

# WETLAND AND STREAM ASSESSMENT REPORT

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## Woodinville-Duvall Road Widening Project

*Prepared For:*  
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Public Works Department  
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Woodinville, Washington 98072

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April 21, 2011



# Executive Summary

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The Woodinville-Duvall Road Widening Project involves widening NE Woodinville-Duvall Road from approximately 400-feet west of 156<sup>th</sup> Avenue NE to 50-feet east of 171<sup>st</sup> Place NE. The existing two-lane roadway will be widened to three-lanes to provide an additional center turn lane as well as improved pedestrian and bicycle facilities. The project will also include improvements to existing: drainage systems, traffic signals, street lighting, and landscaping. The overall length of the project is approximately 1.1 miles.

Four wetlands were delineated in the project area Right-of-way (ROW). Wetland 1 is a small, riverine wetland associated with seasonal outflow from Cold Creek. It is a palustrine scrub-shrub (Cowardin *et al.*, 1979) wetland dominated by salmonberry and is rated as Category III by Washington State Department of Ecology (Ecology) and Class 3 by the City of Woodinville. Wetland 2 is a small depressional wetland that is also rated as Category III by Ecology and Class 3 by the City of Woodinville. It has both Palustrine Scrub-shrub and Palustrine Forested components. Wetlands 3 and 4 are segments of a drainage ditch located along the south side of NE Woodinville-Duvall Road, and they are dominated by non-naive invasive reed canarygrass. If Wetlands 3 and 4 are jurisdictional, they are rated as Category IV by Ecology and Class 3 by the City of Woodinville, which has only three wetland classes. Portions of Wetlands 1 and 2, and all of Wetlands 3 and 4 (ditch segments) are subject to maintenance mowing. Because all four wetlands are adjacent to NE Woodinville-Duvall Road, large portions of their respective buffers consist of pavement and mowed areas that provide few functions. Outside of the ROW, Wetland 1 buffer is in relatively good condition – it consists of fairly intact second-growth forest. The remaining buffers of the other three wetlands have forested portions, but also include single family residences with mowed yards. While all four wetlands have the opportunity and at least limited potential to remove sediment, toxicants, and nutrients, only Wetland 2 provides flood storage/attenuation. The four wetlands provide production and export of organic matter, but export from Wetland 2 may be limited by a clogged culvert. Due to lack of ponded water, the wetlands do not provide habitat for aquatic invertebrates, amphibians, fish, or wetland associated mammals or birds.

The stream that runs through and adjacent to the project site is known locally as Cold Creek, and it appears to convey water into and out of Lake Leota on an intermittent basis—the stream was dry during site visits conducted in July and September 2009, and August 2010, and appeared to convey water relatively infrequently, likely only during or shortly subsequent to storm events.

Separate ESA compliance documentation will be prepared to address federally listed threatened or endangered species. The project area does not appear to provide known or suitable habitat for any state listed threatened or endangered fish or wildlife species. The Washington State Department of Natural Resources (DNR) indicates no known rare plant species or natural heritage features occur in Sections 1, 2, 11, and 12, Township 26 North, Range 5 East, W.M. where the project is located, and the project area does not appear to provide known or suitable habitat for any state listed threatened or endangered plant species.

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- Appendix E — Wetland Rating Forms
- Appendix F — Summary Wetland Functional Assessment Forms

## Acronyms and Abbreviations

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BMP	best management practice
BPJ	best professional judgment
cfs	cubic feet per second
DNR	Washington State Department of Natural Resources
Ecology	Washington State Department of Ecology
LWD	large woody debris
MP	Mile Post
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
PEM	palustrine emergent
PFO	palustrine forested
PSS	palustrine scrub-shrub
ROW	right-of-way
SR	State Route
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington State Department of Fish and Wildlife
WMC	Woodinville Municipal Code
WSDOT	Washington State Department of Transportation
WRIA	Water Resource Inventory Area

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# Chapter 1. Introduction

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Otak, Inc was contracted by the City of Woodinville Public Works Department to design improvements to NE Woodinville-Duvall Road in the City of Woodinville, Washington. The project involves improvements along NE Woodinville-Duvall Road from approximately 400-feet west of 156<sup>th</sup> Avenue NE to 50-feet east of 171st Place NE to widen the existing two-lane roadway to three-lanes to provide a center turn lane as well as improved pedestrian and bicycle facilities. The project will also include improvements to existing: drainage systems, traffic signals, street lighting, and landscaping.

Proposed roadway widening and other improvements may impact adjacent wetland and stream habitats. The purpose of this report is to identify and describe wetlands and streams, and to identify possible sensitive plant, fish, and wildlife species in the project corridor. This report facilitates efforts to:

- Avoid or minimize impacts to wetlands and streams during the design process.
- Document wetland and stream boundary determinations for review by regulatory authorities.
- Provide early indications to project engineers of sensitive species within the project corridor.
- Provide background information for wetland mitigation reports if necessary.

The report will also provide support for permits and regulatory requirements relating to the wetlands and streams such as the Clean Water Act (Section 401 administered by Washington Department of Ecology and Section 404 administered by U.S. Army Corps of Engineers), Hydraulic Project Approval by the Washington Department of Fish and Wildlife, and Critical Areas regulations required by the City of Woodinville.

## Chapter 2. Proposed Project

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This chapter describes the key elements of the proposed project.

### 2.1 Location

The project area is located in the City of Woodinville, King County, Washington (Figure 1). The project includes the section of NE Woodinville-Duvall Road (also identified as NE 185<sup>th</sup> Street) from approximately 400 feet west of 156<sup>th</sup> Avenue NE to 50-feet east of 171st Place NE. Project area is located in Sections 1, 2, 11, and 12, Township 26 North, Range 5 East W.M. Land uses in the area include single-family residences, commercial businesses, a school, and forested open space. Drainage features in the project area include Lake Leota and Cold Creek. The City of Woodinville zoning for the project area is mainly residential (R-1, one unit per acre) with a neighborhood business area (NB) near the intersection with 156<sup>th</sup> Avenue NE (City of Woodinville, 2009a). The southeastern edge of the project area is adjacent to unincorporated King County (2009a), which is zoned rural (RA-2.5, minimum lot size of 2.5 acres).

### 2.2 Purpose and Description

The purpose of the Woodinville-Duvall Road Widening Project is to improve safety, reduce traffic congestion, and improve pedestrian and bicycle facilities. Under existing conditions, the project section of NE Woodinville-Duvall Road experiences excessive traffic congestion during peak commute hours and generates accidents. A traffic study predicts that by the Year 2030 the traffic congestion at both signalized and un-signalized intersections along NE Woodinville-Duvall Road will deteriorate even further (Transportation Engineering Northwest, 2009).

The majority of the public right-of-way (ROW) along NE Woodinville-Duvall Road is 60 feet wide, while the current roadway averages 40 feet wide. The existing roadway consists of two travel lanes and paved shoulders that are roughly centered within the ROW. The current shoulder, which varies from 6 to 8 feet wide, does not provide channelized or separated bicycle and pedestrian facilities. Currently, storm water runoff from roadway surfaces is conveyed in drainage ditches and pipes with no detention or treatment. Installation of both storm water detention and water quality facilities is proposed with this project which will improve water quality over existing conditions.

The proposed action involves improvements along NE Woodinville-Duvall Road from 156<sup>th</sup> Avenue NE to 171st Place NE to provide roadway widening, rechannelization, utility upgrades, and improved pedestrian and bicycle facility improvements. This project is approximately 1.1 miles in length and will provide two vehicular travel lanes, a center turn lane, bike lanes, and sidewalks on both sides. The proposed action will generally widen the roadway 10 feet on both the north and south sides of the existing pavement to the full width of the ROW.

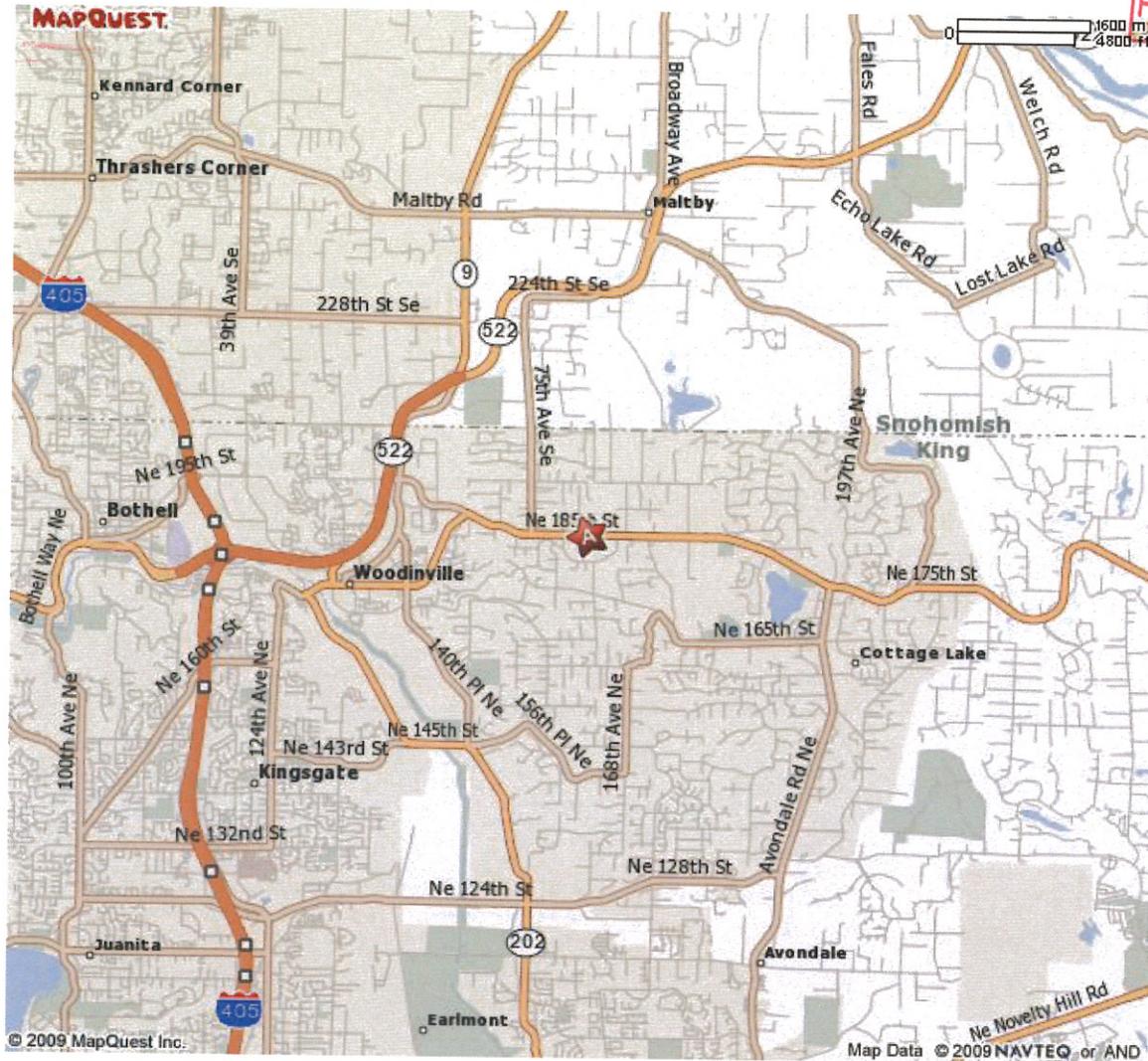


Figure 1. Vicinity Map for Woodinville-Duvall Road Widening Project.



**Figure 2. Wetlands and Stream Reaches Within the Project Corridor\*.**

The ordinary high water mark for Cold Creek is indicated on parcels where property access was obtained. The existing right-of-way is indicated by the dashed yellow line.

\*Project corridor extends 250 ft. west of 156<sup>th</sup> Ave. NE and east to 171<sup>st</sup> Pl. NE; however, no wetlands or streams occur in these portions of the project corridor.

## Chapter 3. Methods

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The methods used to assess wetland and stream habitat comply with federal, state, and local guidance and is consistent with Washington State Department of Transportation (WSDOT) requirements. A summary of the methods used is provided in Appendix A, Table A-1.

### Wetland Delineation

A wetland delineation of the study area was conducted by Doug Gresham and Suzanne Anderson of Otak on July 23, 2009. Additional wetland reconnaissance was conducted by Kevin O'Brien and Suzanne Anderson on August 15, 2010. Due to restricted access to adjacent private property, wetland delineation was limited to the public ROW. Wetland delineation followed the Routine Methodology as specified in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE, 2008), *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE, 2010), and the *Washington State Wetlands Identification and Delineation Manual* (Washington Department of Ecology 1997). Please see Appendix A for further details on methods used in this report.

Following routine methodology, data on vegetation, soils, and hydrology were collected in areas that appeared to have wetland characteristics. Data for wetland and upland plots were recorded on USACE field data sheets. Data plots and points along the wetland edges were marked with sequentially numbered pink-and-black-striped flagging that were subsequently surveyed.

Wetland determinations were informed by data from the National Wetland Inventory maps of the U.S. Fish and Wildlife Service (USFWS, 2009), King County critical area maps, the Soil Survey for King County (USDA, 2009), and aerial photos. See Appendix B for wetland inventory, topography, and soils maps.

The condition of wetland buffers within 100 feet of the current roadway edge was qualitatively assessed using the following criteria:

- Dominant land use (e.g., agriculture, residential, commercial, industrial).
- Dominant buffer vegetation type (tree, shrub, herb, vine, un-vegetated).
- Estimated percent cover of invasive plants by species.

### Stream Assessment

The project reaches of Cold Creek were surveyed by a pair of Otak scientists on July 23 and September 24, 2009. Visual assessments were made for the purpose of assessing stream habitat characteristics, fish access, identifying surrounding land use and factors that may affect water quality and describing the site as it may affect use by fish. The stream reaches were walked and the ordinary high water marks (OHWM) were delineated with survey flagging. Data were taken on substrate composition, substrate embeddedness, and bankful width and depth. Observations concerning bank or bed scour, riparian vegetative community and condition, percent canopy cover measurements, presence and relative abundance of invasive species and photo-documentation of the project reaches were performed. All of the reaches were dry at the time the surveys were conducted, so data on habitat units (pools, riffles, glides) and wetted widths and depths were not taken.

# Chapter 4. Existing Conditions

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## 4.1 Landscape Setting

The project area is located in the northwest corner of the Bear Creek drainage basin (Water Resource Inventory Area [WRIA] #08-0105), within the Lake Washington watershed (Williams *et al.*, 1975). Cold Creek (WRIA # 08-0126), a tributary of Bear Creek, flows from northwest to southeast through the project area. Cold Creek flows through Lake Leota and eventually combines with Cottage Lake Creek (WRIA #08-0122), approximately 1.25 miles downstream of the project area within the Cold Creek Natural Area (King County 2009b). The King County Wetland Inventory identifies Lake Leota as Big Bear Creek 9, a Class 2 wetland (King County, 1983).

Lake Leota has a contributing basin of 506 acres, is approximately 10.4 acres in size, and has a maximum depth of 23 feet (Falter, 2007). Lake Leota receives groundwater seepage and seasonal surface water inflow from three main channels (northwest, north, and south slopes) (Falter, 2007). The northwest inflow channel (Cold Creek) drains a 291-acre area; the north channel drains a 100-acre area; while the south inflow channel has a 115-acre contributing basin. Most of the inflow to Lake Leota is lost to groundwater recharge and evapo-transpiration. Outflow from Lake Leota only occurs sporadically during the winter season when water flows in Cold Creek at the northeast corner of the lake (Falter, 2007).

The National Wetlands Inventory (NWI) map of the project area identifies Lake Leota as containing palustrine unconsolidated bed permanently flooded wetland; palustrine aquatic bed permanently flooded wetland; and palustrine emergent and scrub/shrub wetland habitat that is seasonally flooded (USFWS, 2009). The NWI map also identifies a palustrine scrub/shrub wetland that is seasonally flooded at the northeast corner of NE Woodinville-Duvall Road and 162<sup>nd</sup> Avenue NE. This wetland forms the north inflow channel to Lake Leota. The NWI map is located in Appendix B.

The City of Woodinville Critical Areas map of the project area identifies several critical areas in the project vicinity: Cold Creek as a Type 4 stream with a 50-foot buffer; steep slopes (30-40+ percent) on the south side of NE Woodinville-Duvall Road near 156<sup>th</sup> Avenue NE; and several wetlands (City of Woodinville, 2009a). This includes wetlands associated with Lake Leota, a wetland at the northeast corner of NE Woodinville-Duvall Road and 162<sup>nd</sup> Avenue NE, and a wetland on the south side of NE Woodinville-Duvall Road near 156<sup>th</sup> Avenue NE. In addition, the entire area surrounding Lake Leota, including all of the proposed project area, is considered a Category 2 Critical Aquifer Recharge Area by the City of Woodinville.

Topography in the project area generally slopes from northwest to southeast. The highest point occurs near the intersection of 156<sup>th</sup> Avenue NE, while the lowest areas are near Lake Leota and 168<sup>th</sup> Avenue NE. The Cold Creek valley and Lake Leota bisect the project area from northwest to southeast but there is small rise near 167<sup>th</sup> Avenue NE. Elevations range from 325 feet above mean sea level at the eastern end of the project alignment to 445 feet at the western end of the alignment. The topographic map is located in Appendix B.

## 4.2 Wetlands

### 4.2.1 Overview

A total of four wetlands (Wetlands 1 through 4, from east to west) were delineated within the public ROW of NE Woodinville-Duvall Road. Due to access limitations, only the portions of wetlands located within the ROW could be delineated. Wetland 1 is located southwest of the intersection of NE Woodinville-Duvall Road and 167<sup>th</sup> Avenue NE, and is associated with the seasonal reach of Cold Creek as it outlets from Lake Leota. A small portion of Wetland 1 extends southward out of the ROW, and so was not delineated. Wetland 2 is located northwest of the intersection of NE Woodinville-Duvall Road and 165<sup>th</sup> Avenue NE. Only the portion of Wetland 2 located within the ROW was delineated – Wetland 2 extends northward in a wide, swale-like depression along the east side of the Rainbow Montessori School parcel. Wetlands 3 and 4 are located along the south shoulder of NE Woodinville-Duvall Road near 156<sup>th</sup> Avenue NE. Appendix C illustrates the location of these wetlands within the project area. Appendices D, E, and F include the wetland delineation data sheets, wetland rating forms, and function assessment summary forms, respectively.

Wetland 1 is associated with the Cold Creek channel that intermittently experiences flows out of Lake Leota. Wetland 2 consists of a wide linear depression feature that is seasonally ponded due to a clogged culvert underneath NE Woodinville-Duvall Road. Both Wetlands 1 and 2 consist of palustrine scrub/shrub wetland classes (Cowardin et al., 1979). Wetland 2 also has a forested wetland class. Wetlands 3 and 4 are segments of a drainage ditch located along the shoulder of NE Woodinville-Duvall Road. In addition, both wetlands include areas of groundwater seeps that appear to have been exposed by the road-cut. The vegetation in both Wetlands 3 and 4 consists of palustrine emergent wetland classes (Cowardin et al., 1979).

According to the hydrogeomorphic classification system (Brinson, 1993), Wetland 1 is riverine, Wetland 2 is depressional, and Wetlands 3 and 4 are slope wetlands. Based on the Washington Department of Ecology *Wetland Rating System for Western Washington* (Hruby, 2004), Wetlands 1 and 2 are Category III, while Wetlands 3 and 4 are Category IV. The City of Woodinville (2009b) critical area regulations [Woodinville Municipal Code (WMC) 21.24.320] rate Wetland 1 as Class 3 because, although it is associated with Cold Creek, the City has rated this portion of Cold Creek as a Type 4 stream. Wetlands 2 through 4 are also rated as Class 3 wetlands, per WMC. WMC requires 50-foot buffers for Class 3 wetlands. Although Wetlands 3 and 4 receive some hydrology from seeps from the road-cut slope to the south, because they are roadside ditches created out of uplands they may be non-jurisdictional by the City of Woodinville (Woodinville Municipal Code 21.06.710), Washington State Department of Ecology [WAC 173-22-030(19)], or the U.S. Army Corps of Engineers (<http://www.epa.gov/owow/wetlands/pdf/RapanosGuidance6507.pdf>). Table 1 summarizes this wetland classification information.

**Table 1. Wetlands within the Woodinville-Duvall Road Widening Project area.**

Wetland	Wetland Classification				Wetland Size (Square Feet)	Buffer Width (feet) <sup>E</sup>
	Cowardin <sup>A</sup>	HGM <sup>B</sup>	Ecology <sup>C</sup>	Woodinville <sup>D</sup>		
1	PSS	Riverine	III	3	unknown: extends out of study area; 48 SF within ROW	50
2	PSS	Depressional	III	3	unknown: extends out of study area; 143 SF within ROW	50
3 <sup>F</sup>	PEM	Slope	IV	3	130 SF	50
4 <sup>F</sup>	PEM	Slope	IV	3	440 SF	50
<b>Total</b>					unknown	

**Notes:**

- A. Cowardin et al. (1979) class based on vegetation: PEM = Palustrine Emergent; PSS = Palustrine Scrub-Shrub.
- B. HGM is hydrogeomorphic classification according to Brinson (1993).
- C. Wetlands rated according to Washington State Department of Ecology (Hruby, 2004).
- D. Wetlands rated according to Woodinville Municipal Code 21.24.320, which only has three wetland categories.
- E. Wetland buffer width according to Woodinville Municipal Code 21.24.330.
- F. Although Wetlands 3 and 4 receive some hydrology from seeps from the road-cut slope to the south, because they are roadside ditches created out of uplands they may be non-jurisdictional by the City of Woodinville (Woodinville Municipal Code 21.06.710), Washington State Department of Ecology [WAC 173-22-030(19)], or the U.S. Army Corps of Engineers (<http://www.epa.gov/owow/wetlands/pdf/RapanosGuidance6507.pdf>).

Table 2. Wetland 1 Summary.

<b>WETLAND 1- INFORMATION SUMMARY</b>		
<b>Location:</b>	Southwest of the intersection of NE Woodinville-Duvall Road and 167 <sup>th</sup> Avenue NE, at the inlet to the culvert under 167 <sup>th</sup> Avenue NE	
	<b>Local Jurisdiction</b>	City of Woodinville
	<b>WRIA</b>	08-0126
	<b>Ecology Rating</b>	Category III
	<b>City of Woodinville Rating</b>	Class 3
	<b>City of Woodinville Buffer Width</b>	50 feet
	<b>Wetland Size</b>	unknown: extends out of study area
	<b>Cowardin Classification</b>	PSS
	<b>HGM Classification</b>	Riverine
	<b>Wetland Data Sheet(s)</b>	WL1-SP1
	<b>Upland Data Sheet (s)</b>	WL1-SP2
<b>Flag color</b>	Pink and black stripes	
<b>Dominant Vegetation</b>	<i>Rubus spectabilis</i> , <i>Tolmiea menziesii</i> , <i>Geranium robertianum</i> , and <i>Geum macrophyllum</i> .	
<b>Soils</b>	0-7" 10YR 2/2 sandy silt with redox features; 7-19" 10YR 3/2 gravelly sand with redox features.	
<b>Hydrology</b>	Intermittently flowing stream channel with moist soil and oxidized rhizospheres.	
<b>Rationale for Delineation</b>	Satisfies all three wetland criteria and is identified as stream channel on maps.	
<b>Rationale for Local Rating</b>	Does not meet criteria for Class 1 or 2 wetlands - although Wetland 1 is associated with Cold Creek, Cold Creek is a Type 4 stream in this area.	
<b>Wetland Functions Summary</b>		
<b>Water Quality</b>	Due to small size, WL 1 has limited potential to remove sediment, nutrients, and toxicants from road runoff and Cold Creek (discharging out of Lake Leota).	
<b>Hydrologic</b>	Although it has woody vegetation and water may pond during storm events, WL 2 has limited potential to alter flood flow and stabilize banks from erosion due to its small size.	
<b>Habitat</b>	Due to small size, WL 1 has limited production and export of organic matter, and provides limited general habitat for wildlife due to proximity to NE Woodinville-Duvall Rd.	
<b>Buffer Condition</b>	Half of the buffer consists of paved roads while the other half is second-growth mixed deciduous-coniferous forest that provides relatively good wildlife habitat and some connectivity to Lake Leota.	

