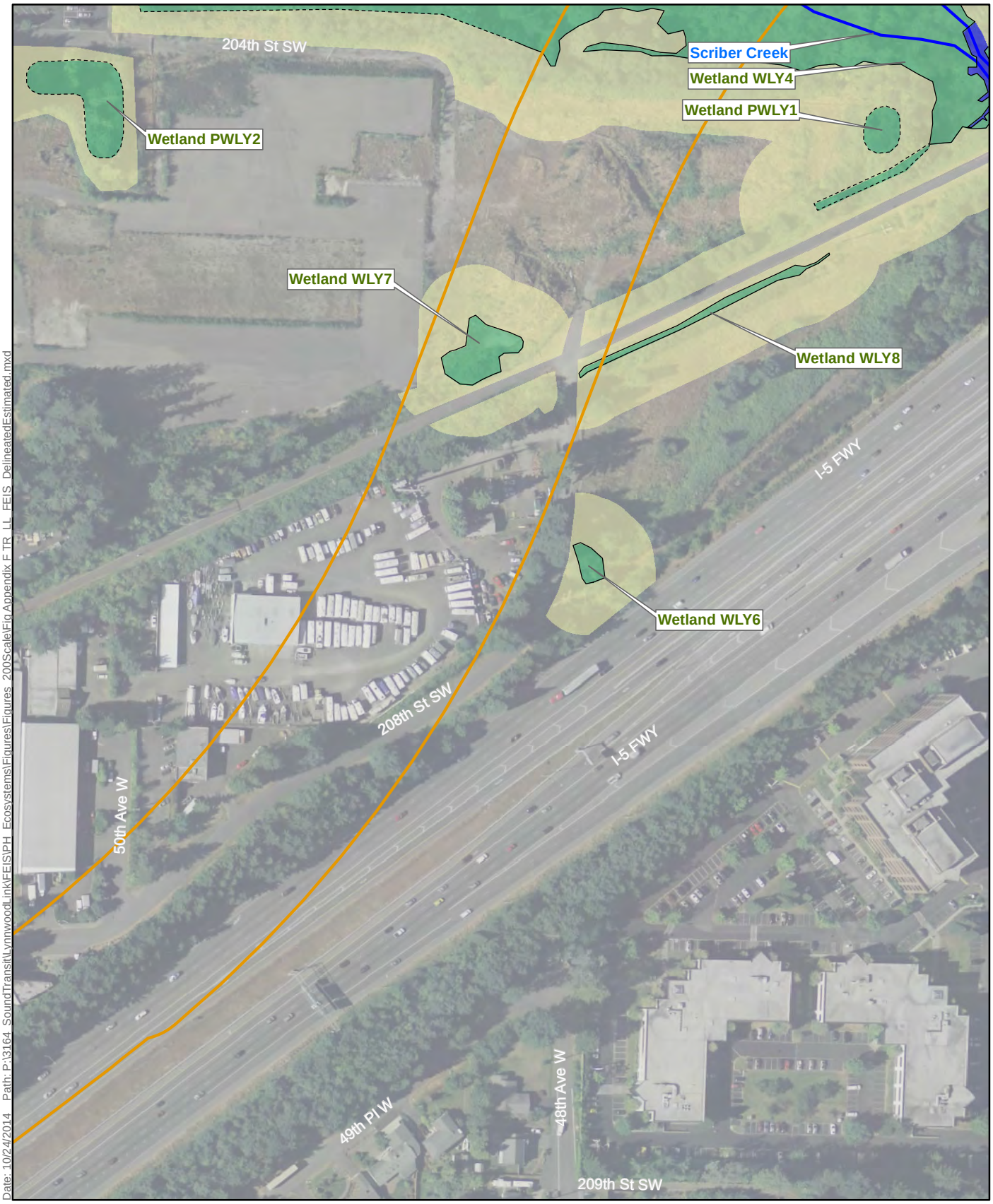


Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 13
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension



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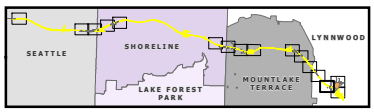

Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 14
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension

Date: 10/24/2014 Path: P:\3164 SoundTransit\LynnwoodLink\FEIS\PH Ecosystems\Figures\Figures 200Scale\Fig Appendix F TR LL FEIS DelineatedEstimated.mxd