Table 3. Wetland 2 Summary.

<b>WETLAND 2 – INFORMATION SUMMARY</b>		
<b>Location:</b>	On the north side of NE Woodinville-Duvall Road, west of the intersection with 165 <sup>th</sup> Ave NE, in a wide swale-like depression along the east side of the Rainbow Montessori School parcel	
	<b>Local Jurisdiction</b>	City of Woodinville
	<b>WRIA</b>	08-0126
	<b>Ecology Rating</b>	Category III
	<b>City of Woodinville Rating</b>	Class 3
	<b>City of Woodinville Buffer Width</b>	50 feet
	<b>Wetland Size</b>	unknown: extends out of study area
	<b>Cowardin Classification</b>	PSS/PFO
	<b>HGM Classification</b>	Depressional
	<b>Wetland Data Sheet(s)</b>	WL2-SP1
	<b>Upland Data Sheet (s)</b>	WL2-SP2
<b>Flag color</b>	Pink and black stripes	
<b>Dominant Vegetation</b>	<i>Lonicera involucrata</i> and <i>Alnus rubra</i>	
<b>Soils</b>	0-10" 10YR 3/2 sandy silt with redox features, 10-15" 7.5YR 3/2 gravelly sandy silt with redox features.	
<b>Hydrology</b>	Seasonal ponding due to constricted outlet (clogged culvert) and road impoundment.	
<b>Rationale for Delineation</b>	Satisfies all three wetland criteria.	
<b>Rationale for Local Rating</b>	Does not meet criteria for Class 1 or 2 wetlands.	
<b>Wetland Functions Summary</b>		
<b>Water Quality</b>	Provides some functions to remove sediment, nutrients, and toxicants from upstream sources.	
<b>Hydrologic</b>	Provides some flood flow alteration due to crushed culvert that slows runoff and bowl-like shape at south end of wetland (adjacent to the road).	
<b>Habitat</b>	WL 2 produces organic matter, although export may be limited by the clogged culvert. The relatively dense shrub and forest cover in the WL (outside of the ROW) provides some habitat for non-wetland dependant birds and small mammals.	
<b>Buffer Condition</b>	The southern portion of the 50-foot buffer consists of paved road. The remainder of the buffer includes forested portions, mowed lawn, and buildings.	

Table 4. Wetland 3 Summary.

WETLAND 3 – INFORMATION SUMMARY		
<b>Location:</b>	Ditch along the south shoulder of NE Woodinville-Duvall Road, east of 156 <sup>th</sup> Avenue NE, across the street from the Hilltop Center stores.	
	<b>Local Jurisdiction</b>	City of Woodinville
	<b>WRIA</b>	08-0126
	<b>Ecology Rating*</b>	Category IV*
	<b>City of Woodinville Rating*</b>	Class 3*
	<b>City of Woodinville Buffer Width</b>	50 feet*
	<b>Wetland Size</b>	130 square feet
	<b>Cowardin Classification</b>	PEM
	<b>HGM Classification</b>	Slope
	<b>Wetland Data Sheet(s)</b>	WL3-SP1
	<b>Upland Data Sheet (s)</b>	WL4-SP3
<b>Flag color</b>	Pink and black stripes	
<b>Dominant Vegetation</b>	<i>Phalaris arundinacea</i>	
<b>Soils</b>	0-5" 7.5YR 2.5/1 mucky silt; 5-12" 4/10BG gleyed sand; 12-14" 4/10BG gleyed sand with redox features; 14-18" 2.5Y 4/2 sandy loam	
<b>Hydrology</b>	Primarily road runoff; groundwater seeps on cut slope flow into drainage ditch.	
<b>Rationale for Delineation</b>	Satisfies all three wetland criteria.	
<b>Rationale for Local Rating</b>	Does not meet criteria for Class 1 or 2 wetlands.	
Wetland Functions Summary		
<b>Water Quality</b>	Functions to remove sediment, nutrients, and toxicants from road runoff.	
<b>Hydrologic</b>	Does not provide any hydrologic functions.	
<b>Habitat</b>	Does not provide any habitat functions except limited production and export of organic matter.	
<b>Buffer Condition</b>	Half of the buffer consists of paved road while the other half is immature deciduous forest that provides some wildlife habitat.	

\* Although Wetland 3 receives some hydrology from seeps from the road-cut slope to the south, because it is a roadside ditch created out of uplands, it may be non-jurisdictional by the City of Woodinville (Woodinville Municipal Code 21.06.710), Washington State Department of Ecology [WAC 173-22-030(19)], or the U.S. Army Corps of Engineers (<http://www.epa.gov/owow/wetlands/pdf/RapanosGuidance6507.pdf>).

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Table 5. Wetland 4 Summary.

WETLAND 4 – INFORMATION SUMMARY		
<b>Location:</b>	Ditch along the south shoulder of NE Woodinville-Duvall Road, east of 156 <sup>th</sup> Avenue NE, across the street from the gas station.	
	<b>Local Jurisdiction</b>	City of Woodinville
	<b>WRIA</b>	08-0126
	<b>Ecology Rating*</b>	Category IV*
	<b>City of Woodinville Rating*</b>	Class 3*
	<b>City of Woodinville Buffer Width</b>	50 feet*
	<b>Wetland Size</b>	440 square feet
	<b>Cowardin Classification</b>	PEM
	<b>HGM Classification</b>	Slope
	<b>Wetland Data Sheet(s)</b>	WL4-SP1 & WL4-SP2
	<b>Upland Data Sheet (s)</b>	WL4-SP3
<b>Flag color</b>	Pink and black stripes	
<b>Dominant Vegetation</b>	<i>Phalaris arundinacea</i>	
<b>Soils</b>	0-4" 10YR 3/2 silty sand, 4-11" 2.5Y 4/1 sandy loam with redox features, 11-16" 2.5Y 4/2 sandy loam	
<b>Hydrology</b>	Primarily road runoff; groundwater seeps on cut slope flow into drainage ditch.	
<b>Rationale for Delineation</b>	Satisfies all three wetland criteria.	
<b>Rationale for Local Rating</b>	Does not meet criteria for Class 1 or 2 wetlands.	
Wetland Functions Summary		
<b>Water Quality</b>	Functions to remove sediment, nutrients, and toxicants from road runoff.	
<b>Hydrologic</b>	Does not provide any hydrologic functions.	
<b>Habitat</b>	Does not provide any habitat functions except limited production and export of organic matter.	
<b>Buffer Condition</b>	Half of the buffer consists of paved road while the other half is immature deciduous forest that provides some wildlife habitat.	

\* Although Wetland 4 receives some hydrology from seeps from the road-cut slope to the south, because it is a roadside ditch created out of uplands, it may be non-jurisdictional by the City of Woodinville (Woodinville Municipal Code 21.06.710), Washington State Department of Ecology [WAC 173-22-030(19)], or the U.S. Army Corps of Engineers (<http://www.epa.gov/owow/wetlands/pdf/RapanosGuidance6507.pdf>).

**Table 6. Wetland Summary by Classification.**

Classification System	Class	Area (Square Feet)*	Percent of Total Area*
<b>USFWS (Cowardin et al., 1979)</b>	POW	0	0
	PEM	570 SF	75%
	PSS	191 SF	25%
	PFO	0	0
	<b>Total</b>	<b>761 SF</b>	
<b>Washington Department of Ecology (Hruby, 2004)</b>	I	0	0
	II	0	0
	III	191 SF	25%
	IV	570 SF	75%
	<b>Total</b>	<b>761 SF</b>	
<b>City of Woodinville (2009)</b>	1	0	0
	2	0	0
	3	761 SF	100%
	<b>Total</b>	<b>761 SF</b>	
<b>Hydrogeomorphic Class</b>	Riverine	48 SF	6%
	Depressional Outflow	143 SF	19%
	Slope	570 SF	75%
	<b>Total</b>	<b>761 SF</b>	

\* Only includes wetland square footage delineated within the ROW - Wetlands 1 and 2 extend out of the ROW

**Soils**

The King County soil survey indicates that the majority of the project area consists of Alderwood gravelly sandy loam on 6-15 percent slopes, while Everett gravelly sandy loam on 15-30 percent slopes is mapped near 156<sup>th</sup> Avenue NE (USDA, 2009). The Soil Survey map is located in Appendix B. The Alderwood soil series is a moderately well drained soil that formed under conifers in glacial deposits. The typical soil profile consists of dark brown to gray gravelly sandy loam with a strongly consolidated till layer below 27 inches. The Everett soil series is a somewhat excessively drained soil that formed on terraces in glacial outwash deposits.

**Vegetation**

The plant communities in the portions of Wetlands 1 through 4 that lie within public ROW are restricted to shrub and herbaceous species due to periodic mowing. See Appendix B for a list of existing plant species within the project area. The dominant species in Wetland 1 consist of salmonberry, red elderberry, piggy-back-plant, and large-leaved avens. Only a small portion of Wetland 2 is mowed. The dominant species in Wetland 2 within the ROW is black twinberry,

with a forested fringe of alder outside of the ROW. A large patch of non-native invasive Himalayan blackberry is rooted outside the wetland, surrounding the south (roadside) end. Both Wetlands 3 and 4 (ditch segments) are dominated by reed canarygrass.

## Hydrology

Although the wetland delineation on July 23, 2009 was performed during a record setting period without rain, evidence of hydrology was observed in Wetlands 1 through 4. In Wetland 1, signs of hydrology included sediment deposition and scouring from flowing water during the winter season. Within Wetland 2, there was evidence that seasonal ponding occurred in this depression, and the soils were still moist. Both Wetlands 3 and 4 (ditch segments) had indicators of hydrology such as evidence of periodic flow and saturated soil from groundwater seeps.

### 4.2.2 Wetland Buffers

The south and west portions of buffer vegetation surrounding the Cold Creek channel in Wetland 1 consists of mixed coniferous/deciduous forest dominated by native species, with less than 5 percent cover by non-native invasive species. The adjacent parcels have single family residences that are set back from the stream. The north and east portions of the 50-foot buffer include paved roads (NE Woodinville-Duvall Road and 167<sup>th</sup> Avenue NE). The buffer of Wetland 2 includes NE Woodinville-Duvall Road to the south, and adjacent residential properties to the west and north. There are some deciduous trees and native shrubs in the 50-foot buffer, but the portion located within the ROW also contains approximately 40 percent aerial cover by non-native invasive species (Himalayan blackberries). The 50-foot buffers of Wetlands 3 and 4 (ditch segments) are evenly split—half of the buffer consists of NE Woodinville-Duvall Road, and the other half is an immature mixed forest on the road-cut slope. Adjacent land uses near the buffers include commercial development near 156<sup>th</sup> Avenue NE to the north and residential properties at the top of the cut slope to the south.



Figure 3. Photo of Wetland 1 Buffer



Figure 4. Photo of Wetland 2 Buffer



Figure 5. Photo of Wetlands 3 and 4 Buffer

### 4.2.3 Wetland Functions

Wetland functions were evaluated using the *Wetland Functions Characterization Tool for Linear Projects* (BPJ) (Null et al., 2000). See Tables 2 through 5 above, Table 7 below, and Summary Tables in Appendix F.

**Table 7. Functions and Values of Wetlands 1 through 4.**

Function/Value <sup>a</sup>	Wetland			
	1	2	3	4
<b>Water Quality Functions</b>				
Sediment Removal	x	x	x	x
Nutrient and Toxicant Removal	x	x	x	x
<b>Hydrologic Functions</b>				
Flood Flow Alteration	x	+	-	-
Erosion Control & Shoreline Stabilization	x	-	-	-
<b>Habitat Functions</b>				
Production & Export of Organic Matter	x	x	x	x
General Habitat Suitability	x	x	-	-
Habitat for Aquatic Invertebrates	-	-	-	-
Habitat for Amphibians	-	-	-	-
Habitat for Wetland-Associated Mammals	-	-	-	-
Habitat for Wetland-Associated Birds	-	-	-	-
General Fish Habitat	-	-	-	-
Native Plant Richness	x	x	-	-
Educational or Scientific Value	-	-	-	-
Uniqueness and Heritage	-	-	-	-

<sup>a</sup>: “-” means that the function is not present; “x” means that the function is present is of lower quality; and “+” means the function is present and is of higher quality.

**Water Quality:** All four wetlands (including the two ditch segments) have low to moderate opportunity and potential to remove sediment, excess nutrients, and toxicants.

**Hydrologic Functions:** All four wetlands have the opportunity to retain or attenuate flood waters (e.g. they receive water from seasonal streams or stormwater runoff). However, due to their small size, Wetlands 1 and 2 have only low to moderate potential (respectively) to perform these hydrologic functions. Wetlands 3 and 4 (ditch segments) are designed to convey water, so they do not retain water. Although Wetland 1 is associated with a seasonal stream, it provides only a low level of shoreline stabilization due to its small size, while Wetland 2 does not have the opportunity to perform the function. Wetlands 3 and 4 (ditch segments) have low potential and opportunity to control erosion.

**Habitat:** None of the wetlands provide habitat for aquatic invertebrates, amphibians, fish, or

wetland associated mammals or birds. Due to relatively low diversity of native plant species, Wetlands 1 and 2 provide low levels of general habitat functions, while Wetlands 3 and 4 (segments) provide no habitat functions other than production and export of organic matter. Wetlands 1 and 2 also produce organic matter, but due to a clogged culvert Wetland 2 may not have the opportunity to export it.

Uniqueness and Heritage: None of the four wetlands delineated have been officially designated by USFWS, Washington State Department of Natural Resources' (DNR) Natural Heritage Program, or Washington State Department of Fish and Wildlife's (WDFW) Priority Habitats and Species Program.

### 4.3 Streams

The stream that runs through and adjacent to the project site is known locally as Cold Creek, and it appears to convey water into and out of Lake Leota on an intermittent basis—the stream was dry during site visits conducted in July and September 2009, and appeared to convey water relatively infrequently, likely only during or shortly subsequent to storm events..

Within the project vicinity, four reaches of Cold Creek were identified (Figure 2) and are described below. Reaches 1 and 2 are upgradient of Lake Leota and eventually convey water into the lake—Reach 1 is located north of NE Woodinville-Duvall Road and northeast of NE Woodinville-Duvall Place, and Reach 2 is located to the south of NE Woodinville-Duvall Road and east of 106<sup>th</sup> Ave. NE. Reaches 3 and 4 are downgradient of Lake Leota and convey water away from the lake—Reach 3 is located south of NE Woodinville-Duvall Road and immediately west of 167<sup>th</sup> Ave. NE, and Reach 4 is south of NE Woodinville-Duvall Road and west of 168<sup>th</sup> Place NE.

All four reaches show a channelized morphology that alternates with broader sheet flow patterns that are more characteristic of a wetland-stream complex. Reach 4 loses channelization south of the ROW, and appears to completely transition to a wetland complex outside of the project area and beyond the Woodinville city limits. Tables 8-11, below, provide additional information on each project reach.

**Table 8. Stream information summary—Cold Creek, Reach 1.**

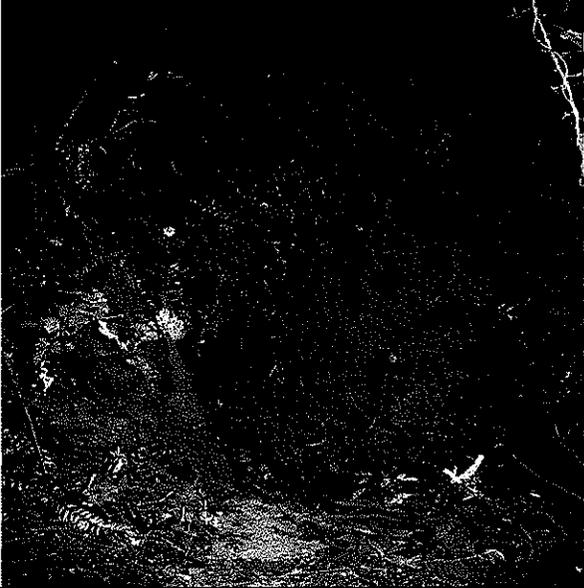
<b>STREAM INFORMATION SUMMARY</b>																	
	<table border="1"> <tr> <td><b>Stream Name</b></td> <td>Cold Creek</td> </tr> <tr> <td><b>WRIA</b></td> <td>08</td> </tr> <tr> <td><b>WA Stream Catalog #</b></td> <td>08-0126</td> </tr> <tr> <td><b>Local Jurisdiction</b></td> <td>Woodinville</td> </tr> <tr> <td><b>DNR Stream Type</b></td> <td>Reach 1 untyped</td> </tr> <tr> <td><b>Local Stream Rating</b></td> <td>Type 4</td> </tr> <tr> <td><b>Buffer Width</b></td> <td>50 ft.</td> </tr> <tr> <td><b>Documented Fish Use</b></td> <td>No documented fish use</td> </tr> </table>	<b>Stream Name</b>	Cold Creek	<b>WRIA</b>	08	<b>WA Stream Catalog #</b>	08-0126	<b>Local Jurisdiction</b>	Woodinville	<b>DNR Stream Type</b>	Reach 1 untyped	<b>Local Stream Rating</b>	Type 4	<b>Buffer Width</b>	50 ft.	<b>Documented Fish Use</b>	No documented fish use
	<b>Stream Name</b>	Cold Creek															
	<b>WRIA</b>	08															
	<b>WA Stream Catalog #</b>	08-0126															
	<b>Local Jurisdiction</b>	Woodinville															
	<b>DNR Stream Type</b>	Reach 1 untyped															
	<b>Local Stream Rating</b>	Type 4															
<b>Buffer Width</b>	50 ft.																
<b>Documented Fish Use</b>	No documented fish use																
<b>Location of Stream Relative to Project Corridor</b>	North of NE Woodinville-Duvall Road, east of NE Woodinville-Duvall Place. Reach 1 enters a culvert outside of the project ROW, and the entire reach lies outside of the project ROW.																
<b>Connectivity (where stream flows from/to)</b>	During storm events, Reach 1 flows from properties to the north of NE Woodinville-Duvall Road to a 24" culvert running north-south beneath NE Woodinville-Duvall Road.																
<b>Riparian/Buffer Condition</b>	Riparian vegetation consists of mixed forest (primarily deciduous) and shrubs, with cottonwood, big-leaf maple, western cedar, and Douglas fir comprising the overstory, and vine maple, Himalayan blackberry, trailing blackberry, hawthorn, holly, Indian plum, salmonberry, willow, and hazelnut comprising the shrub understory. Sword fern, bindweed, creeping buttercup, and lady fern comprise the primary herbaceous species. The riparian corridor associated with Reach 1 ranges from approximately 40 feet near the eastern end of the reach to approximately 200 feet near the western end, and is bounded by NE Woodinville-Duvall Road and NE Woodinville-Duvall Place to the south and southwest, and residential lawns and landscaping to the north and northeast.																

Table 9. Stream information summary—Cold Creek, Reach 2.

STREAM INFORMATION SUMMARY																	
	<table border="1"> <tr> <td><b>Stream Name</b></td> <td>Cold Creek</td> </tr> <tr> <td><b>WRIA</b></td> <td>08</td> </tr> <tr> <td><b>WA Stream Catalog #</b></td> <td>08-0126</td> </tr> <tr> <td><b>Local Jurisdiction</b></td> <td>Woodinville</td> </tr> <tr> <td><b>DNR Stream Type</b></td> <td>Type F (modeled)</td> </tr> <tr> <td><b>Local Stream Rating</b></td> <td>Type 4</td> </tr> <tr> <td><b>Buffer Width</b></td> <td>50 ft.</td> </tr> <tr> <td><b>Documented Fish Use</b></td> <td>No documented fish use</td> </tr> </table>	<b>Stream Name</b>	Cold Creek	<b>WRIA</b>	08	<b>WA Stream Catalog #</b>	08-0126	<b>Local Jurisdiction</b>	Woodinville	<b>DNR Stream Type</b>	Type F (modeled)	<b>Local Stream Rating</b>	Type 4	<b>Buffer Width</b>	50 ft.	<b>Documented Fish Use</b>	No documented fish use
	<b>Stream Name</b>	Cold Creek															
	<b>WRIA</b>	08															
	<b>WA Stream Catalog #</b>	08-0126															
	<b>Local Jurisdiction</b>	Woodinville															
	<b>DNR Stream Type</b>	Type F (modeled)															
	<b>Local Stream Rating</b>	Type 4															
	<b>Buffer Width</b>	50 ft.															
<b>Documented Fish Use</b>	No documented fish use																
<b>Location of Stream Relative to Project Corridor</b>	South of NE Woodinville-Duvall Road and east of 106 <sup>th</sup> Ave. NE. Reach 2 begins at a culvert outside of the project ROW and ends, and the entire reach lies outside of the project ROW.																
<b>Connectivity (where stream flows from/to)</b>	During storm events, Reach 2 flows from the 24" culvert running south beneath NE Woodinville-Duvall Road to a 24" wide by 18" tall culvert running northwest-southeast beneath 160 <sup>th</sup> Ave. NE. The southeast, downstream end of the culvert was perched approximately 3 feet above the substrate at the time of the site visit, and very likely poses a fish passage barrier during all or most of the year.																
<b>Riparian/Buffer Condition</b>	The riparian corridor associated with Reach 2 consists of mixed forest habitat to the north and disturbed shrub/herbaceous and lawn/landscaped habitat to the south. The forested riparian vegetation consists of big-leaf maple, red alder, western cedar, and western hemlock in the overstory, and vine maple, red huckleberry, salal, hawthorn, salmonberry, and hazelnut comprising the shrub understory. Sword fern, skunk cabbage, creeping buttercup, large-leaved avens, and lady fern comprise the primary herbaceous species. Japanese knotweed is a common invasive species. The riparian habitat to the south is disturbed and consists of lawn (grass species and creeping buttercup) to the west and invasive and/or pioneer species to the east—Himalayan blackberry, reed canarygrass, horsetail, herb-Robert, nettle, etc. Some native shrub species, such as salmonberry and alder saplings are also present.																