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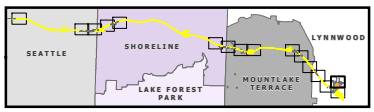
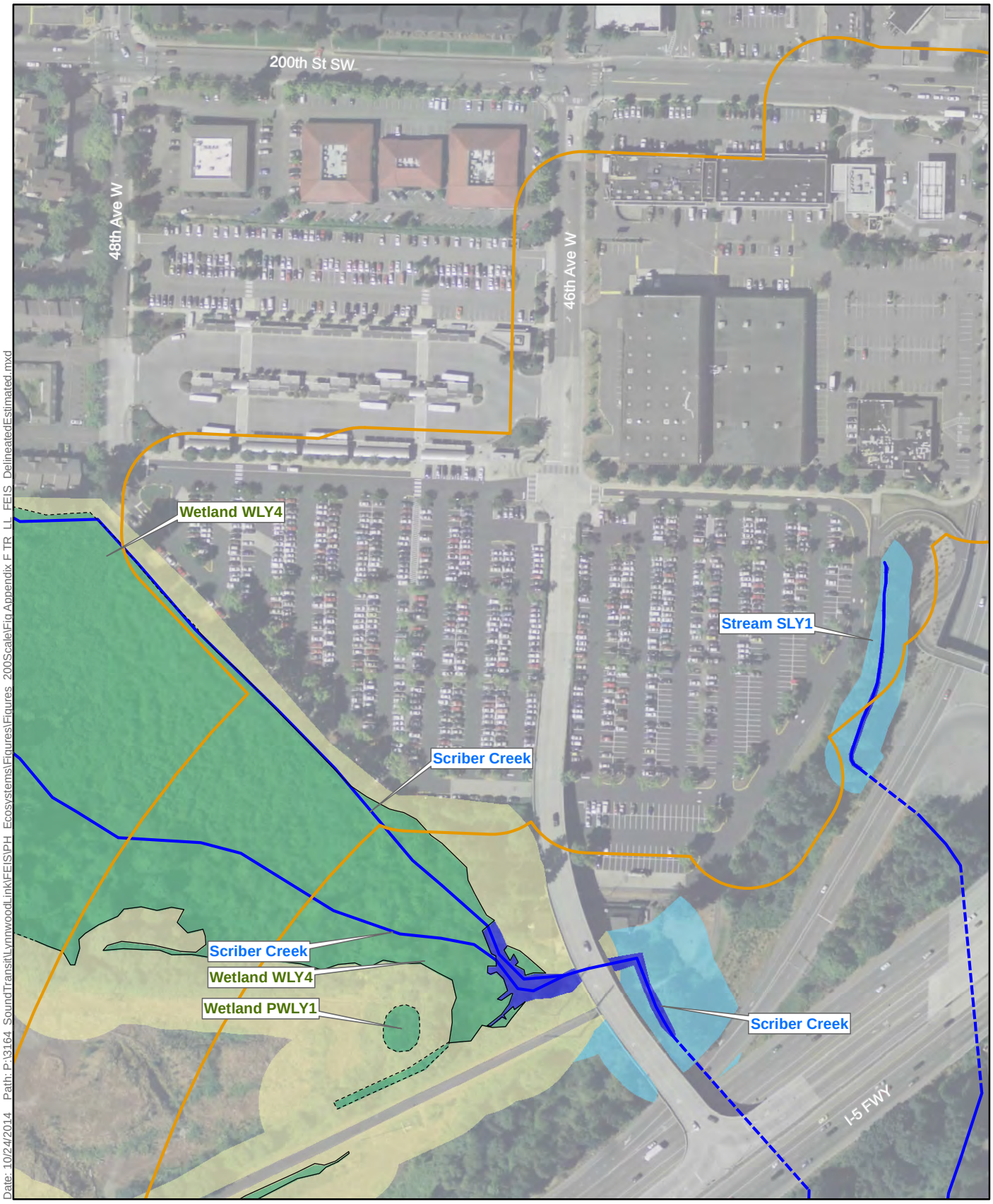


Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 15
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension



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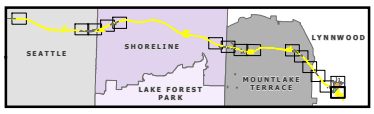

Data Sources: (King & Snohomish County, WSDOT, Streamnet, City of Seattle, City of Shoreline, ESA, Aerials Express.)

- Stream
- Stream Buffer
- Delineated Wetland
- Estimated Wetland
- Wetland Buffer
- Open Stream
- Piped Stream
- Delineation Study Area

Attachment F
Figure 16
Delineated and Estimated Wetlands and Streams

Lynnwood Link Extension