EXHIBIT 9  
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**Table 10. Stream information summary—Cold Creek, Reach 3.**

<b>STREAM INFORMATION SUMMARY</b>																	
	<table border="1"> <tr> <td><b>Stream Name</b></td> <td>Cold Creek</td> </tr> <tr> <td><b>WRIA</b></td> <td>08</td> </tr> <tr> <td><b>WA Stream Catalog #</b></td> <td>08-0126</td> </tr> <tr> <td><b>Local Jurisdiction</b></td> <td>Woodinville</td> </tr> <tr> <td><b>DNR Stream Type</b></td> <td>Type F (modeled)</td> </tr> <tr> <td><b>Local Stream Rating</b></td> <td>Type 4</td> </tr> <tr> <td><b>Buffer Width</b></td> <td>50 ft.</td> </tr> <tr> <td><b>Documented Fish Use</b></td> <td>No documented fish use</td> </tr> </table>	<b>Stream Name</b>	Cold Creek	<b>WRIA</b>	08	<b>WA Stream Catalog #</b>	08-0126	<b>Local Jurisdiction</b>	Woodinville	<b>DNR Stream Type</b>	Type F (modeled)	<b>Local Stream Rating</b>	Type 4	<b>Buffer Width</b>	50 ft.	<b>Documented Fish Use</b>	No documented fish use
	<b>Stream Name</b>	Cold Creek															
	<b>WRIA</b>	08															
	<b>WA Stream Catalog #</b>	08-0126															
	<b>Local Jurisdiction</b>	Woodinville															
	<b>DNR Stream Type</b>	Type F (modeled)															
	<b>Local Stream Rating</b>	Type 4															
	<b>Buffer Width</b>	50 ft.															
<b>Documented Fish Use</b>	No documented fish use																
<p><b>Location of Stream Relative to Project Corridor</b></p>	South of NE Woodinville-Duvall Road and immediately west of 167 <sup>th</sup> Ave. NE																
<p><b>Connectivity (where stream flows from/to)</b></p>	Reach 3 flows from Lake Leota northeastward to just south of NE Woodinville-Duvall Road, continuing eastward to a 24" culvert running west-east beneath 167 <sup>th</sup> Ave. NE																
<p><b>Riparian/Buffer Condition</b></p>	The riparian corridor associated with Reach 3 within the project area consists of mixed forest habitat to the south and the highly disturbed, mowed shoulder and paved roadway of NE Woodinville-Duvall Road to the north. The forested riparian vegetation consists primarily of big-leaf maple and western cedar in the overstory, and vine maple, red huckleberry, Indian plum, salmonberry, and hazelnut comprising the shrub understory. Sword fern, piggyback plant, herb-Robert, large-leaved avens, and lady fern comprise the primary herbaceous species.																

Table 11. Stream information summary—Cold Creek, Reach 4.

STREAM INFORMATION SUMMARY																	
	<table border="1"> <tr> <td><b>Stream Name</b></td> <td>Cold Creek</td> </tr> <tr> <td><b>WRIA</b></td> <td>08</td> </tr> <tr> <td><b>WA Stream Catalog #</b></td> <td>08-0126</td> </tr> <tr> <td><b>Local Jurisdiction</b></td> <td>Woodinville</td> </tr> <tr> <td><b>DNR Stream Type</b></td> <td>Type F (modeled)</td> </tr> <tr> <td><b>Local Stream Rating</b></td> <td>Type 4</td> </tr> <tr> <td><b>Buffer Width</b></td> <td>50 ft.</td> </tr> <tr> <td><b>Documented Fish Use</b></td> <td>No documented fish use</td> </tr> </table>	<b>Stream Name</b>	Cold Creek	<b>WRIA</b>	08	<b>WA Stream Catalog #</b>	08-0126	<b>Local Jurisdiction</b>	Woodinville	<b>DNR Stream Type</b>	Type F (modeled)	<b>Local Stream Rating</b>	Type 4	<b>Buffer Width</b>	50 ft.	<b>Documented Fish Use</b>	No documented fish use
	<b>Stream Name</b>	Cold Creek															
	<b>WRIA</b>	08															
	<b>WA Stream Catalog #</b>	08-0126															
	<b>Local Jurisdiction</b>	Woodinville															
	<b>DNR Stream Type</b>	Type F (modeled)															
	<b>Local Stream Rating</b>	Type 4															
	<b>Buffer Width</b>	50 ft.															
<b>Documented Fish Use</b>	No documented fish use																
<b>Location of Stream Relative to Project Corridor</b>	South of NE Woodinville-Duvall Road and west of 168 <sup>th</sup> Place NE.																
<b>Connectivity (where stream flows from/to)</b>	Reach 4 flows from a 24" culvert emerging on the south side of NE Woodinville-Duvall Road, continuing southward into a private parcel and transitioning to a scrub/shrub wetland complex on the large, Bellevue Christian School-owned parcel to the southeast. Eventually flow is conveyed through a series of wetland complexes and stream reaches to the Cold Creek and Basset Pond Natural Areas, and from there to a confluence with Cottage Lake Creek.																
<b>Riparian/Buffer Condition</b>	The riparian corridor associated with Reach 4 within the project area consists of a disturbed, mixed forest habitat to the south and the highly disturbed, mowed shoulder and paved roadway of NE Woodinville-Duvall Road to the north. The forested riparian vegetation consists primarily of big-leaf maple Douglas fir, and holly, with hawthorn, Himalayan blackberry, and Indian plum in the shrub layer and English ivy comprising a common non-native invasive in the vicinity.																

#### 4.4 Sensitive Plants, Fish, and Wildlife

Separate ESA compliance documentation will be prepared to address federally listed threatened or endangered species. The project area does not appear to provide known or suitable habitat for any state listed threatened or endangered fish or wildlife species. The Department of Natural Resources (DNR) indicates no known rare plant species or natural heritage features occur in the Township, Range, and Section where the project is located, and the project area does not appear to provide known or suitable habitat for any state listed threatened or endangered plant species.

## **Chapter 5. Impacts and Mitigation**

Impacts to the roadside wetlands were avoided by designing the project to remain outside of the delineated wetland edges wherever possible, and were minimized by limiting incursions into the wetlands to the extent possible. A minor amount of wetland fill, constituting less than 400 square feet, is anticipated due to project construction. The roadside wetlands to be impacted by fill are of very low functional value, and which may be non-jurisdictional per the City of Woodinville and the Corps in any case. Impacts to these wetlands fall below the Corps threshold for which mitigation is required. If these wetlands are considered jurisdictional by the City of Woodinville and if any mitigation is required by the City for wetland impacts, mitigation will be accomplished in conjunction with the off-site stream mitigation approach currently being developed for the project (see below).

While construction will occur in the vicinity of Cold Creek and within the road prism where the stream crosses NE Woodinville-Duvall Rd., no direct adverse impacts to that system will occur. All culvert replacement activity will take place during the summer months when no flow/surface water is present in the project reaches of Cold Creek, avoiding direct impacts to the system. Any vegetation in the vicinity of Cold Creek removed during construction will be replaced. As noted above, long-term impacts to Cold Creek are anticipated to be slightly beneficial, as currently untreated runoff that discharges into the system will be treated under proposed conditions. Potential adverse impacts related to the project will be avoided and minimized through construction timing and appropriate BMPs.

The project proposes to replace the 24" concrete culvert running beneath 167<sup>th</sup> Ave. NE. Although the City of Woodinville rates Cold Creek in the project vicinity as a Type 4 (perennial or intermittent flow, no fish use), the DNR ranks the stream as a Type F stream based on their multiparametric modeling approach. During a 2010 site meeting with Ginger Holser of WDFW, agreement was reached on characterizing the stream as intermittent flowing with no fish use. However, due to the DNR Type F stream classification, WDFW would require replacement of the culvert beneath 167<sup>th</sup> Ave. NE with a fish passable culvert or some alternative mitigation. Based on physical site constraints (presence of natural gas utilities), the replacement of the 167<sup>th</sup> Ave. NE culvert with a fish passable culvert utilizing a stream simulation design option is not feasible, and the topographic criteria for a no-slope design option cannot be met. The criteria for culvert replacement using the hydraulic fish passage design option also cannot be met, due to the excessive flow velocities that would result. Although the Cold Creek system in the project vicinity is not fish bearing, an off-site stream mitigation approach is being developed to address the proposed culvert replacement, per the WDFW request.

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Washington State Department of Ecology. 1997. *Washington State Wetlands Identification and Delineation Manual*. Ecology Publication #96-94, Washington State Department of Ecology, Olympia, Washington.

Washington State Department of Transportation (WSDOT). 2007. Wetland Guidelines. Washington State Department of Transportation, Environmental Affairs Office. Olympia, WA. <http://www.wsdot.wa.gov/Environment/Biology/Wetlands/guidelines.htm>.

Washington State Department of Transportation (WSDOT). 2000. Wetland Functions Characterization Tool for Linear Projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia, WA

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# Appendix A — Methods and Tools

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**Table A-1. Methods and tools used to prepare the report.**

Parameter	Method or Tool	Website	Reference
Wetland Delineation	Washington State Wetland Delineation Manual	<a href="http://www.ecy.wa.gov/biblio/9694.html">http://www.ecy.wa.gov/biblio/9694.html</a>	<b>Ecology.</b> 1997. Washington state wetland identification and delineation manual. Publication #96-94. Washington Department of Ecology, Olympia, WA.
	WSDOT Delineation Guidance Documents	<a href="http://www.wsdot.wa.gov/Environment/Biology/Wetlands/Delineation.htm#DelinGuidDocs">http://www.wsdot.wa.gov/Environment/Biology/Wetlands/Delineation.htm#DelinGuidDocs</a>	Website and date the website was used.
	Western Mountains, Valleys, and Coast Region Interim Regional Supplement	<a href="http://www.ecy.wa.gov/programs/sea/wetlands/pdf/WestMtApril2008.pdf">http://www.ecy.wa.gov/programs/sea/wetlands/pdf/WestMtApril2008.pdf</a>	<b>U.S. Army Corps of Engineers.</b> 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region. Wetlands Regulatory Assistance Program Report ERDC/EL TR-08-13, Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center, U.S. Army Corps of Engineers, Washington, D.C.
	Western Mountains, Valleys, and Coast Region Regional Supplement	<a href="http://www.ecy.wa.gov/programs/sea/wetlands/pdf/WestMtMay2010.pdf">http://www.ecy.wa.gov/programs/sea/wetlands/pdf/WestMtMay2010.pdf</a>	<b>U.S. Army Corps of Engineers.</b> 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). Wetlands Regulatory Assistance Program Report ERDC/EL TR-10-3 May 2010, Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center, U.S. Army Corps of Engineers, Washington, D.C.
Wetland Classification	USFWS / Cowardin Classification System	<a href="http://www.fws.gov/nwi/Pubs/Reports/Class_Manual/class_titlpg.htm">http://www.fws.gov/nwi/Pubs/Reports/Class_Manual/class_titlpg.htm</a>	<b>Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe.</b> 1979. Classification of wetlands and deepwater habitats of the United States. Government Printing Office, Washington, D.C.
	Hydrogeomorphic Classification (HGM) System	<a href="http://el.erdc.usace.army.mil/wetlands/pdfs/wrpde4.pdf">http://el.erdc.usace.army.mil/wetlands/pdfs/wrpde4.pdf</a>	<b>Brinson, M. M.</b> (1993). "A hydrogeomorphic classification for wetlands," Technical Report WRP-DE-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
Wetland Rating	Washington State Wetland Rating System	<a href="http://www.ecy.wa.gov/biblio/0406025.html">http://www.ecy.wa.gov/biblio/0406025.html</a>	<b>Hruby.</b> 2004. Washington State wetland rating system for western Washington –Revised. Publication # 04-06-025.
	City of Woodinville Wetland Rating System	<a href="http://www.ci.woodinville.wa.us/Documents/Work/Zoning%20Code/ZC24.pdf">http://www.ci.woodinville.wa.us/Documents/Work/Zoning%20Code/ZC24.pdf</a>	City of Woodinville Municipal Code, Chapter 21.24 Development Standards-Critical Areas.
Wetland Functions Assessment	WSDOT Wetland Functions Best Professional Judgment Tool	<a href="http://www.wsdot.wa.gov/NR/rdonlyres/B92BE0D4-9078-4EFC-99DA-3C0EA4805E2F/0/bpjtool.pdf">http://www.wsdot.wa.gov/NR/rdonlyres/B92BE0D4-9078-4EFC-99DA-3C0EA4805E2F/0/bpjtool.pdf</a>	<b>Null, W.S., G. Skinner, and W. Leonard.</b> 2000. Wetland functions characterization tool for linear projects. Washington State Department of Transportation, Environmental Affairs Office. Olympia, WA.
	Washington State Wetland Rating System	Ecology Guidance: <a href="http://www.ecy.wa.gov/pubs/0806009.pdf">http://www.ecy.wa.gov/pubs/0806009.pdf</a>	<b>Hruby.</b> 2008. Focus on: Using the Wetland Rating System in Compensatory Mitigation. Publication Number: 08-06-009. Washington Department of Ecology, Olympia, WA.
Stream Delineation	OHWB	<a href="http://www.usace.army.mil/inet/functions/cw/cecwo/reg/33cfr328.htm">http://www.usace.army.mil/inet/functions/cw/cecwo/reg/33cfr328.htm</a>	Congressional Federal Register 33 Part 328 Definition of Waters of the United States.
Stream Classification	Department of Natural Resources (DNR) Water Typing System	<b>Forest Practices Water Typing:</b> <a href="http://www.stage.dnr.wa.gov/forestpractices/watertyping/">http://www.stage.dnr.wa.gov/forestpractices/watertyping/</a> <b>WAC 222-16-030:</b> <a href="http://apps.leg.wa.gov/WAC/default.aspx?cite=222-16-030">http://apps.leg.wa.gov/WAC/default.aspx?cite=222-16-030</a> <b>Water Type Mapping:</b> <a href="http://www3.wadnr.gov/dnrapp">http://www3.wadnr.gov/dnrapp</a>	Washington Administrative Code (WAC) 222-16-030. DNR Water typing system.

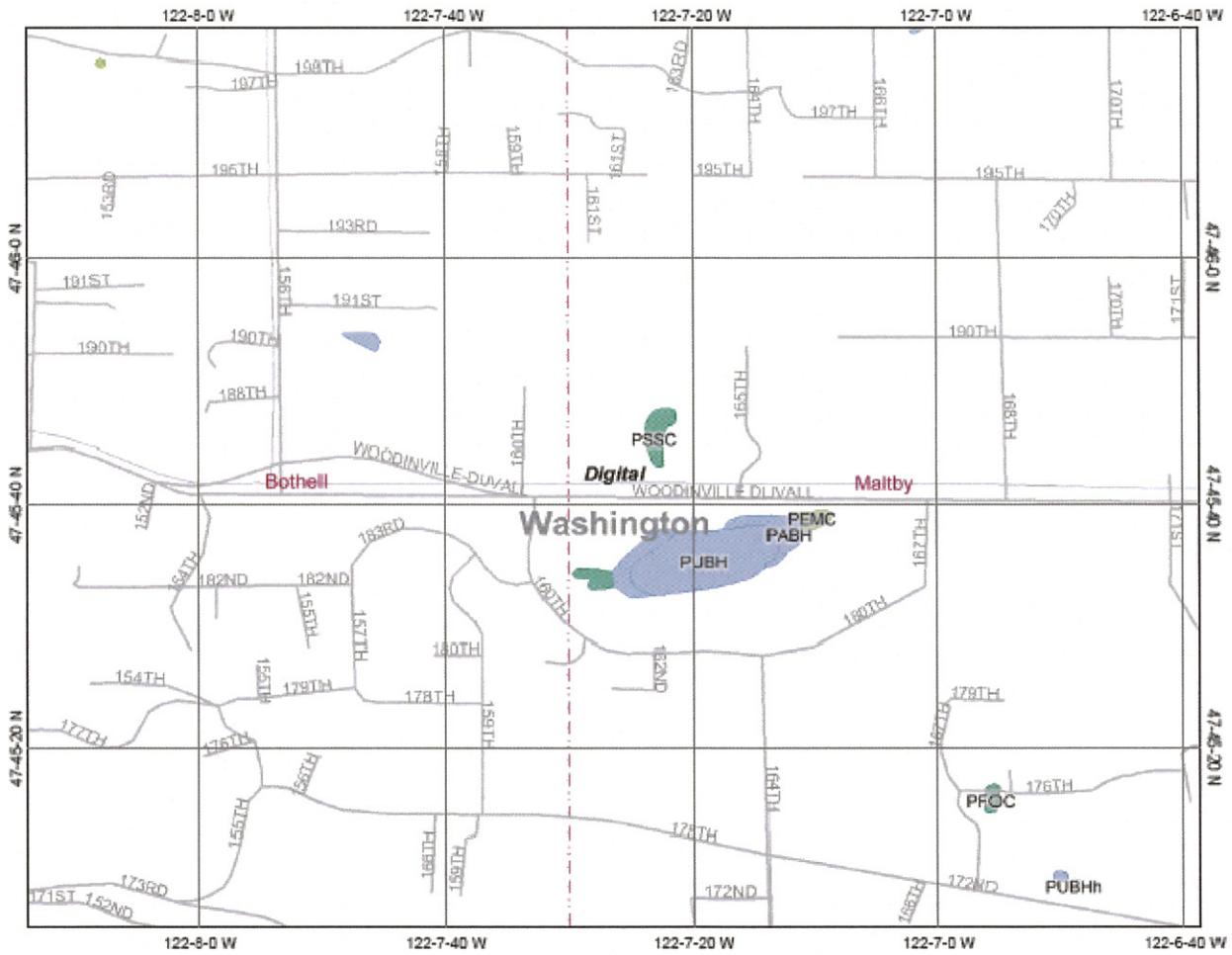
Parameter	Method or Tool	Website	Reference
		<a href="http://www.ci.woodinville.wa.us/5/website/fpars/viewer.htm">5/website/fpars/viewer.htm</a>	
	City of Woodinville Stream Rating System	<a href="http://www.ci.woodinville.wa.us/Documents/Work/Zoning%20Code/ZC24.pdf">http://www.ci.woodinville.wa.us/Documents/Work/Zoning%20Code/ZC24.pdf</a>	City of Woodinville Municipal Code, Chapter 21.24 Development Standards-Critical Areas.
Wetland Indicator Status	Northwest (Region 9) (Reed, 1988) and Northwest (Region 9) Supplement (Reed et al., 1993)	<a href="http://www.fws.gov/nwi/bha/list88.html">http://www.fws.gov/nwi/bha/list88.html</a>	<b>Reed, P.B. Jr. 1988.</b> National list of plant species that occur in wetlands: Washington. Biological Report NERC-88/18.47 for National Wetlands Inventory, Washington, D.C. <b>Reed, P.B. Jr. 1993.</b> Northwest supplement (Region 9) species with a change in indicator status or added to the Northwest 1988 list, wetland plants of the state of Washington 1988. U.S. Department of Interior Fish and Wildlife Service WELUT - 88 (26.9), Washington, D.C.
Plant Names	USDA Plant Database	<a href="http://plants.usda.gov/">http://plants.usda.gov/</a>	Website (see Appendix A)
Soils Data	Soil Survey	<a href="http://www.or.nrcs.usda.gov/pnw_soil/wa_reports.html">http://www.or.nrcs.usda.gov/pnw_soil/wa_reports.html</a>	Website
Hydric Soils Data	Washington Hydric Soils Lists by County	<a href="http://www.wa.nrcs.usda.gov/technical/soils/county_hydric_lists.html">http://www.wa.nrcs.usda.gov/technical/soils/county_hydric_lists.html</a>	Website
Threatened and Endangered Species	Washington Natural Heritage Program	<a href="http://www.dnr.wa.gov/nhp/">http://www.dnr.wa.gov/nhp/</a>	<b>Washington Natural Heritage Program</b> (July 2009 – currently being updated). Endangered, threatened, and sensitive plants of Washington. Washington State Department of Natural Resources, Washington Natural Heritage Program, Olympia, WA
	Washington Priority Habitats and Species	<a href="http://wdfw.wa.gov/hab/phspage.htm">http://wdfw.wa.gov/hab/phspage.htm</a>	<b>Priority Habitats and Species (PHS) Program</b> (July 2009 – currently being updated). Map of priority habitats and species in project vicinity. Washington Department of Fish and Wildlife (WDFW).
	NOAA fisheries species list and maps	<a href="http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Index.cfm">http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Index.cfm</a> and <a href="http://www.nmfs.noaa.gov/pr/species/">http://www.nmfs.noaa.gov/pr/species/</a>	Website
	USFWS species lists by County	<b>Western Washington:</b> <a href="http://www.fws.gov/westwafwo/se/SE_List/endangered_Species.asp">http://www.fws.gov/westwafwo/se/SE_List/endangered_Species.asp</a>	Website
Report Preparation	City of Woodinville Critical Area Report Requirements	<a href="http://www.ci.woodinville.wa.us/Documents/Work/Zoning%20Code/ZC24.pdf">http://www.ci.woodinville.wa.us/Documents/Work/Zoning%20Code/ZC24.pdf</a>	City of Woodinville Municipal Code, Chapter 21.24 Development Standards-Critical Areas.

## **Appendix B — Background Information**

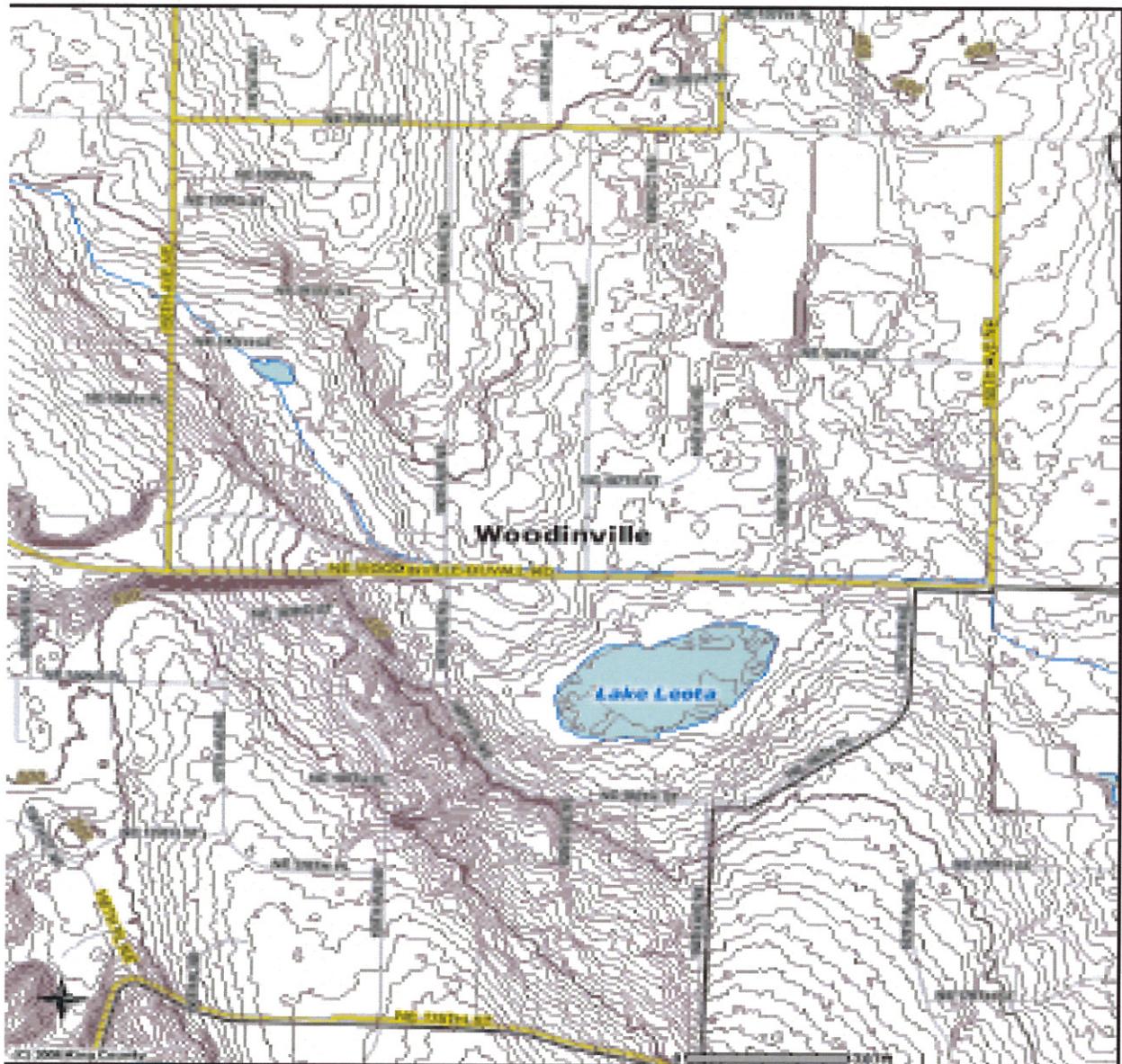
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This Appendix includes a wetland inventory map (B1), USGS topographic map (B2), soil survey map (B3), and list of existing plants (B4).

# Appendix B1 Wetland Inventory Map



Appendix B2 USGS Topographic Map





## Appendix B4 Existing Plant Species

Table B-4. Plant species existing on or near the project site.

Genus	Species	Common Name	WIS*
<i>Acer</i>	<i>macrophyllum</i>	bigleaf maple	FACU
<i>Acer</i>	<i>circinatum</i>	vine maple	FAC-
<i>Agrostis</i>	<i>sp.</i>	bentgrass	NI
<i>Alnus</i>	<i>rubra</i>	red alder	FAC
<i>Amelanchier</i>	<i>alnifolia</i>	serviceberry	FACU
<i>Athyrium</i>	<i>filiix-femina</i>	lady fern	FAC
<i>Circaea</i>	<i>alpina</i>	enchanter's nightshade	FAC+
<i>Cirsium</i>	<i>arvense</i>	Canada thistle	FACU+
<i>Convolvulus</i>	<i>arvensis</i>	field bindweed	NI
<i>Corylus</i>	<i>cornuta</i>	beaked hazelnut	FACU
<i>Crataegus</i>	<i>douglasii</i>	black hawthorn	FAC
<i>Crataegus</i>	<i>monogyna</i>	English hawthorn	FACU+
<i>Cytisus</i>	<i>scoparius</i>	Scotch broom	FACU
<i>Digitalis</i>	<i>purpurea</i>	foxglove	FACU
<i>Epilobium</i>	<i>ciliatum</i>	Watson willowherb	FACW-
<i>Equisetum</i>	<i>arvense</i>	field horsetail	FAC
<i>Festuca</i>	<i>sp.</i>	fescue	NI
<i>Gaultheria</i>	<i>shallon</i>	salal	FACU
<i>Geranium</i>	<i>robertianum</i>	herb-Robert	NI
<i>Geum</i>	<i>macrophyllum</i>	largeleaf avens	FACW-
<i>Hedera</i>	<i>helix</i>	English ivy	NI
<i>Hieracium</i>	<i>sp.</i>	hawkweed	NI
<i>Holcus</i>	<i>lanatus</i>	common velvetgrass	FAC
<i>Holodiscus</i>	<i>discolor</i>	ocean spray	NL
<i>Hypericum</i>	<i>perforatum</i>	St. John's wort	NI
<i>Ilex</i>	<i>aquifolium</i>	holly	FACU
<i>Leucanthemum</i>	<i>vulgare</i>	oxeye daisy	NI
<i>Lonicera</i>	<i>involutrata</i>	black twinberry	FAC+
<i>Lotus</i>	<i>corniculatus</i>	birdsfoot trefoil	FAC
<i>Lysichiton</i>	<i>americanus</i>	skunk cabbage	OBL
<i>Mahonia</i>	<i>nervosa</i>	dwarf Oregon grape	FACU
<i>Oemleria</i>	<i>cerasiformis</i>	Indian plum	FACU
<i>Phalaris</i>	<i>arundinacea</i>	reed canarygrass	FACW
<i>Pinus</i>	<i>contorta var. contorta</i>	shore pine	FAC
<i>Plantago</i>	<i>lanceolata</i>	lance-leaf plantain	FAC
<i>Polygonum</i>	<i>cuspidatum</i>	Japanese knotweed	FACU
<i>Polystichum</i>	<i>munitum</i>	sword fern	FACU
<i>Populus</i>	<i>balsamifera</i>	black cottonwood	FAC
<i>Prunus</i>	<i>laurocerasus</i>	cherry laurel	NI
<i>Pseudotsuga</i>	<i>menziesii</i>	Douglas fir	FACU
<i>Pteridium</i>	<i>aquilinum</i>	bracken fern	FACU
<i>Pyrus</i>	<i>malus</i>	domestic apple	NL

<i>Ranunculus</i>	<i>repens</i>	creeping buttercup	FACW
<i>Ribes</i>	<i>divaricatum</i>	coast gooseberry	FAC
<i>Rubus</i>	<i>armeniacus</i>	Himalayan blackberry	FACU
<i>Rubus</i>	<i>laciniatus</i>	evergreen blackberry	FACU+
<i>Rubus</i>	<i>parviflorus</i>	thimbleberry	FAC-
<i>Rubus</i>	<i>spectabilis</i>	salmonberry	FAC+
<i>Rubus</i>	<i>ursinus</i>	trailing blackberry	FACU
<i>Rumex</i>	<i>crispus</i>	curly dock	FAC+
<i>Salix</i>	<i>lucida</i>	Pacific willow	FACW+
<i>Salix</i>	<i>scouleriana</i>	Scouler willow	FAC
<i>Salix</i>	<i>sitchensis</i>	Sitka willow	FACW
<i>Sambucus</i>	<i>racemosa</i>	red elderberry	FACU
<i>Spiraea</i>	<i>douglasii</i>	hardhack	FACW
<i>Stachys</i>	<i>cooleyae</i>	Cooley hedge nettle	FACW
<i>Symphoricarpos</i>	<i>albus</i>	snowberry	FACU
<i>Taraxacum</i>	<i>officinale</i>	dandelion	FACU
<i>Thuja</i>	<i>plicata</i>	Western red cedar	FAC
<i>Tolmiea</i>	<i>menziesii</i>	piggy-back plant	FAC
<i>Trillium</i>	<i>ovatum</i>	trillium	FACU
<i>Tsuga</i>	<i>heterophylla</i>	Western hemlock	FACU-
<i>Urtica</i>	<i>dioica</i>	stinging nettle	FAC+
<i>Vaccinium</i>	<i>parvifolium</i>	red huckleberry	UPL
<i>Veronica</i>	<i>americana</i>	American brooklime	OBL

\* Wetland Indicator Status (WIS) from Reed (1988) and Reed et al. (1993):

- OBL = occurs in wetlands > 99% of time
- FACW = occurs in wetlands 67-99% of time
- FAC = occurs in wetlands 34-66% of time
- FACU = occurs in wetlands 1-33% of time
- UPL = occurs in uplands > 99% of time
- NI = indicator status not known in this region

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## **Appendix C — Plan Sheets**

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This Appendix includes the project plan sheets showing the locations of the wetlands assessed as part of the project.

**TESC AND DEMOLITION NOTES**

- 1 CONSTRUCTION CENTERLINE
- 2 EXISTING MONUMENT/SURVEY STAKE TO BE REMOVED AND NEW INSTALLED FOLLOWING CONSTRUCTION.
- 3 PROTECT EXISTING MONUMENT/SURVEY STAKE.
- 4 EXISTING CEMENT CONCRETE CURB AND GUTTER, AND SIDEWALK TO REMAIN, PROTECT DURING CONSTRUCTION.
- 5 EXISTING UTILITY TO REMAIN, PROTECT DURING CONSTRUCTION.
- 6 SAWCUT AND REMOVE 24" MIN. FROM EDGE OF EXISTING ASPHALT/CONCRETE PAVEMENT, UNLESS NOTED OTHERWISE. REPLACE EXISTING PAVEMENT TO LIMITS SHOWN PER TYPICAL ROADWAY SECTION ON SHEET 3.12.
- 7 PLANE BITUMINOUS PAVEMENT PER DETAIL ON SHEET 3.12.
- 8 REMOVE PORTION OF EXISTING STORM DRAIN, LIMITS PER PLAN.
- 9 REMOVE EXISTING CEMENT CONCRETE CURB, GUTTER AND/OR SIDEWALK REQUIRED FOR INSTALLATION OF IMPROVEMENTS. CURB, GUTTER AND/OR SIDEWALK SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE IMPROVEMENTS OR PROVIDE SAWCUT.
- 10 REMOVE EXISTING TREE(S).
- 11 REMOVE EXISTING STRIPING AND PAVEMENT MARKINGS, LIMITS PER PLAN.
- 12 EXISTING LANDSCAPE FEATURE OR STRUCTURE TO BE RELOCATED, SEE ROADWAY AND DRAINAGE PLANS FOR DETAILS.
- 13 REMOVE EXISTING SIGN.
- 14 EXISTING SIGN TO BE RELOCATED. SEE SIGNING AND STRIPING PLANS FOR NEW LOCATION.
- 15 INSTALL EROSION CONTROL AT CULVERT ENDS PER WSDOT STD PLAN 1-30.20-00.
- 16 INSTALL GEOTEXTILE ENCASED CHECKDAM PER WSDOT STD PLAN 1-50.10-00.
- 17 PLUG AND ABANDON EXISTING STORM DRAINAGE.
- 18 REMOVE EXISTING LANDSCAPE FEATURE OR STRUCTURE.
- 19 REMOVE EXISTING MAILBOX. PROVIDE TEMPORARY SUPPORT AND MAINTAIN SERVICES UNTIL NEW MAILBOX(S) IS INSTALLED.

**GENERAL NOTES**

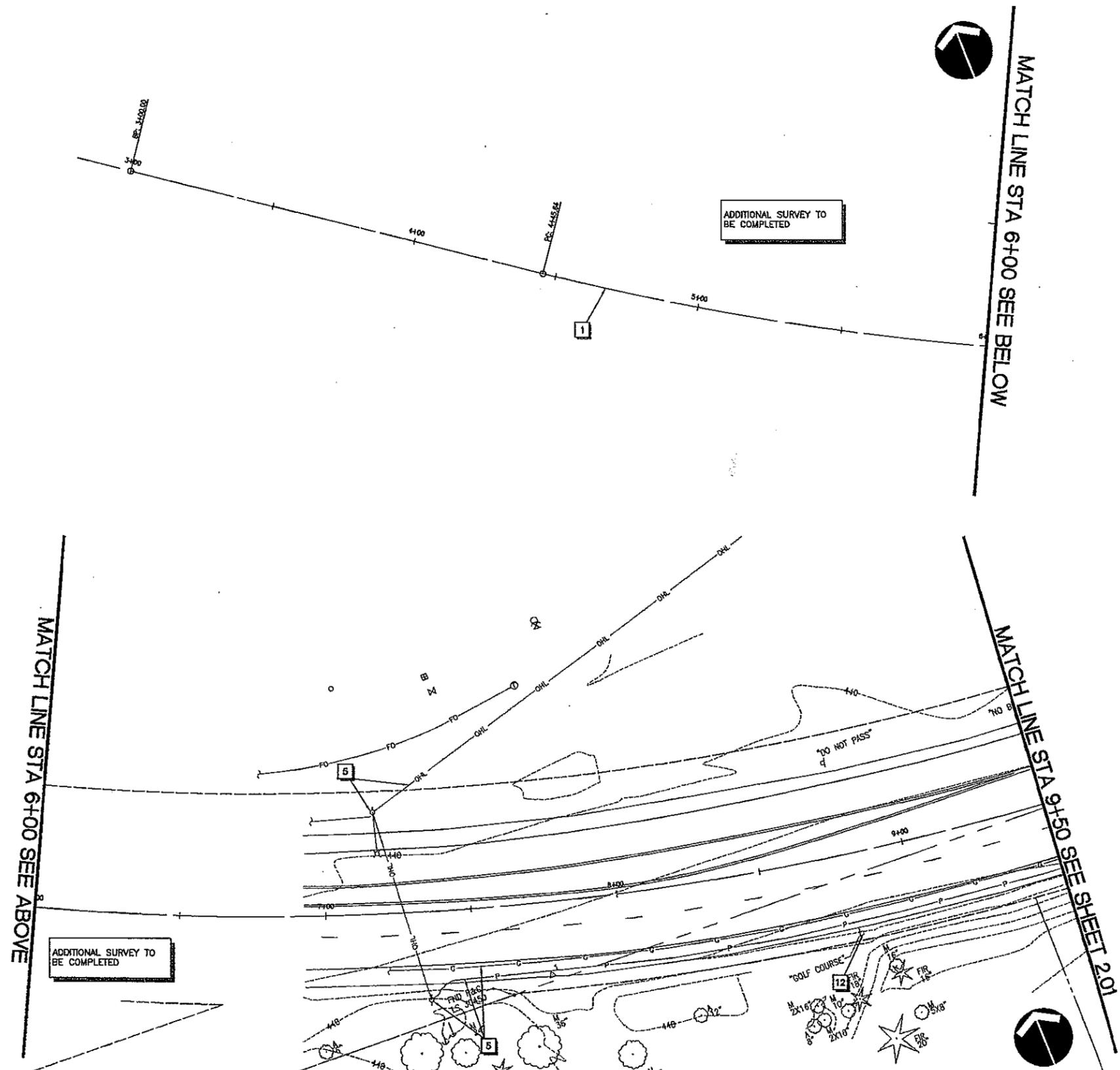
1. CATCH BASIN INLET PROTECTION SHALL BE PROVIDED AND MAINTAINED AT ALL EXISTING AND PROPOSED CATCH BASINS PRIOR TO AND FOR THE DURATION OF CONSTRUCTION OPERATIONS. PROPOSED CATCH BASINS AND PROTECTION MEASURES NOT SHOWN ON TESC PLAN FOR CLARITY.
2. THE CONTRACTOR SHALL NOT REMOVE ANY TREES WITHIN THE WORKING LIMITS OF THE PROJECT NOT CALLED FOR REMOVAL WITHOUT FIRST NOTIFYING AND OBTAINING PERMISSION FROM THE PROJECT ENGINEER.

**LEGEND**

- REMOVE EXISTING PAVEMENT
- PLANE BITUMINOUS PAVEMENT
- INLET PROTECTION PER WSDOT STD PLAN 1-40.20-00
- HIGH VISIBILITY FENCE PER WSDOT STD PLAN 1-10.10-01
- COMBINED SILT/HIGH VISIBILITY FENCE PER WSDOT STD PLANS 1-10.10-01 AND 1-30.15-00
- SILT FENCE PER WSDOT STD PLAN 1-30.15-00
- CLEARING LIMITS
- TEMPORARY CONSTRUCTION PERMIT SAWCUT LINE
- REMOVE EXISTING STORM DRAIN
- STABILIZED CONSTRUCTION ENTRANCE PER WSDOT STD PLAN 1-80.10-01
- WETLAND
- GEOTEXTILE ENCASED CHECKDAM



EXHIBIT 4  
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**PRELIMINARY**

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STATE OF WASHINGTON  
PROFESSIONAL ENGINEER  
NO. 30792

**TICO A. VANDERBRUG**  
STATE OF WASHINGTON  
PROFESSIONAL ENGINEER  
NO. 30792

P.E. STAMP BOX

NO.	REVISION	DATE	BY	CK
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2				
3				
4				
5				



**CITY OF WOODINVILLE**  
17301 133rd AVE NE  
WOODINVILLE, WA 98072  
PHONE: (425) 489-2700  
FAX: (425) 489-2705

PROJECT INFORMATION

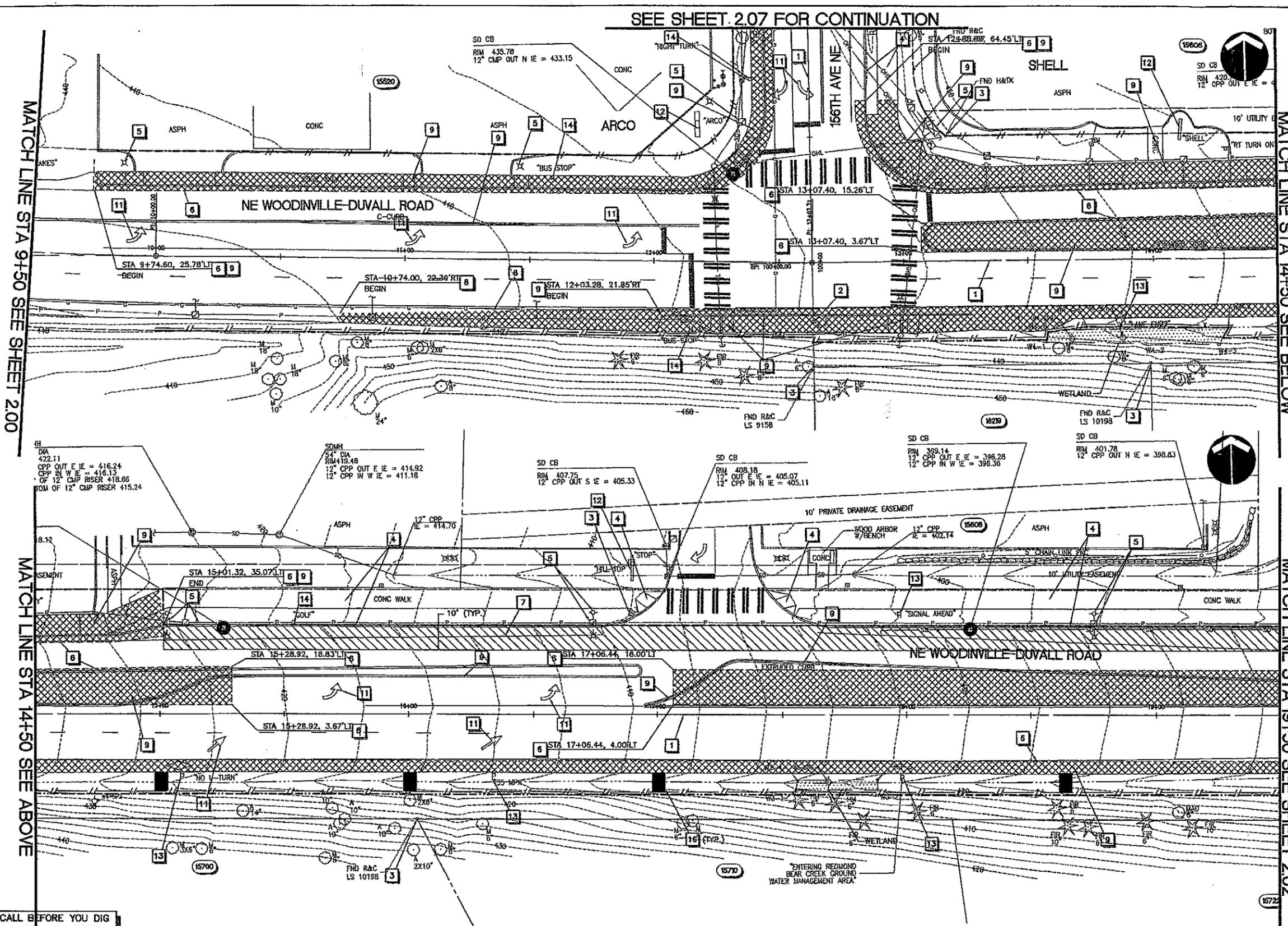
**WOODINVILLE-DUVAL ROADWAY PROJECT**

SHEET TITLE:

**TESC AND DEMOLITION PLAN**

DATE: Apr-2011	CHECKED BY:
DESIGNED BY: PW10-XXXX	PROJECT NO.:
DRAWN BY:	SCALE: 1"=20'
SHEET X OF X	DRAWING NO.:
	2.00

SEE SHEET 2.07 FOR CONTINUATION



**TESC AND DEMOLITION NOTES**

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- 2 EXISTING MONUMENT/SURVEY STAKE TO BE REMOVED AND NEW INSTALLED FOLLOWING CONSTRUCTION.
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- 5 EXISTING UTILITY TO REMAIN, PROTECT DURING CONSTRUCTION.
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**LEGEND**

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- GEOTEXTILE ENCASED CHECKDAM

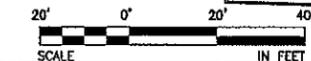


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**PRELIMINARY**

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**KINDI A. SHAH**  
Professional Engineer  
No. 4088

**JOE A. VANDERBERG**  
Professional Engineer  
No. 30792

NO.	REVISION	DATE	BY	CK
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**CITY OF WOODINVILLE**  
17301 133rd AVE NE  
WOODINVILLE, WA 98072  
PHONE: (425) 489-2700  
FAX: (425) 489-2705

**PROJECT INFORMATION**

**WOODINVILLE-DUVAL ROADWAY PROJECT**

SHEET TITLE:		DATE:	CHECKED BY:
<b>TESC AND DEMOLITION PLAN</b>		10/1/2011	
DESIGNED BY:	DRAWN BY:	PROJECT NO.:	SCALE:
		PWD-XXXX	1"=20'
SHEET X OF X		DRAWING NO.:	
		2.01	

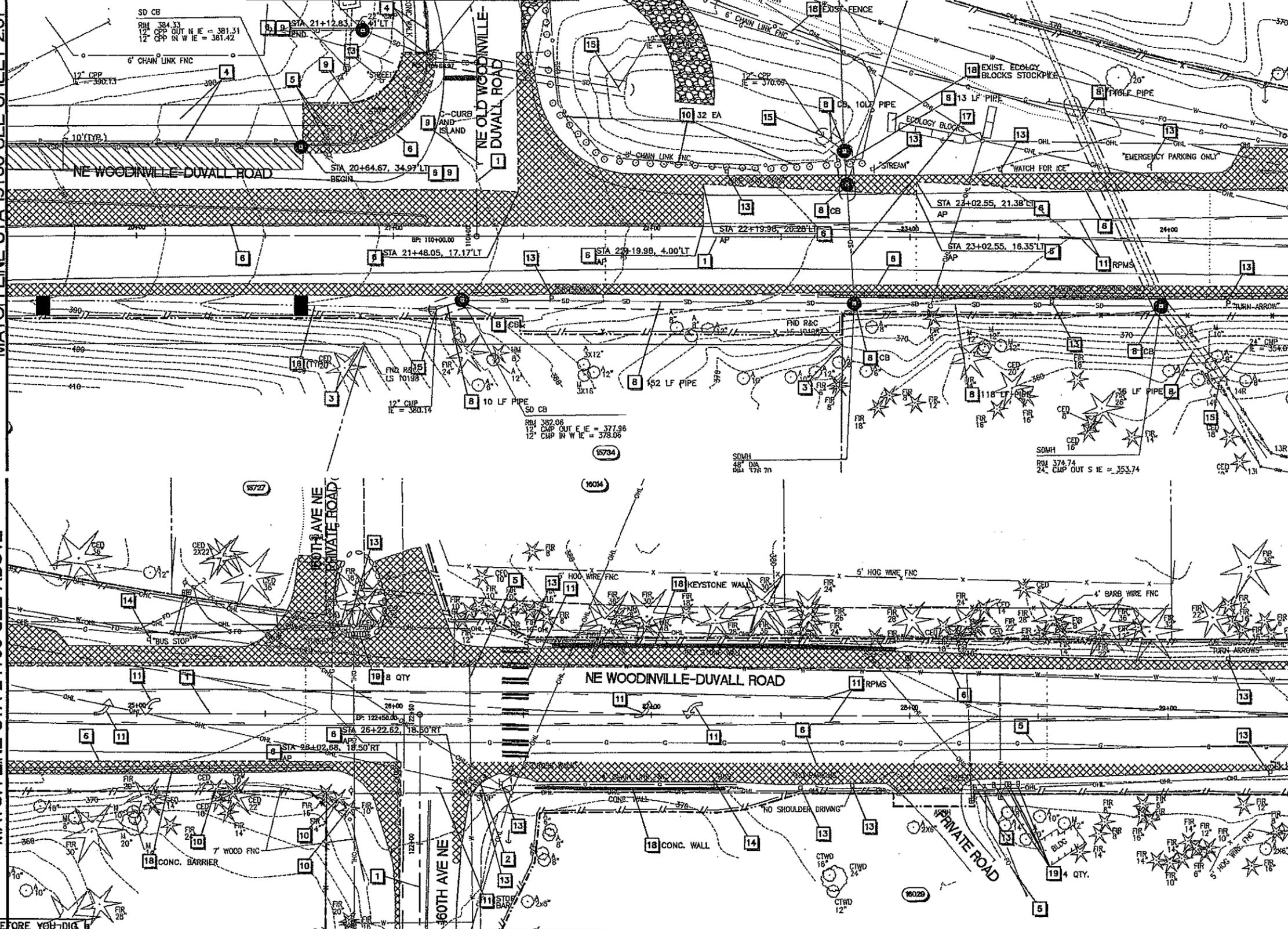
SEE SHEET 2.07 FOR CONTINUATION

MATCH LINE STA 19+50 SEE SHEET 2.01

MATCH LINE STA 24+50 SEE ABOVE

MATCH LINE STA 24+50 SEE BELOW

MATCH LINE STA 29+50 SEE SHEET 2.03



SEE SHEET 2.08 FOR CONTINUATION

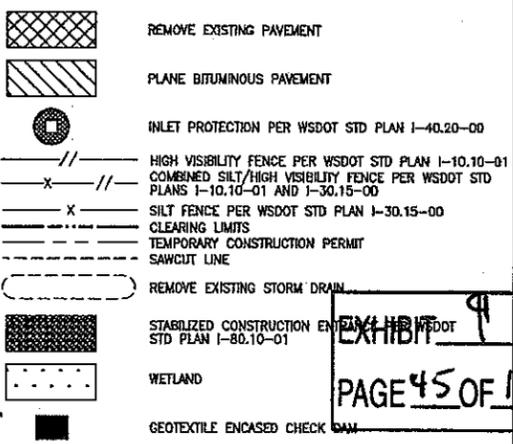
**TESC AND DEMOLITION NOTES**

- 1 CONSTRUCTION CENTERLINE
- 2 EXISTING MONUMENT/SURVEY STAKE TO BE REMOVED AND NEW INSTALLED FOLLOWING CONSTRUCTION.
- 3 PROTECT EXISTING MONUMENT/SURVEY STAKE.
- 4 EXISTING CEMENT CONCRETE CURB AND GUTTER, AND SIDEWALK TO REMAIN, PROTECT DURING CONSTRUCTION.
- 5 EXISTING UTILITY TO REMAIN, PROTECT DURING CONSTRUCTION.
- 6 SAWCUT AND REMOVE 24" MIN. FROM EDGE OF EXISTING ASPHALT/CONCRETE PAVEMENT, UNLESS NOTED OTHERWISE. REPLACE EXISTING PAVEMENT TO LIMITS SHOWN PER TYPICAL ROADWAY SECTION ON SHEET 3.12.
- 7 PLANE BITUMINOUS PAVEMENT PER DETAIL ON SHEET 3.12.
- 8 REMOVE PORTION OF EXISTING STORM DRAIN, LIMITS PER PLAN.
- 9 REMOVE EXISTING CEMENT CONCRETE CURB, GUTTER AND/OR SIDEWALK REQUIRED FOR INSTALLATION OF IMPROVEMENTS. CURB, GUTTER AND/OR SIDEWALK SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE IMPROVEMENTS OR PROVIDE SAWCUT.
- 10 REMOVE EXISTING TREE(S).
- 11 REMOVE EXISTING STRIPING AND PAVEMENT MARKINGS, LIMITS PER PLAN.
- 12 EXISTING LANDSCAPE FEATURE OR STRUCTURE TO BE RELOCATED, SEE ROADWAY AND DRAINAGE PLANS FOR DETAILS.
- 13 REMOVE EXISTING SIGN.
- 14 EXISTING SIGN TO BE RELOCATED. SEE SIGNING AND STRIPING PLANS FOR NEW LOCATION.
- 15 INSTALL EROSION CONTROL AT CULVERT ENDS PER WSDOT STD PLAN 1-30.20-00.
- 16 INSTALL GEOTEXTILE ENCASED CHECKDAM PER WSDOT STD PLAN 1-50.10-00.
- 17 PLUG AND ABANDON EXISTING STORM DRAINAGE.
- 18 REMOVE EXISTING LANDSCAPE FEATURE OR STRUCTURE.
- 19 REMOVE EXISTING MAILBOX. PROVIDE TEMPORARY SUPPORT AND MAINTAIN SERVICES UNTIL NEW MAILBOX(S) IS INSTALLED.

**GENERAL NOTES**

1. CATCH BASIN INLET PROTECTION SHALL BE PROVIDED AND MAINTAINED AT ALL EXISTING AND PROPOSED CATCH BASINS PRIOR TO AND FOR THE DURATION OF CONSTRUCTION OPERATIONS. PROPOSED CATCH BASINS AND PROTECTION MEASURES NOT SHOWN ON TESC PLAN FOR CLARITY.
2. THE CONTRACTOR SHALL NOT REMOVE ANY TREES WITHIN THE WORKING LIMITS OF THE PROJECT NOT CALLED FOR REMOVAL WITHOUT FIRST NOTIFYING AND OBTAINING PERMISSION FROM THE PROJECT ENGINEER.

**LEGEND**



CALL BEFORE YOU DIG  
1-800-424-5555

**otak**  
Incorporated  
10200 NE Polaris Dr #100  
Woodland, Washington 98095  
Phone: (425) 822-4446  
Fax: (425) 827-4077  
Web: WWW.OTAK.COM

**PRELIMINARY**

**P.E. STAMP BOX**

Professional Engineer stamps for RINDI A. SHAPIRO and TERRY M. VANDERBERG.

NO.	REVISION	DATE	BY	CK
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**CITY OF WOODINVILLE**  
17301 133rd AVE NE  
WOODINVILLE, WA 98072  
PHONE: (425) 489-2700  
FAX: (425)489-2705

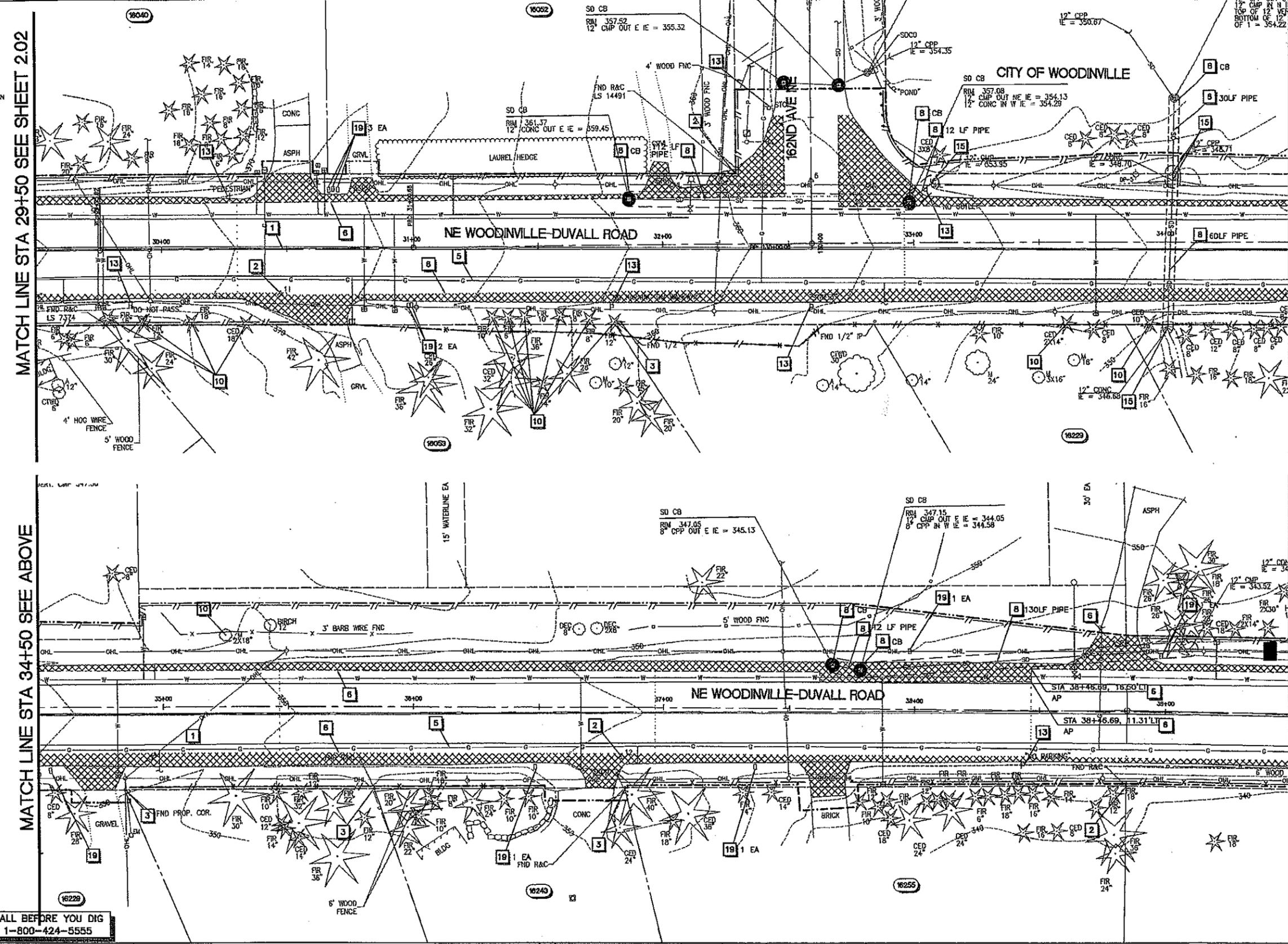
**PROJECT INFORMATION**

**WOODINVILLE-DUVALL ROADWAY PROJECT**

<b>SHEET TITLE:</b>	<b>DATE:</b>	<b>CHECKED BY:</b>
<b>TESC AND DEMOLITION PLAN</b>	10/29/2011	
	<b>DESIGNED BY:</b>	<b>PROJECT NO.:</b>
		PM10-10000
	<b>DRAWN BY:</b>	<b>SCALE:</b>
		1"=20'
	<b>SHEET X OF X</b>	
	<b>DRAWING NO.:</b>	
	2.02	

**EXHIBIT 9**  
**PAGE 45 OF 145**

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MATCH LINE STA 29+50 SEE SHEET 2.02

MATCH LINE STA 34+50 SEE BELOW

MATCH LINE STA 34+50 SEE ABOVE

MATCH LINE STA 39+50 SEE SHEET 2.04

**TESC AND DEMOLITION NOTES**

- 1 CONSTRUCTION CENTERLINE
- 2 EXISTING MONUMENT/SURVEY STAKE TO BE REMOVED AND NEW INSTALLED FOLLOWING CONSTRUCTION.
- 3 PROTECT EXISTING MONUMENT/SURVEY STAKE.
- 4 EXISTING CEMENT CONCRETE CURB AND GUTTER, AND SIDEWALK TO REMAIN, PROTECT DURING CONSTRUCTION.
- 5 EXISTING UTILITY TO REMAIN, PROTECT DURING CONSTRUCTION.
- 6 SAWCUT AND REMOVE 24\"/>

**GENERAL NOTES**

1. CATCH BASIN INLET PROTECTION SHALL BE PROVIDED AND MAINTAINED AT ALL EXISTING AND PROPOSED CATCH BASINS PRIOR TO AND FOR THE DURATION OF CONSTRUCTION OPERATIONS. PROPOSED CATCH BASINS AND PROTECTION MEASURES NOT SHOWN ON TESC PLAN FOR CLARITY.
2. THE CONTRACTOR SHALL NOT REMOVE ANY TREES WITHIN THE WORKING LIMITS OF THE PROJECT NOT CALLED FOR REMOVAL WITHOUT FIRST NOTIFYING AND OBTAINING PERMISSION FROM THE PROJECT ENGINEER.

**LEGEND**

- REMOVE EXISTING PAVEMENT
- PLANE BITUMINOUS PAVEMENT
- INLET PROTECTION PER WSDOT STD PLAN I-40.20-00
- HIGH VISIBILITY FENCE PER WSDOT STD PLAN I-10.10-01
- COMBINED SILT/HIGH VISIBILITY FENCE PER WSDOT STD PLANS I-10.10-01 AND I-30.15-00
- SILT FENCE PER WSDOT STD PLAN I-30.15-00
- CLEARING LIMITS
- TEMPORARY CONSTRUCTION PERMIT SAWCUT LINE
- REMOVE EXISTING STORM DRAIN
- STABILIZED CONSTRUCTION ENTRANCE PER WSDOT STD PLAN I-60.10-01
- WETLAND
- GEOTEXTILE ENCASED CHECK

EXHIBIT 9  
 PAGE 46 OF 15

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**oak**  
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 16230 NE Falls Dr #100  
 Kirkland, Washington 98033  
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 Fax: (425) 827-6677  
 WEB: WWW.OAK.COM

**PRELIMINARY**

**KINDA A. SHAFER**  
 REGISTERED PROFESSIONAL ENGINEER  
 3089

**TOO M. VANDERBERG**  
 REGISTERED PROFESSIONAL ENGINEER  
 30792

P.E. STAMP BOX

NO.	REVISION	DATE	BY	CK
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**CITY OF WOODVILLE**  
 17301 133rd AVE NE  
 WOODVILLE, WA 98072  
 PHONE: (425) 489-2700  
 FAX: (425) 489-2705

PROJECT INFORMATION  
**WOODVILLE-DUWALL ROADWAY PROJECT**

SHEET TITLE:		DATE:	CHECKED BY:
<b>TESC AND DEMOLITION PLAN</b>		April-2011	
		DESIGNED BY:	PROJECT NO.:
DRAWN BY:		SCALE:	
SHEET X OF X			
DRAWING NO.:			2.03

MATCH LINE STA 39+50 SEE SHEET 2.03

MATCH LINE STA 44+50 SEE BELOW

MATCH LINE STA 44+50 SEE ABOVE

MATCH LINE STA 49+50 SEE SHEET 2.05

### TESC AND DEMOLITION NOTES

- 1 CONSTRUCTION CENTERLINE
- 2 EXISTING MONUMENT/SURVEY STAKE TO BE REMOVED AND NEW INSTALLED FOLLOWING CONSTRUCTION.
- 3 PROTECT EXISTING MONUMENT/SURVEY STAKE.
- 4 EXISTING CEMENT CONCRETE CURB AND GUTTER, AND SIDEWALK TO REMAIN, PROTECT DURING CONSTRUCTION.
- 5 EXISTING UTILITY TO REMAIN, PROTECT DURING CONSTRUCTION.
- 6 SAWCUT AND REMOVE 24" MIN. FROM EDGE OF EXISTING ASPHALT/CONCRETE PAVEMENT, UNLESS NOTED OTHERWISE. REPLACE EXISTING PAVEMENT TO LIMITS SHOWN PER TYPICAL ROADWAY SECTION ON SHEET 3.12.
- 7 PLANE BITUMINOUS PAVEMENT PER DETAIL ON SHEET 3.12.
- 8 REMOVE PORTION OF EXISTING STORM DRAIN, LIMITS PER PLAN.
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- 13 REMOVE EXISTING SIGN.
- 14 EXISTING SIGN TO BE RELOCATED. SEE SIGNING AND STRIPING PLANS FOR NEW LOCATION.
- 15 INSTALL EROSION CONTROL AT CULVERT ENDS PER WSDOT STD PLAN 1-30.20-00.
- 16 INSTALL GEOTEXTILE ENCASED CHECKDAM PER WSDOT STD PLAN 1-50.10-00.
- 17 PLUG AND ABANDON EXISTING STORM DRAINAGE.
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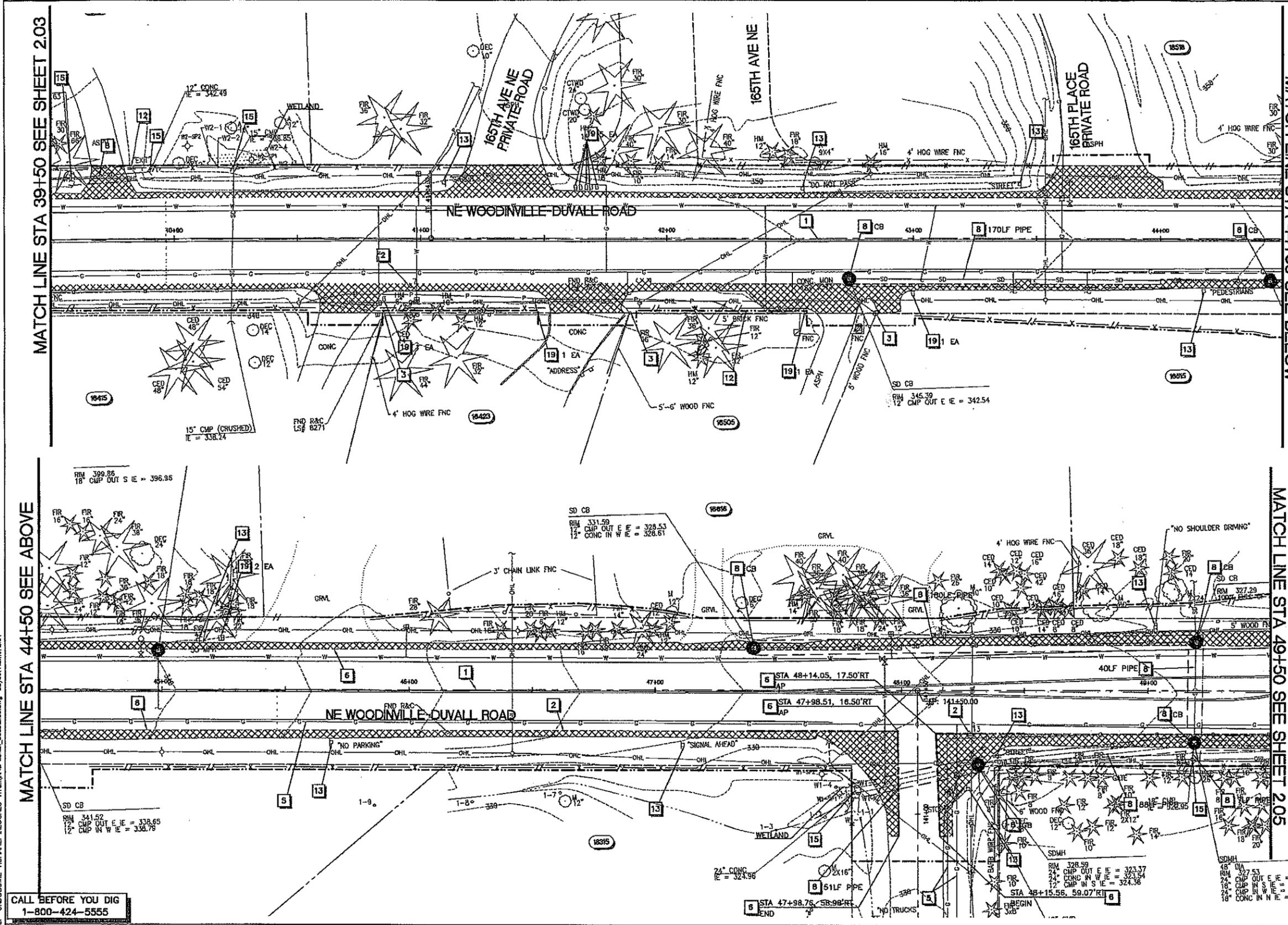
### GENERAL NOTES

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2. THE CONTRACTOR SHALL NOT REMOVE ANY TREES WITHIN THE WORKING LIMITS OF THE PROJECT NOT CALLED FOR REMOVAL WITHOUT FIRST NOTIFYING AND OBTAINING PERMISSION FROM THE PROJECT ENGINEER.

### LEGEND

	REMOVE EXISTING PAVEMENT
	PLANE BITUMINOUS PAVEMENT
	INLET PROTECTION PER WSDOT STD PLAN 1-40.20-00
	HIGH VISIBILITY FENCE PER WSDOT STD PLAN 1-10.10-01
	COMBINED SILT/HIGH VISIBILITY FENCE PER WSDOT STD PLANS 1-10.10-01 AND 1-30.15-00
	SILT FENCE PER WSDOT STD PLAN 1-30.15-00
	CLEARING LIMITS
	TEMPORARY CONSTRUCTION PERMIT
	SAWCUT LINE
	REMOVE EXISTING STORM DRAIN
	STABILIZED CONSTRUCTION ENTRANCE PER WSDOT STD PLAN 1-80.10-01
	WETLAND
	GEOTEXTILE ENCASED CHECKDAM

**EXHIBIT 9**  
**PAGE 41 OF 149**



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10200 NE Pointe Dr #400  
Bellevue, Washington 98003  
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FAX: (206) 837-6377  
WEB: WWW.OTAK.COM

**PRELIMINARY**

**KINDY A. SHAPLES**  
REGISTERED PROFESSIONAL ENGINEER  
NO. 30796

**ANDREW M. YANDERBROOK**  
REGISTERED PROFESSIONAL ENGINEER  
NO. 30792

P.E. STAMP BOX

NO.	REVISION	DATE	BY	CK
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**CITY OF WOODINVILLE**  
17301 133rd AVE NE  
WOODINVILLE, WA 98072  
PHONE: (425) 489-2700  
FAX: (425) 489-2705

PROJECT INFORMATION

**WOODINVILLE-DUWALL ROADWAY PROJECT**

SHEET TITLE:		DATE:	CHECKED BY:
<b>TESC AND DEMOLITION PLAN</b>		April 2011	
DESIGNED BY:	PROJECT NO.:	DRAWN BY:	SCALE:
	PWD-XXXX		1"=20'
SHEET X OF X		DRAWING NO.:	
		2.04	

MATCH LINE STA 49+50 SEE SHEET 2.04

MATCH LINE STA 54+50 SEE ABOVE

MATCH LINE STA 54+50 SEE BELOW

MATCH LINE STA 59+50 SEE SHEET 2.06

### TESC AND DEMOLITION NOTES

- 1 CONSTRUCTION CENTERLINE
- 2 EXISTING MONUMENT/SURVEY STAKE TO BE REMOVED AND NEW INSTALLED FOLLOWING CONSTRUCTION.
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### GENERAL NOTES

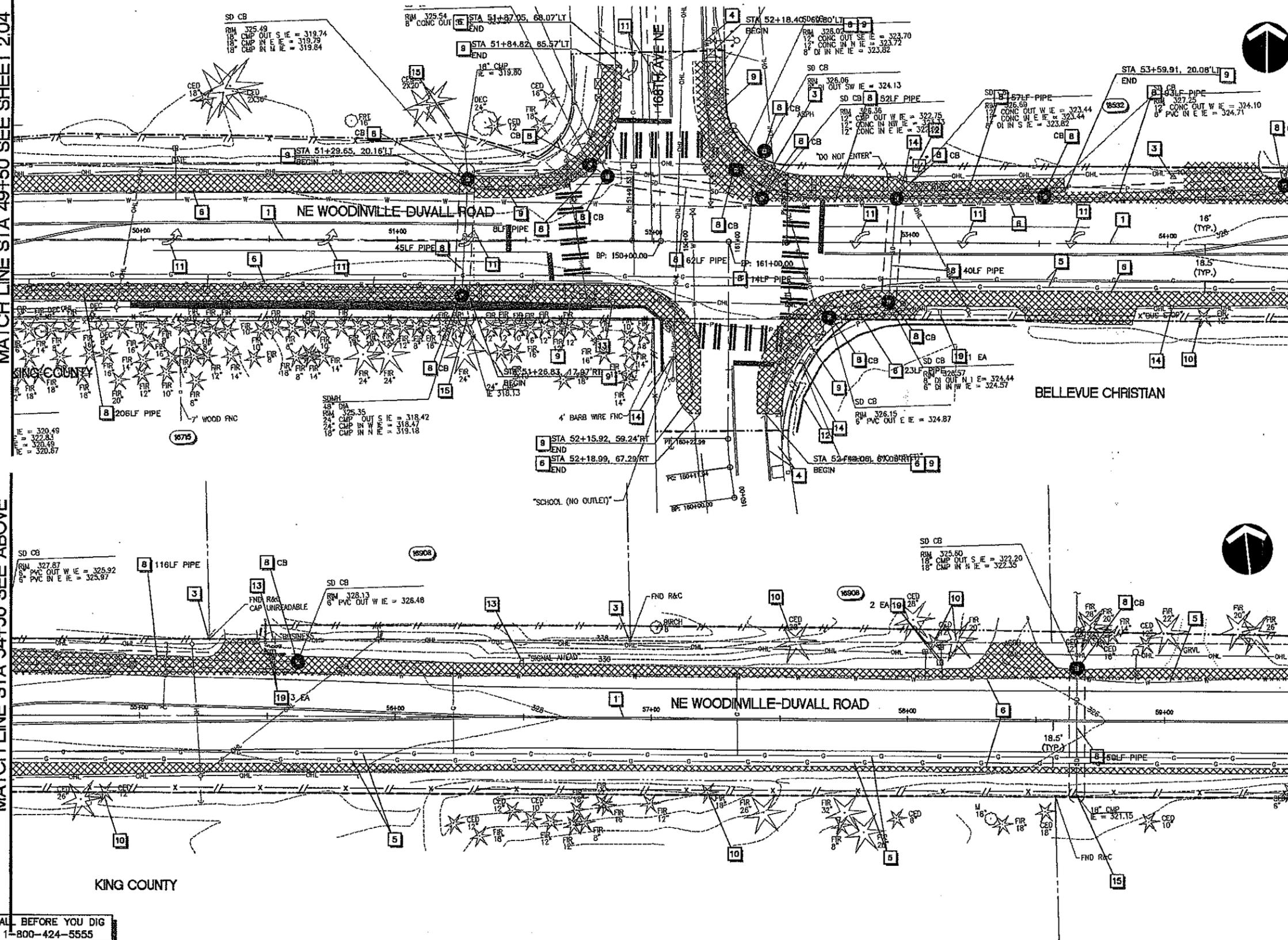
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### LEGEND

	REMOVE EXISTING PAVEMENT
	PLANE BITUMINOUS PAVEMENT
	INLET PROTECTION PER WSDOT STD PLAN 1-40.20-00
	HIGH VISIBILITY FENCE PER WSDOT STD PLAN 1-10.10-01
	COMBINED SILT/HIGH VISIBILITY FENCE PER WSDOT STD PLANS 1-10.10-01 AND 1-30.15-00
	SILT FENCE PER WSDOT STD PLAN 1-30.15-00
	CLEARING LIMITS
	TEMPORARY CONSTRUCTION PERMIT
	SAWCUT LINE
	REMOVE EXISTING STORM DRAIN
	STABILIZED CONSTRUCTION ENTRANCE PER WSDOT STD PLAN 1-80.10-01
	WETLAND
	GEOTEXTILE ENCASED CHECKDAM

**EXHIBIT 9**  
PAGE 48 OF 45

SCALE 1"=20'  
IN FEET



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10200 NE Polaris Dr #100  
Redmond, Washington 98053  
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Fax: (425) 827-9071  
Web: WWW.OTAK.COM

**PRELIMINARY**

**INDI A. SHAPLE**  
Professional Engineer  
No. 30989

**ANDREW J. VANDERBRUG**  
Professional Engineer  
No. 30792

P.E. STAMP BOX

NO.	REVISION	DATE	BY	CK
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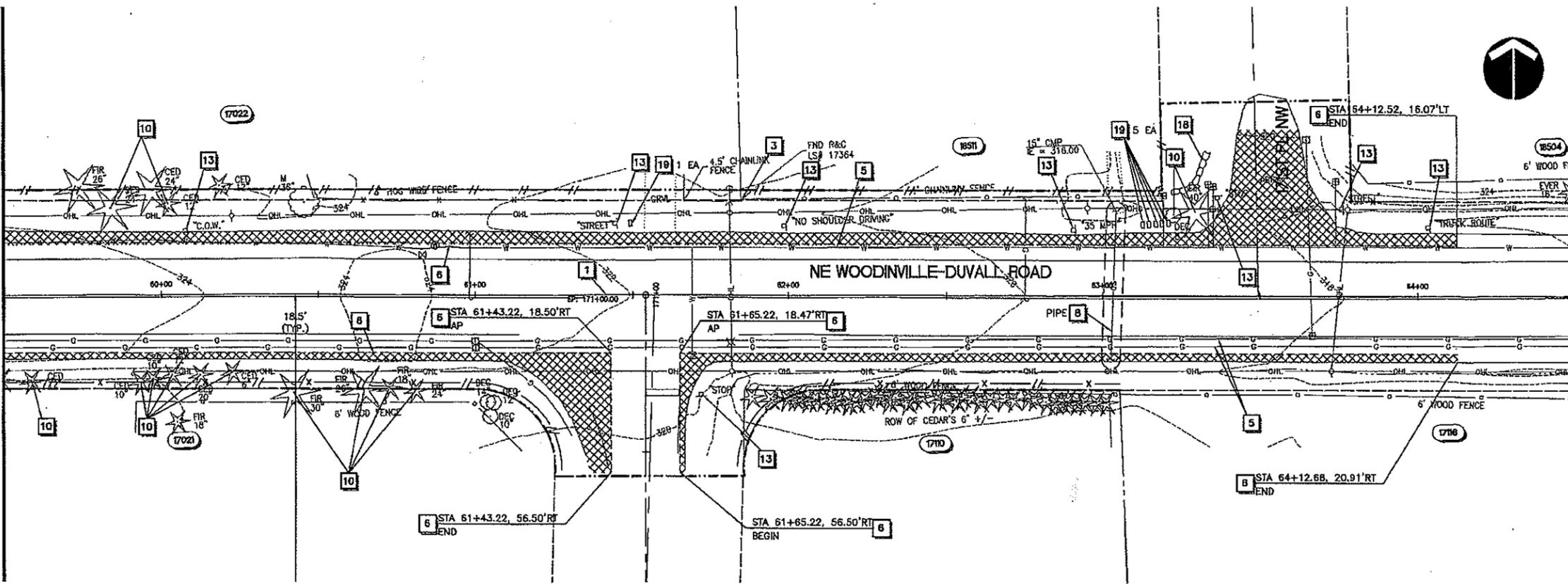


**CITY OF WOODVILLE**  
17301 133rd AVE NE  
WOODVILLE, WA 98072  
PHONE: (425) 489-2700  
FAX: (425) 489-2705

PROJECT INFORMATION  
**WOODVILLE-DUVAL ROADWAY PROJECT**

SHEET TITLE: <b>TESC AND DEMOLITION PLAN</b>	DATE: Nov-30-2011	CHECKED BY:
DESIGNED BY:	PROJECT NO.:	
DRAWN BY:	SCALE:	
SHEET X OF X		
DRAWING NO.:		2.05

MATCH LINE STA 59+50 SEE SHEET 2.05



**TESC AND DEMOLITION NOTES**

- 1 CONSTRUCTION CENTERLINE
- 2 EXISTING MONUMENT/SURVEY STAKE TO BE REMOVED AND NEW INSTALLED FOLLOWING CONSTRUCTION.
- 3 PROTECT EXISTING MONUMENT/SURVEY STAKE.
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- 13 REMOVE EXISTING SIGN.
- 14 EXISTING SIGN TO BE RELOCATED. SEE SIGNING AND STRIPING PLANS FOR NEW LOCATION.
- 15 INSTALL EROSION CONTROL AT CULVERTY ENDS PER WSDOT STD PLAN 1-30.20-00.
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**GENERAL NOTES**

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**LEGEND**

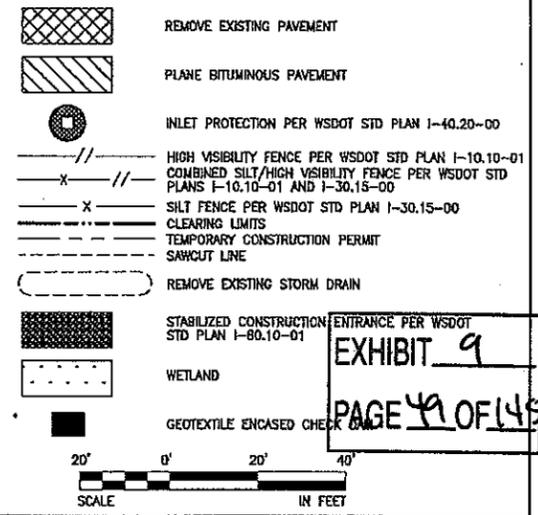


EXHIBIT 9  
PAGE 9 OF 145

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FAX: (425) 827-9377  
WEB: WWW.OTAK.COM

PRELIMINARY

P.E. STAMP BOX

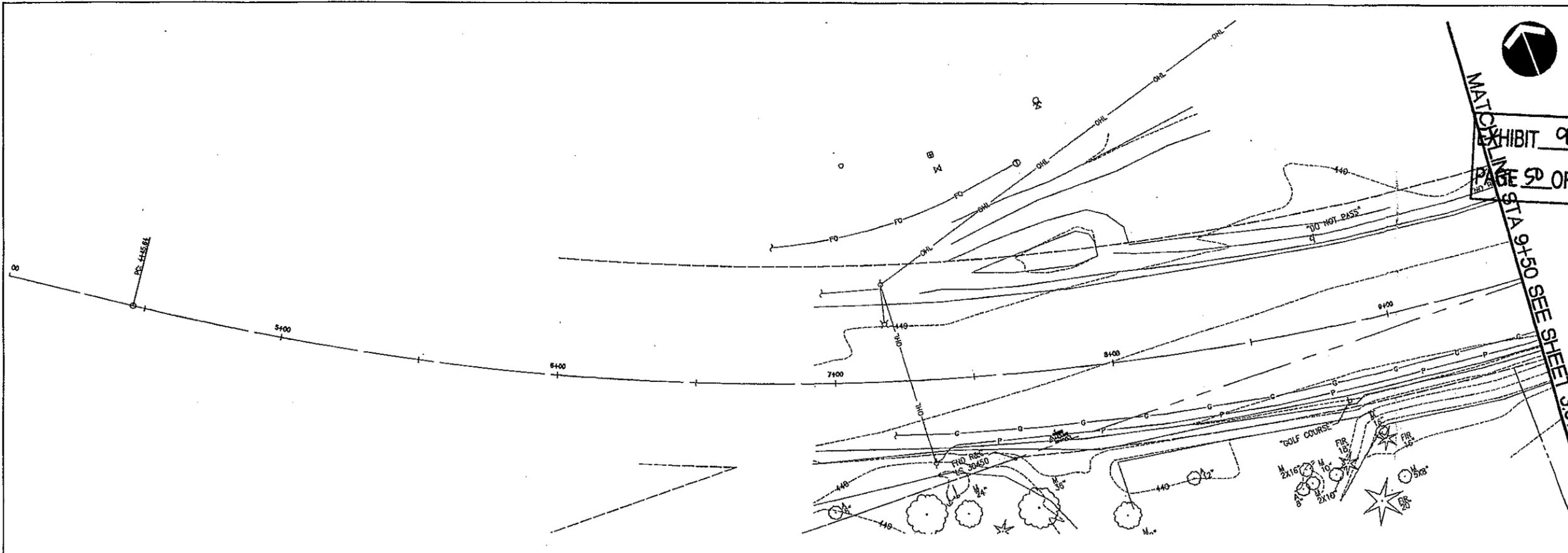
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**CITY OF WOODINVILLE**  
17301 133rd AVE NE  
WOODINVILLE, WA 98072  
PHONE: (425) 489-2700  
FAX: (425) 489-2705

PROJECT INFORMATION  
**WOODINVILLE-DUVAL ROADWAY PROJECT**

SHEET TITLE:	DATE:	CHECKED BY:
<b>TESC AND DEMOLITION PLAN</b>	08-30-21	
	DESIGNED BY:	PROJECT NO.:
	DRAWN BY:	SCALE:
	SHEET X OF X	
DRAWING NO.:		2.05



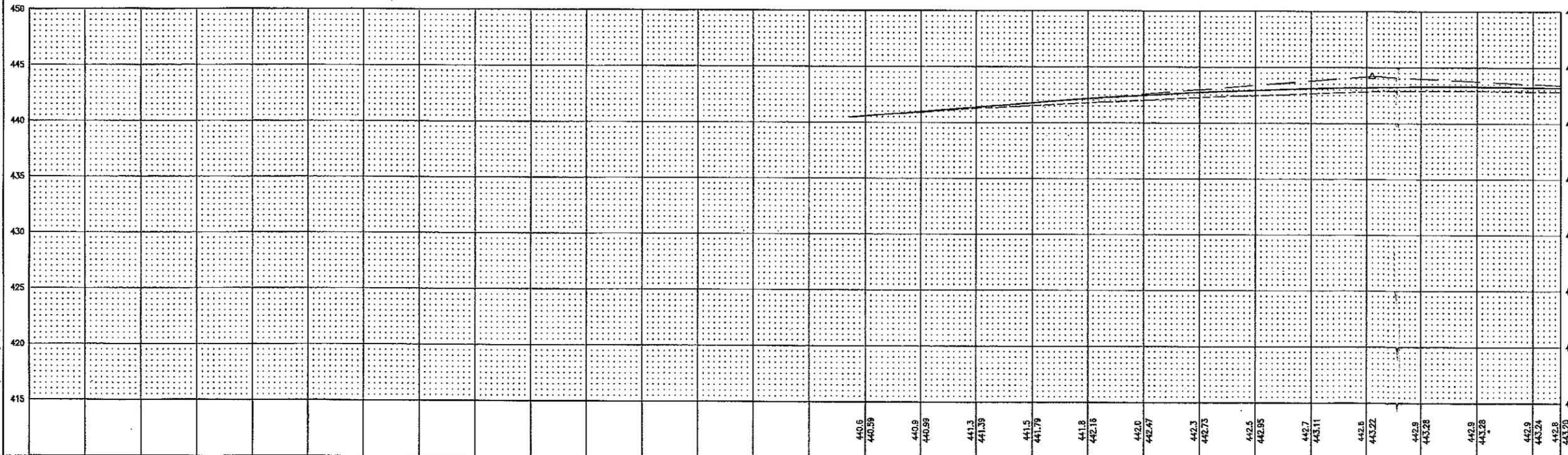
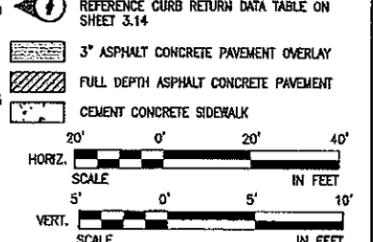
**CONSTRUCTION NOTES**

1. CONSTRUCTION CENTERLINE, SEE SHEETS 1.02 AND 1.03 FOR DETAILS.
2. CONSTRUCT ASPHALT CONCRETE PAVEMENT SECTION PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
3. OVERLAY ROADWAY PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
4. CONSTRUCT CEMENT CONCRETE SIDEWALK PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
5. CONSTRUCT CEMENT CONCRETE TRAFFIC CURB AND GUTTER PER WSDOT STD PLAN F-10.12-00.
6. CONSTRUCT CEMENT CONCRETE DRIVEWAY PER WSDOT STD PLAN F-80.10-00, TYPE PER PLAN.
7. RECONSTRUCT DRIVEWAY TO THE LIMITS SHOWN, SEE SHEETS 3.XX-3.XX FOR APPLICABLE DRIVEWAY PROFILE. PAVEMENT SECTION SHALL BE 2" HMA OVER 4" CSTC.
8. CONSTRUCT SIDEWALK RAMP PER RAMP SCHEDULE ON SHEET 3.14.
9. CONNECT TO EXISTING STORM DRAIN.
10. ADJUST EXISTING CATCH BASIN OR MANHOLE TO FINISH GRADE.
11. ADJUST EXISTING UTILITY VALVE OR BOX TO FINISH GRADE.
12. REMOVE EXISTING GRATE AND REPLACE WITH SOLID LOCKING COVER.
13. PROVIDE ETHAFOAM IF VERTICAL CLEARANCE BETWEEN PIPE IS LESS THAN 6". SEE SPECIFICATIONS FOR DETAILS.
14. EXISTING LANDSCAPE FEATURE OR STRUCTURE TO REMAIN, PROTECT DURING CONSTRUCTION.
15. PROTECT EXISTING UTILITY DURING CONSTRUCTION.
16. CONSTRUCT MODULAR BLOCK WALL PER DETAIL AND WALL TABLE ON SHEET 5.07.
17. CONSTRUCT SOLDIER PILE WALL PER DETAILS AND PROFILE ON SHEETS 5.01-5.06.
18. EXISTING UTILITY TO BE RELOCATED, REMOVED AND/OR ADJUSTED TO FINISH GRADE BY OTHERS. CONTRACTOR SHALL WORK AROUND THE FACILITY UNTIL RELOCATION/ADJUSTMENT WORK IS COMPLETED.
19. LANDSCAPE ISLAND PER DETAIL ON SHEET 3.14.
20. INSTALL OR RESET SURVEY MONUMENT AND CASE PER CITY OF WOODINVILLE STD PLAN 380.
21. CONSTRUCT CEMENT CONCRETE TRAFFIC CURB PER WSDOT STD PLAN F-10.12-00.
22. CONSTRUCT PRECAST CEMENT CONCRETE DUAL FACED SLOPED MOUNTABLE CURB PER WSDOT STD PLAN F-10.84-02.
23. INSTALL SOLID LOCKING COVER PER WSDOT STD PLAN B-30.20-01.

**GENERAL NOTES**

1. ALL DIMENSIONS AND STATION AND OFFSET REFERENCES ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
2. CONSTRUCTION CENTERLINE AND RIGHT-OF-WAY CENTERLINE ARE NOT THE SAME. STATION AND OFFSET REFERENCES ARE TO CONSTRUCTION CENTERLINE.
3. ALL STORM DRAIN PIPE SHALL BE 12" CORRUGATED POLYETHYLENE PIPE UNLESS NOTED OTHERWISE.

**LEGEND**



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Fax: (425) 827-6577  
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**PRELIMINARY**

**RINDI A. SHAPIRO**  
PROFESSIONAL ENGINEER  
STATE OF WASHINGTON  
30792

**CO. L. YANBERG**  
PROFESSIONAL ENGINEER  
STATE OF WASHINGTON  
30792

P.E. STAMP BOX

NO.	REVISION	DATE	BY	CK
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**CITY OF WOODINVILLE**  
17301 133rd AVE NE  
WOODINVILLE, WA 98072  
PHONE: (425) 489-2700  
FAX: (425) 489-2705

**PROJECT INFORMATION**

**WOODINVILLE-DUVAL ROADWAY PROJECT**

**SHEET TITLE:**  
**ROADWAY AND DRAINAGE PLAN AND PROFILE**

DATE: **7/10/2011**  
DESIGNED BY: **PM12-XXX**  
DRAWN BY: **SCALE: 1"=20'**

SHEET **X** OF **X**  
DRAWING NO.: **3.00**

SEE SHEET 3.12 FOR CONTINUATION

**CONSTRUCTION NOTES**

1. CONSTRUCTION CENTERLINE, SEE SHEETS 1.02 AND 1.03 FOR DETAILS.
2. CONSTRUCT ASPHALT CONCRETE PAVEMENT SECTION PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
3. OVERLAY ROADWAY PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
4. CONSTRUCT CEMENT CONCRETE SIDEWALK PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
5. CONSTRUCT CEMENT CONCRETE TRAFFIC CURB AND GUTTER PER WSDOT STD PLAN F-10.12-00.
6. CONSTRUCT CEMENT CONCRETE DRIVEWAY PER WSDOT STD PLAN F-80.10-00. TYPE PER PLAN.
7. RECONSTRUCT DRIVEWAY TO THE LIMITS SHOWN, SEE SHEETS 3.0X-3.0X FOR APPLICABLE DRIVEWAY PROFILE. PAVEMENT SECTION SHALL BE 2" HMA OVER 4" GSTC.
8. CONSTRUCT SIDEWALK RAMP PER RAMP SCHEDULE ON SHEET 3.14.
9. CONNECT TO EXISTING STORM DRAIN.
10. ADJUST EXISTING CATCH BASIN OR MANHOLE TO FINISH GRADE.
11. ADJUST EXISTING UTILITY VALVE OR BOX TO FINISH GRADE.
12. REMOVE EXISTING GRATE AND REPLACE WITH SOLID LOCKING COVER.
13. PROVIDE ETHAFOAM IF VERTICAL CLEARANCE BETWEEN PIPE IS LESS THAN 6". SEE SPECIFICATIONS FOR DETAILS.
14. EXISTING LANDSCAPE FEATURE OR STRUCTURE TO REMAIN, PROTECT DURING CONSTRUCTION.
15. PROTECT EXISTING UTILITY DURING CONSTRUCTION.
16. CONSTRUCT MODULAR BLOCK WALL PER DETAIL AND WALL TABLE ON SHEET 5.07.
17. CONSTRUCT SOLDIER PILE WALL PER DETAILS AND PROFILE ON SHEETS 5.01-5.08.
18. EXISTING UTILITY TO BE RELOCATED, REMOVED AND/OR ADJUSTED TO FINISH GRADE BY OTHERS. CONTRACTOR SHALL WORK AROUND THE FACILITY UNTIL RELOCATION/ADJUSTMENT WORK IS COMPLETED.
19. LANDSCAPE ISLAND PER DETAIL ON SHEET 3.14.
20. INSTALL OR RESET SURVEY MONUMENT AND CASE PER CITY OF WOODINVILLE STD PLAN 380.
21. CONSTRUCT CEMENT CONCRETE TRAFFIC CURB PER WSDOT STD PLAN F-10.12-00.
22. CONSTRUCT PRECAST CEMENT CONCRETE DUAL FACED SLOPED MOUNTABLE CURB PER WSDOT STD PLAN F-10.64-02.
23. INSTALL SOLID LOCKING COVER PER WSDOT STD PLAN B-30.20-01.

**GENERAL NOTES**

1. ALL DIMENSIONS AND STATION AND OFFSET REFERENCES ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
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3. ALL STORM DRAIN PIPE SHALL BE 12" CORRUGATED POLYETHYLENE PIPE UNLESS NOTED OTHERWISE.

**LEGEND**

REFERENCE CURB RETURN DATA TABLE ON SHEET 3.14

- 3" ASPHALT CONCRETE PAVEMENT OVERLAY
- FULL DEPTH ASPHALT CONCRETE PAVEMENT
- CEMENT CONCRETE SIDEWALK

HORIZ. SCALE: 1" = 20'

VERT. SCALE: 1" = 5'

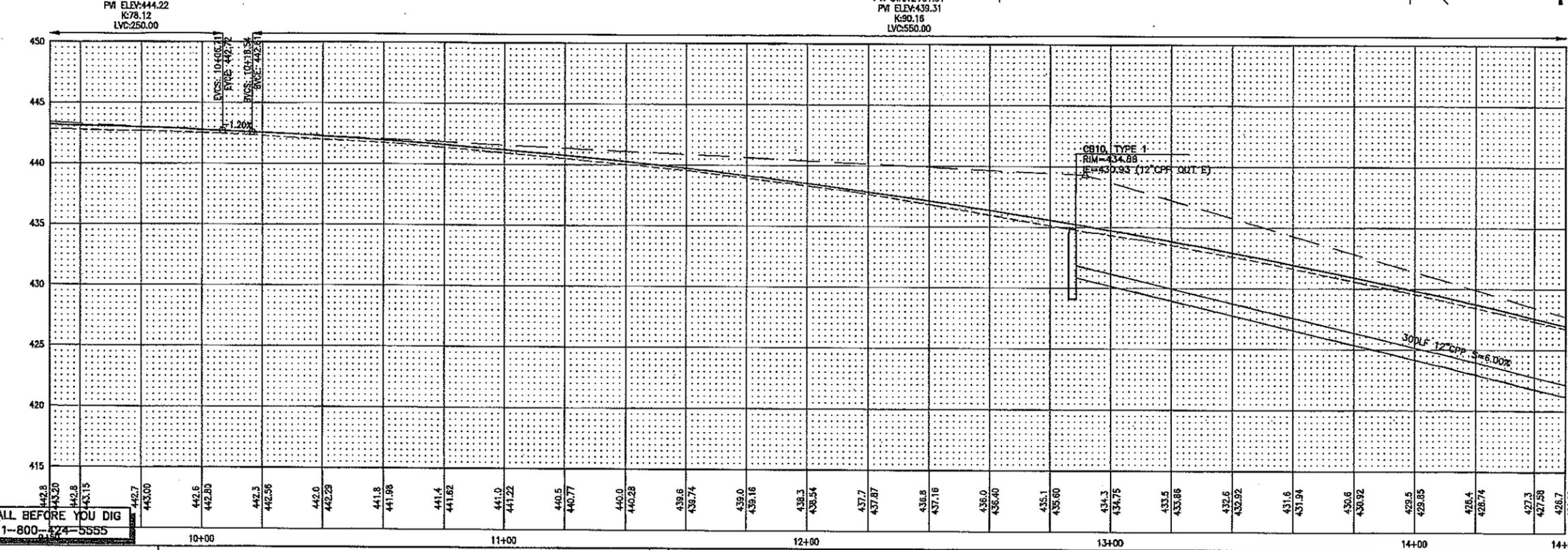
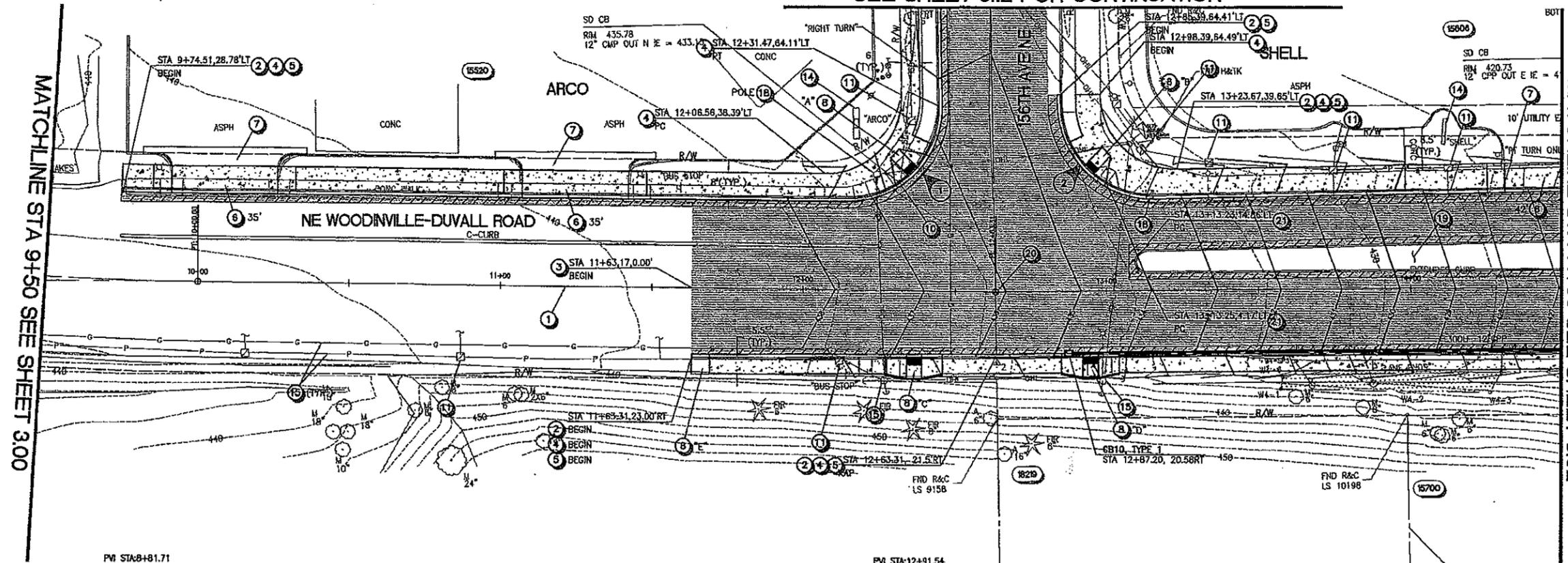


EXHIBIT 9  
PAGE 51 OF 15

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FAX: (206) 837-8877  
WEB: WWW.OTAK.COM

**PRELIMINARY**

**PRELIMINARY**

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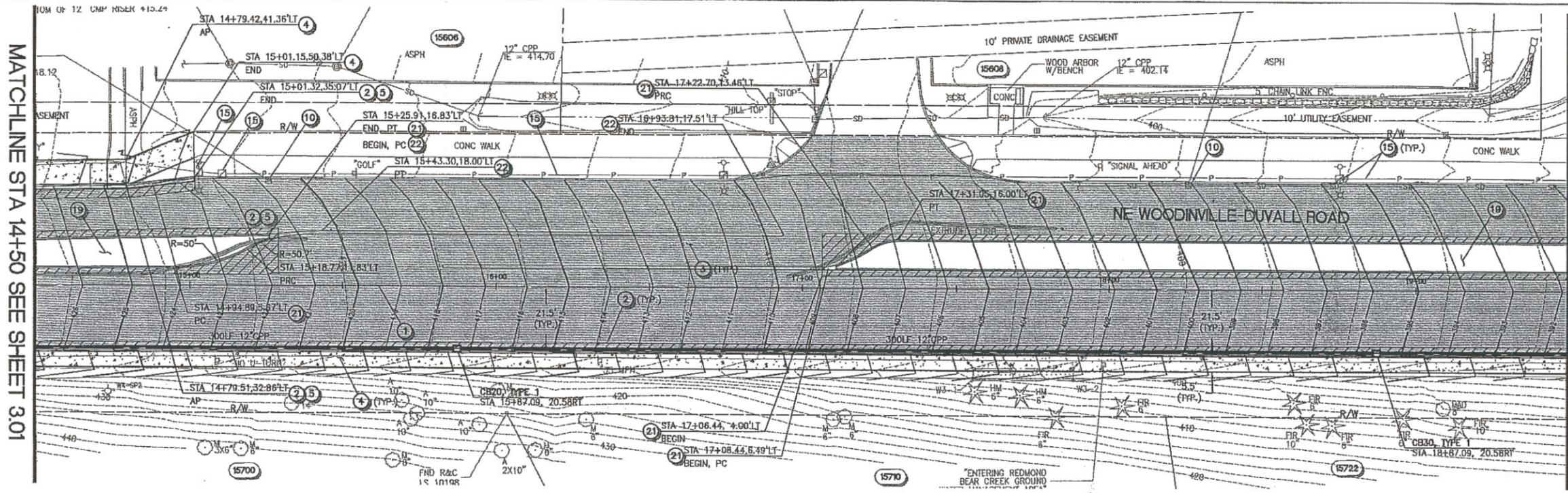
**CITY OF WOODINVILLE**  
17301 133rd AVE NE  
WOODINVILLE, WA 98072  
PHONE: (425) 489-2700  
FAX: (425) 489-2705

PROJECT INFORMATION  
**WOODINVILLE-DUWALL ROADWAY PROJECT**

SHEET TITLE:  
**ROADWAY AND DRAINAGE PLAN AND PROFILE**

DATE: 7/18/2011  
DESIGNED BY: PWD-XXX  
DRAWN BY: PWD-XXX  
SCALE: 1"=20'

SHEET X OF X  
DRAWING NO.: 3.01



MATCHLINE STA 14+50 SEE SHEET 301

MATCHLINE STA 19+50 SEE SHEET 303

**CONSTRUCTION NOTES**

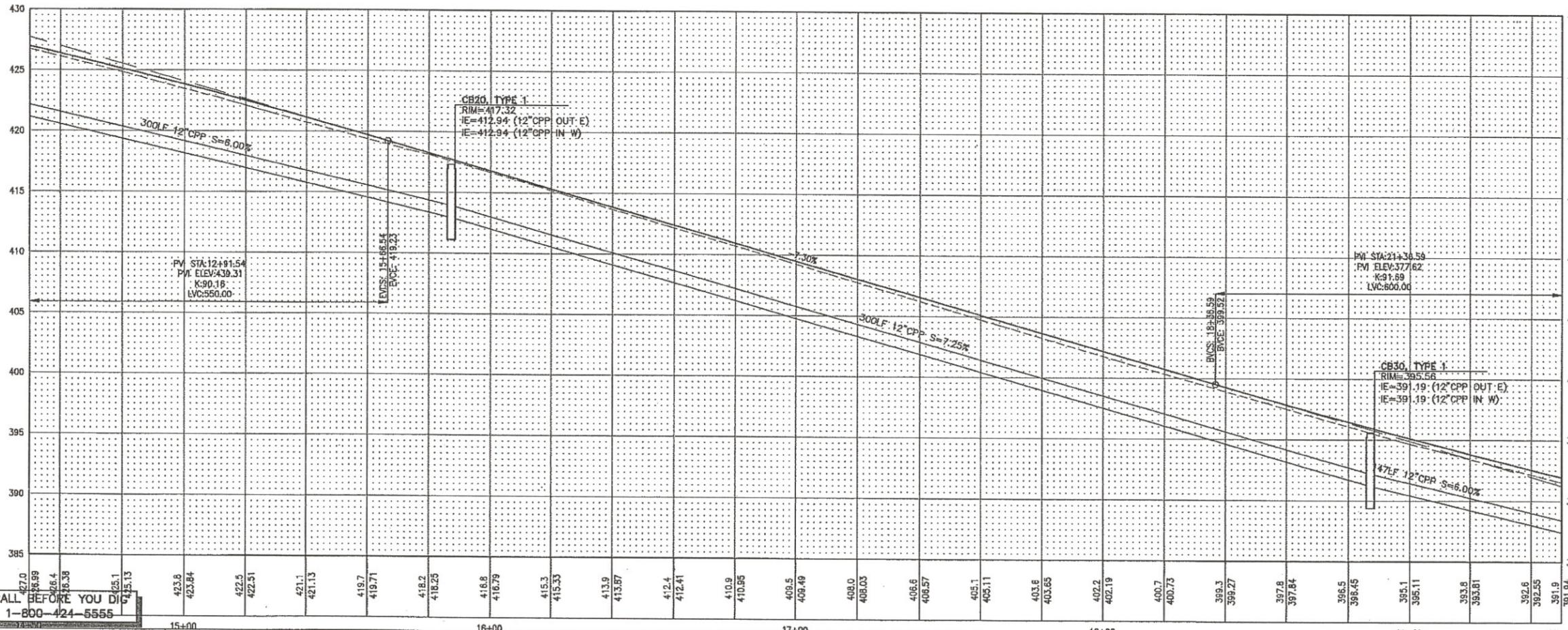
- 1 CONSTRUCTION CENTERLINE, SEE SHEETS 1.02 AND 1.03 FOR DETAILS.
- 2 CONSTRUCT ASPHALT CONCRETE PAVEMENT SECTION PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
- 3 OVERLAY ROADWAY PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
- 4 CONSTRUCT CEMENT CONCRETE SIDEWALK PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
- 5 CONSTRUCT CEMENT CONCRETE TRAFFIC CURB AND OUTER PER WSDOT STD PLAN F-10.12-00.
- 6 CONSTRUCT CEMENT CONCRETE DRIVEWAY PER WSDOT STD PLAN F-80.10-00. TYPE PER PLAN.
- 7 RECONSTRUCT DRIVEWAY TO THE LIMITS SHOWN, SEE SHEETS 3.XX-3.XX FOR APPLICABLE DRIVEWAY PROFILE. PAVEMENT SECTION SHALL BE 2\"/>
- 8 CONSTRUCT SIDEWALK RAMP PER RAMP SCHEDULE ON SHEET 3.14.
- 9 CONNECT TO EXISTING STORM DRAIN.
- 10 ADJUST EXISTING CATCH BASIN OR MANHOLE TO FINISH GRADE.
- 11 ADJUST EXISTING UTILITY VALVE OR BOX TO FINISH GRADE.
- 12 REMOVE EXISTING GRATE AND REPLACE WITH SOLID LOCKING COVER.
- 13 PROVIDE ETHAFOAM IF VERTICAL CLEARANCE BETWEEN PIPE IS LESS THAN 6\"/>
- 14 EXISTING LANDSCAPE FEATURE OR STRUCTURE TO REMAIN, PROTECT DURING CONSTRUCTION.
- 15 PROTECT EXISTING UTILITY DURING CONSTRUCTION.
- 16 CONSTRUCT MODULAR BLOCK WALL PER DETAIL AND WALL TABLE ON SHEET 5.07.
- 17 CONSTRUCT SOLDIER PILE WALL PER DETAILS AND PROFILE ON SHEETS 5.01-5.06.
- 18 EXISTING UTILITY TO BE RELOCATED, REMOVED AND/OR ADJUSTED TO FINISH GRADE BY OTHERS. CONTRACTOR SHALL WORK AROUND THE FACILITY UNTIL RELOCATION/ADJUSTMENT WORK IS COMPLETED.
- 19 LANDSCAPE ISLAND PER DETAIL ON SHEET 3.14.
- 20 INSTALL OR RESET SURVEY MONUMENT AND CASE PER CITY OF WOODINVILLE STD PLAN 380.
- 21 CONSTRUCT CEMENT CONCRETE TRAFFIC CURB PER WSDOT STD PLAN F-10.12-00.
- 22 CONSTRUCT PRECAST CEMENT CONCRETE DUAL FACED SLOPED MOUNTABLE CURB PER WSDOT STD PLAN F-10.64-02.
- 23 INSTALL SOLID LOCKING COVER PER WSDOT STD PLAN B-30.20-01.

**GENERAL NOTES**

1. ALL DIMENSIONS AND STATION AND OFFSET REFERENCES ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
2. CONSTRUCTION CENTERLINE AND RIGHT-OF-WAY CENTERLINE ARE NOT THE SAME. STATION AND OFFSET REFERENCES ARE TO CONSTRUCTION CENTERLINE.
3. ALL STORM DRAIN PIPE SHALL BE 12\"/>

**LEGEND**

- REFERENCE CURB RETURN DATA TABLE ON SHEET 3.14
- 3\"/>
- FULL DEPTH ASPHALT CONCRETE PAVEMENT
- CEMENT CONCRETE SIDEWALK



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**PRELIMINARY**

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REGISTERED PROFESSIONAL ENGINEER

**CO M. VANDERHOEK**  
STATE OF WASHINGTON  
REGISTERED PROFESSIONAL ENGINEER

P.E. STAMP BOX

NO.	REVISION	DATE	BY	CK
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FAX: (425) 489-2705

PROJECT INFORMATION

**WOODINVILLE-DUVAL**  
**ROADWAY PROJECT**

SHEET TITLE:

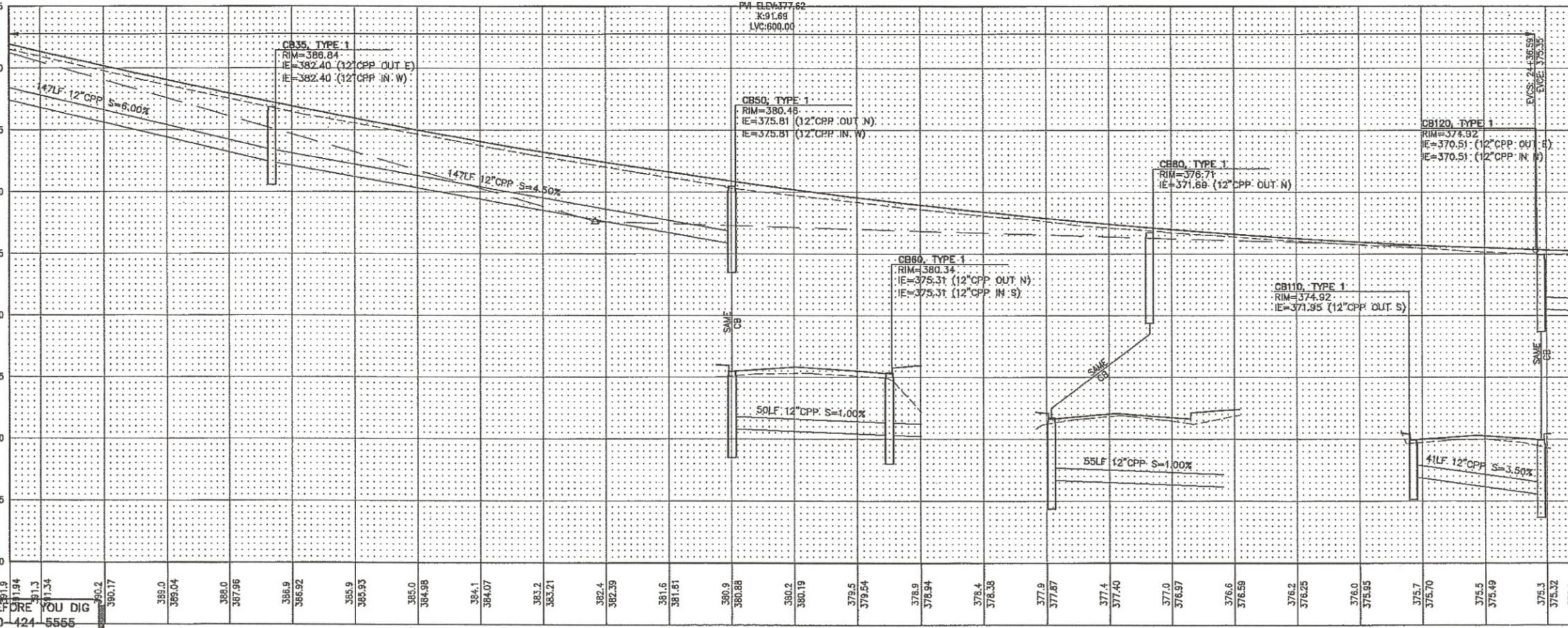
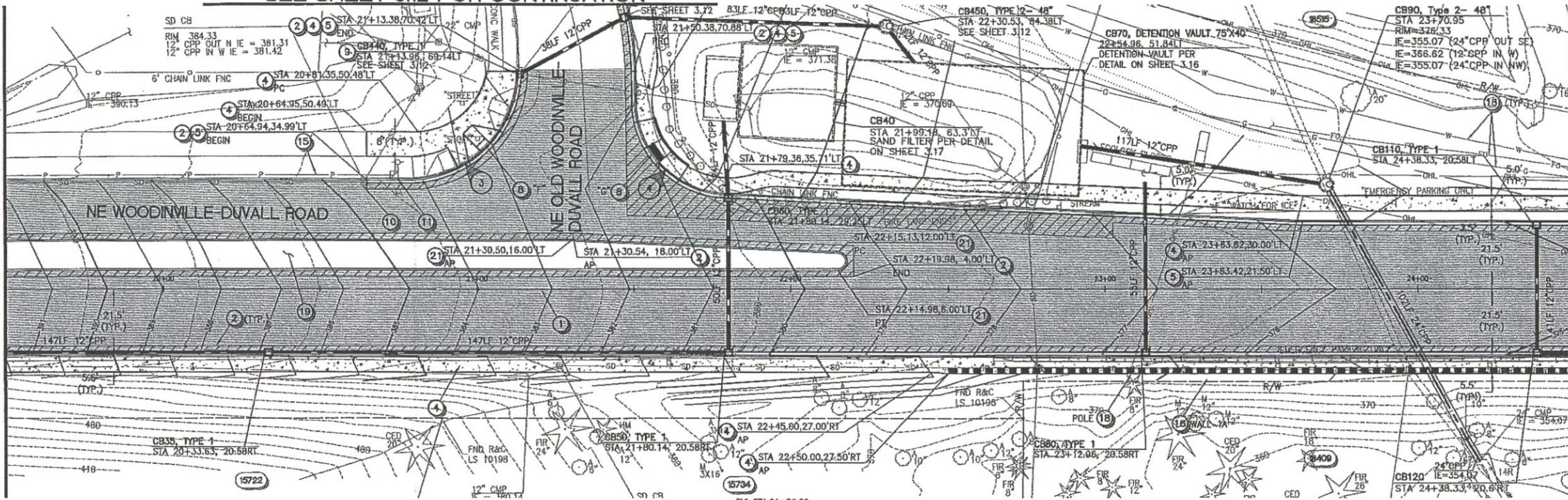
**ROADWAY AND DRAINAGE PLAN AND PROFILE**

DATE: 10-20-11  
DESIGNED BY: [Signature]  
DRAWN BY: [Signature]  
SHEET X OF X  
DRAWING NO.: 3.02

SEE SHEET 3.12 FOR CONTINUATION

MATCHLINE STA 19+50 SEE SHEET 3.02

MATCHLINE STA 24+50 SEE SHEET 3.02



**CONSTRUCTION NOTES**

- 1 CONSTRUCTION CENTERLINE, SEE SHEETS 1.02 AND 1.03 FOR DETAILS.
- 2 CONSTRUCT ASPHALT CONCRETE PAVEMENT SECTION PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
- 3 OVERLAY ROADWAY PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
- 4 CONSTRUCT CEMENT CONCRETE SIDEWALK PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
- 5 CONSTRUCT CEMENT CONCRETE TRAFFIC CURB AND GUTTER PER WSDOT STD PLAN F-10.12-00.
- 6 CONSTRUCT CEMENT CONCRETE DRIVEWAY PER WSDOT STD PLAN F-80.10-00. TYPE PER PLAN.
- 7 RECONSTRUCT DRIVEWAY TO THE LIMITS SHOWN, SEE SHEETS 3.XX-3.XX FOR APPLICABLE DRIVEWAY PROFILE. PAVEMENT SECTION SHALL BE 2" HMA OVER 4" CSTC.
- 8 CONSTRUCT SIDEWALK RAMP PER RAMP SCHEDULE ON SHEET 3.14.
- 9 CONNECT TO EXISTING STORM DRAIN.
- 10 ADJUST EXISTING CATCH BASIN OR MANHOLE TO FINISH GRADE.
- 11 ADJUST EXISTING UTILITY VALVE OR BOX TO FINISH GRADE.
- 12 REMOVE EXISTING GRATE AND REPLACE WITH SOLID LOCKING COVER.
- 13 PROVIDE ETHAFOAM IF VERTICAL CLEARANCE BETWEEN PIPE IS LESS THAN 6". SEE SPECIFICATIONS FOR DETAILS.
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- 15 PROTECT EXISTING UTILITY DURING CONSTRUCTION.
- 16 CONSTRUCT MODULAR BLOCK WALL PER DETAIL AND WALL TABLE ON SHEET 5.07.
- 17 CONSTRUCT SOLDIER PILE WALL PER DETAILS AND PROFILE ON SHEETS 5.01-5.06.
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- 20 INSTALL OR RESET SURVEY MONUMENT AND CASE PER CITY OF WOODINVILLE STD PLAN 380.
- 21 CONSTRUCT CEMENT CONCRETE TRAFFIC CURB PER WSDOT STD PLAN F-10.12-00.
- 22 CONSTRUCT PRECAST CEMENT CONCRETE DUAL FACED SLOPED MOUNTABLE CURB PER WSDOT STD PLAN F-10.54-02.
- 23 INSTALL SOLID LOCKING COVER PER WSDOT STD PLAN B-30.20-01.

**GENERAL NOTES**

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3. ALL STORM DRAIN PIPE SHALL BE 12" CORRUGATED POLYETHYLENE PIPE UNLESS NOTED OTHERWISE.

**LEGEND**

REFERENCE CURB RETURN DATA TABLE ON SHEET 3.14  
 3" ASPHALT CONCRETE PAVEMENT OVERLAY  
 FULL DEPTH ASPHALT CONCRETE PAVEMENT  
 CEMENT CONCRETE SIDEWALK

HORIZ. SCALE: 1" = 20'  
 VERT. SCALE: 1" = 5'

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 P.E. STAMP BOX

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**CITY OF WOODINVILLE**  
 17301 133rd AVE NE  
 WOODINVILLE, WA 98072  
 PHONE: (425) 489-2700  
 FAX: (425) 489-2705

PROJECT INFORMATION  
**WOODINVILLE-DUVAL ROADWAY PROJECT**

SHEET TITLE:  
**ROADWAY AND DRAINAGE PLAN AND PROFILE**

DATE: **Aug-2011**  
 DESIGNED BY: **PW10-XXX**  
 DRAWN BY: **SCALE: 1"=20'**  
 SHEET **X** OF **X**  
 DRAWING NO.: **3.03**

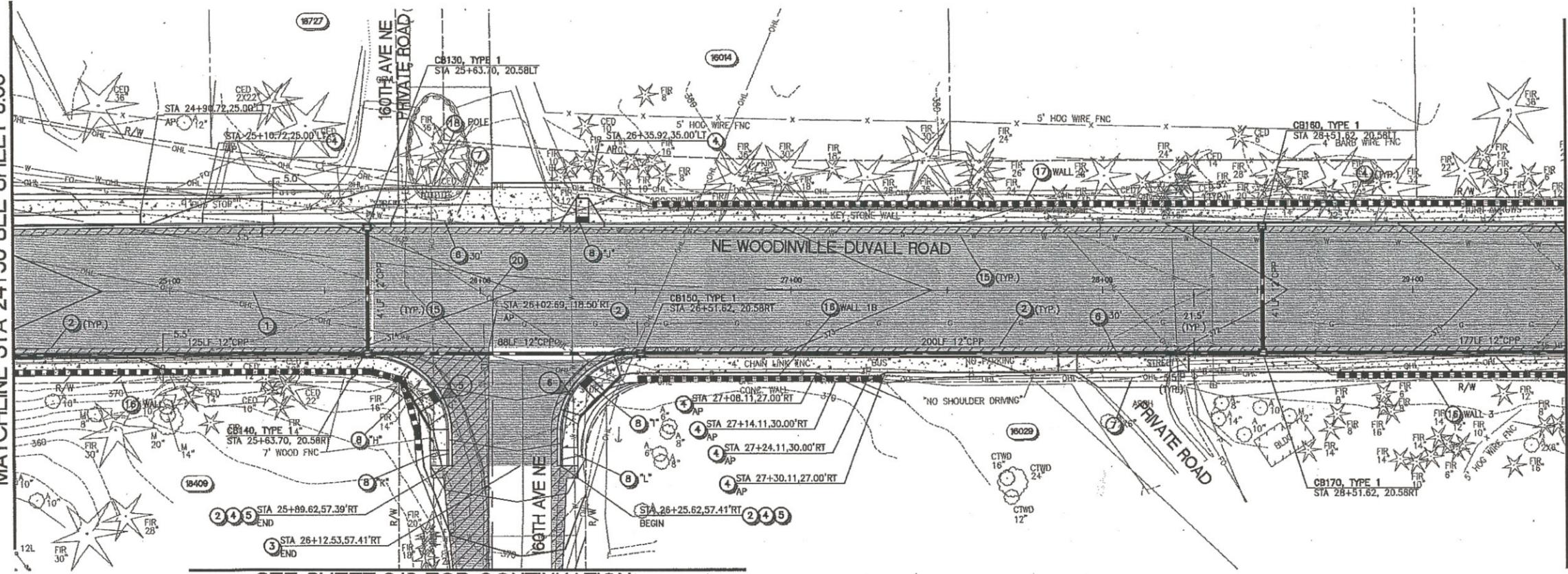
MATCHLINE STA 24+50 SEE SHEET 3.03

MATCHLINE STA 29+50 SEE SHEET 3.05

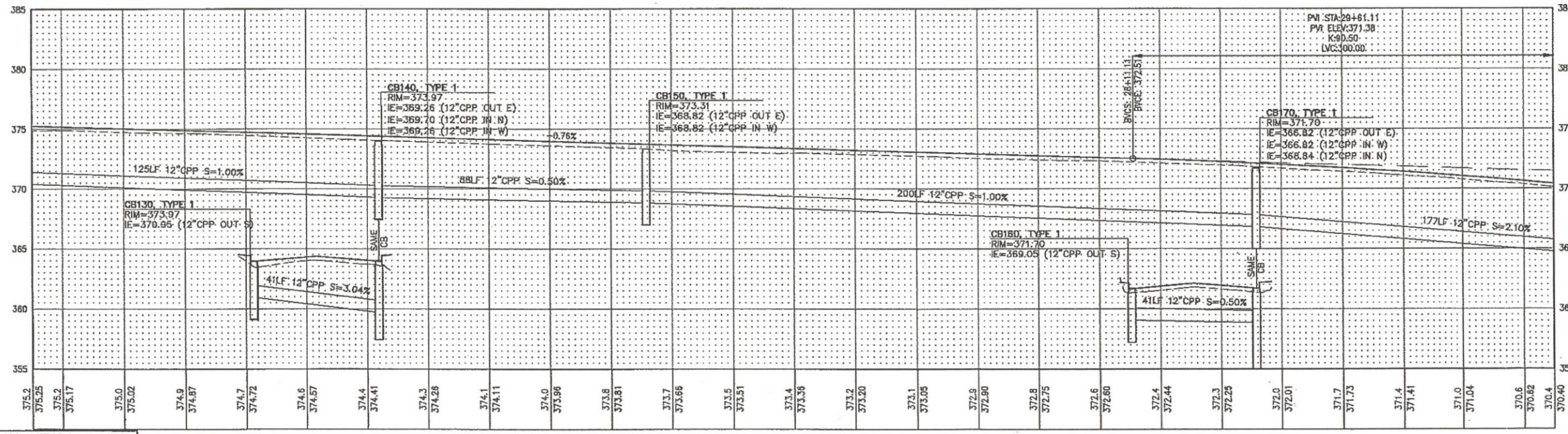
**CONSTRUCTION NOTES**

1. CONSTRUCTION CENTERLINE, SEE SHEETS 1.02 AND 1.03 FOR DETAILS.
2. CONSTRUCT ASPHALT CONCRETE PAVEMENT SECTION PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
3. OVERLAY ROADWAY PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
4. CONSTRUCT CEMENT CONCRETE SIDEWALK PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
5. CONSTRUCT CEMENT CONCRETE TRAFFIC CURB AND GUTTER PER WSDOT STD PLAN F-10.12-00.
6. CONSTRUCT CEMENT CONCRETE DRIVEWAY PER WSDOT STD PLAN F-80.10-00. TYPE PER PLAN.
7. RECONSTRUCT DRIVEWAY TO THE LIMITS SHOWN, SEE SHEETS 3.XX-3.XX FOR APPLICABLE DRIVEWAY PROFILE. PAVEMENT SECTION SHALL BE 2" HMA OVER 4" CSTC.
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9. CONNECT TO EXISTING STORM DRAIN.
10. ADJUST EXISTING CATCH BASIN OR MANHOLE TO FINISH GRADE.
11. ADJUST EXISTING UTILITY VALVE OR BOX TO FINISH GRADE.
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13. PROVIDE ETHAFOAM IF VERTICAL CLEARANCE BETWEEN PIPE IS LESS THAN 6". SEE SPECIFICATIONS FOR DETAILS.
14. EXISTING LANDSCAPE FEATURE OR STRUCTURE TO REMAIN, PROTECT DURING CONSTRUCTION.
15. PROTECT EXISTING UTILITY DURING CONSTRUCTION.
16. CONSTRUCT MODULAR BLOCK WALL PER DETAIL AND WALL TABLE ON SHEET 5.07.
17. CONSTRUCT SOLDIER PILE WALL PER DETAILS AND PROFILE ON SHEETS 5.01-5.06.
18. EXISTING UTILITY TO BE RELOCATED, REMOVED AND/OR ADJUSTED TO FINISH GRADE BY OTHERS. CONTRACTOR SHALL WORK AROUND THE FACILITY UNTIL RELOCATION/ADJUSTMENT WORK IS COMPLETED.
19. LANDSCAPE ISLAND PER DETAIL ON SHEET 3.14.
20. INSTALL OR RESET SURVEY MONUMENT AND CASE PER CITY OF WOODINVILLE STD PLAN 380.
21. CONSTRUCT CEMENT CONCRETE TRAFFIC CURB PER WSDOT STD PLAN F-10.12-00.
22. CONSTRUCT PRECAST CEMENT CONCRETE DUAL FACED SLOPED MOUNTABLE CURB PER WSDOT STD PLAN F-10.64-02.
23. INSTALL SOLID LOCKING COVER PER WSDOT STD PLAN B-30.20-01.

EXHIBIT 9  
PAGE 34 OF 145



SEE SHEET 3.13 FOR CONTINUATION

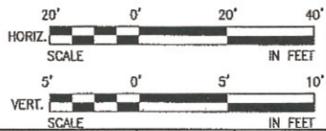


**GENERAL NOTES**

1. ALL DIMENSIONS AND STATION AND OFFSET REFERENCES ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
2. CONSTRUCTION CENTERLINE AND RIGHT-OF-WAY CENTERLINE ARE NOT THE SAME. STATION AND OFFSET REFERENCES ARE TO CONSTRUCTION CENTERLINE.
3. ALL STORM DRAIN PIPE SHALL BE 12" CORRUGATED POLYETHYLENE PIPE UNLESS NOTED OTHERWISE.

**LEGEND**

- REFERENCE CURB RETURN DATA TABLE ON SHEET 3.14
- 3" ASPHALT CONCRETE PAVEMENT OVERLAY
- FULL DEPTH ASPHALT CONCRETE PAVEMENT
- CEMENT CONCRETE SIDEWALK



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**PRELIMINARY ROAD**

**P.E. STAMP BOX**

**KINDI A. SHAPEER**  
PROFESSIONAL ENGINEER

**JACO M. VANDERBEEK**  
PROFESSIONAL ENGINEER

NO.	REVISION	DATE	BY	CK
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5				

**CITY OF WOODINVILLE**  
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PHONE: (425) 489-2700  
FAX: (425) 489-2705

**PROJECT INFORMATION**

**WOODINVILLE-DUVAL ROADWAY PROJECT**

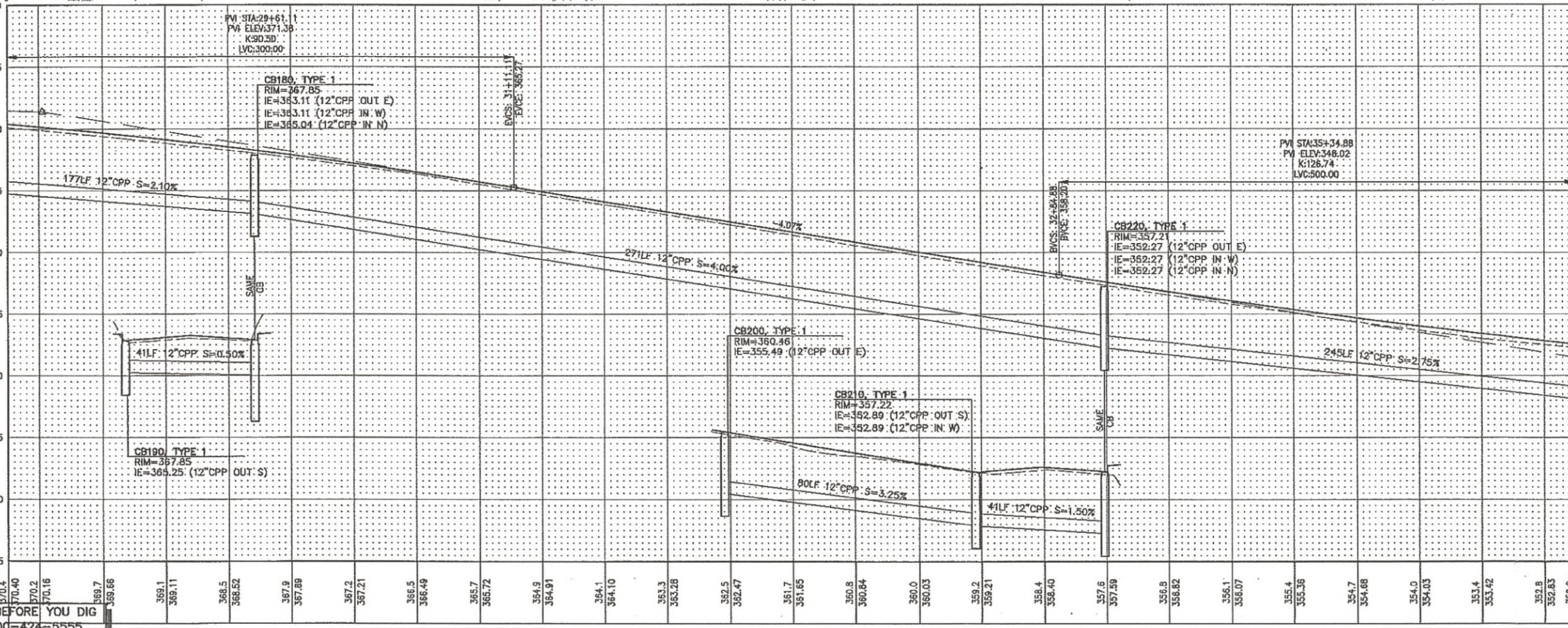
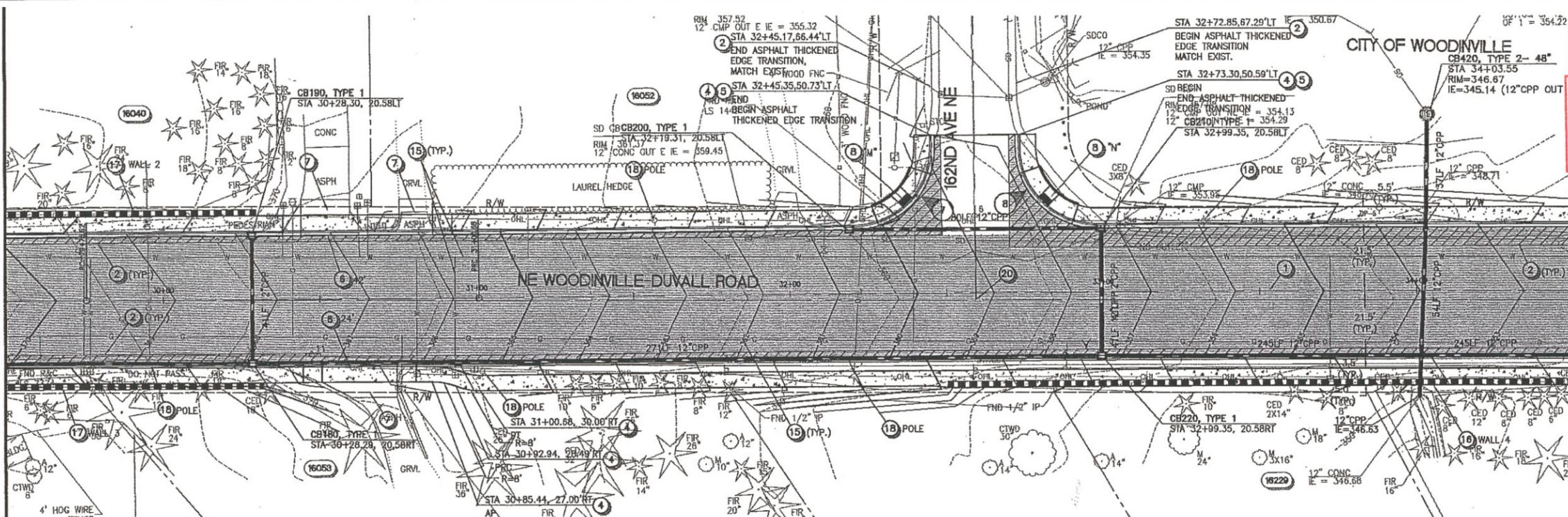
**SHEET TITLE:**

**ROADWAY AND DRAINAGE PLAN AND PROFILE**

DATE: 10/10/11  
DESIGNED BY: PWH-200  
DRAWN BY: SCALE: 1"=20'  
SHEET X OF X  
DRAWING NO.: 3.04

MATCHLINE STA 29+50 SEE SHEET 3.04

MATCHLINE STA 34+50 SEE SHEET 3.06



CONSTRUCTION NOTES

- CONSTRUCTION CENTERLINE, SEE SHEETS 1.02 AND 1.03 FOR DETAILS.
- CONSTRUCT ASPHALT CONCRETE PAVEMENT SECTION PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
- OVERLAY ROADWAY PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
- CONSTRUCT CEMENT CONCRETE SIDEWALK PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
- CONSTRUCT CEMENT CONCRETE TRAFFIC CURB AND GUTTER PER WSDOT STD PLAN F-10.12-00.
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- EXISTING LANDSCAPE FEATURE OR STRUCTURE TO REMAIN, PROTECT DURING CONSTRUCTION.
- PROTECT EXISTING UTILITY DURING CONSTRUCTION.
- CONSTRUCT MODULAR BLOCK WALL PER DETAIL AND WALL TABLE ON SHEET 5.07.
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- INSTALL OR RESET SURVEY MONUMENT AND CASE PER CITY OF WOODINVILLE STD PLAN 380.
- CONSTRUCT CEMENT CONCRETE TRAFFIC CURB PER WSDOT STD PLAN F-10.12-00.
- CONSTRUCT PRECAST CEMENT CONCRETE DUAL FACED SLOPED MOUNTABLE CURB PER WSDOT STD PLAN F-10.64-02.
- INSTALL SOLID LOCKING COVER PER WSDOT STD PLAN B-30.20-01.

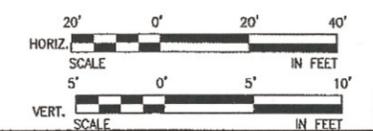
EXHIBIT 9  
PAGE 55 OF 145

GENERAL NOTES

- ALL DIMENSIONS AND STATION AND OFFSET REFERENCES ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
- CONSTRUCTION CENTERLINE AND RIGHT-OF-WAY CENTERLINE ARE NOT THE SAME. STATION AND OFFSET REFERENCES ARE TO CONSTRUCTION CENTERLINE.
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LEGEND

- REFERENCE CURB RETURN DATA TABLE ON SHEET 3.14
- 3" ASPHALT CONCRETE PAVEMENT OVERLAY
- FULL DEPTH ASPHALT CONCRETE PAVEMENT
- CEMENT CONCRETE SIDEWALK



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**PRELIMINARY**

**KINDI A. SHAPIRO**  
Professional Engineer  
No. 10792

**WICO M. VANDERHOEF**  
Professional Engineer  
No. 10792

P.E. STAMP BOX

NO.	REVISION	DATE	BY	CK
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5				

**CITY OF WOODINVILLE**  
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PHONE: (425) 489-2700  
FAX: (425) 489-2705

PROJECT INFORMATION

**WOODINVILLE-DUWALL ROADWAY PROJECT**

SHEET TITLE:

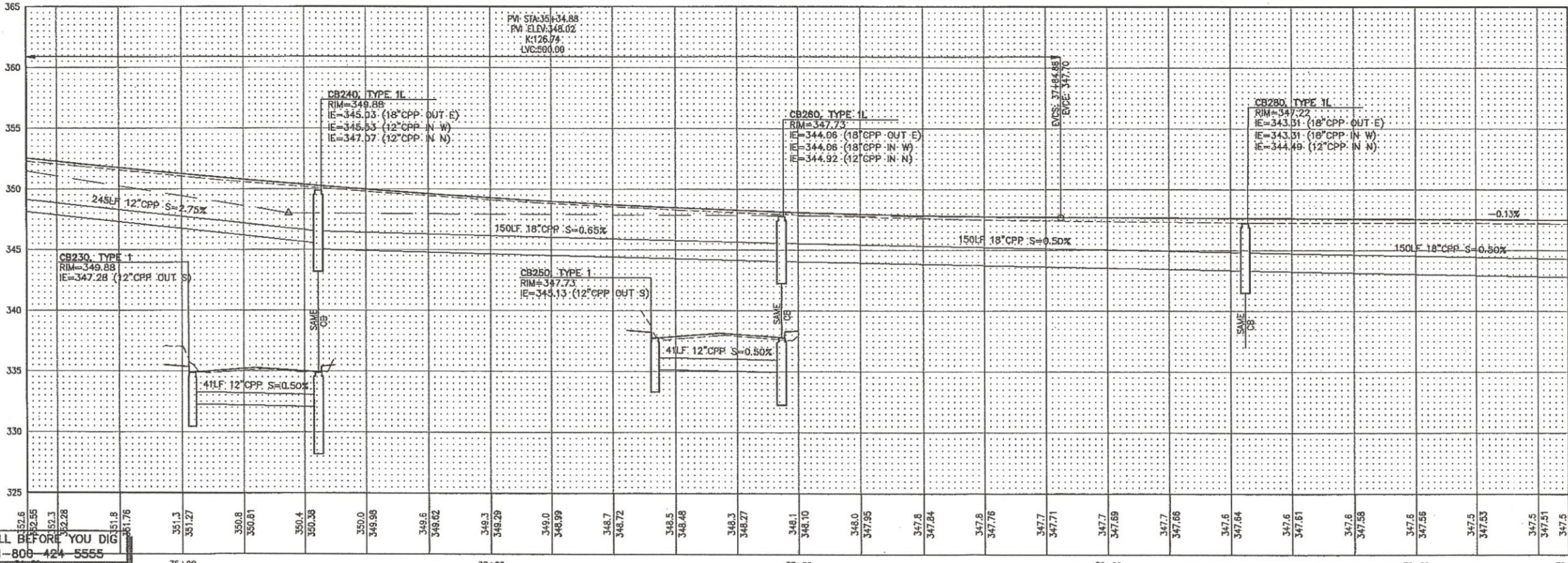
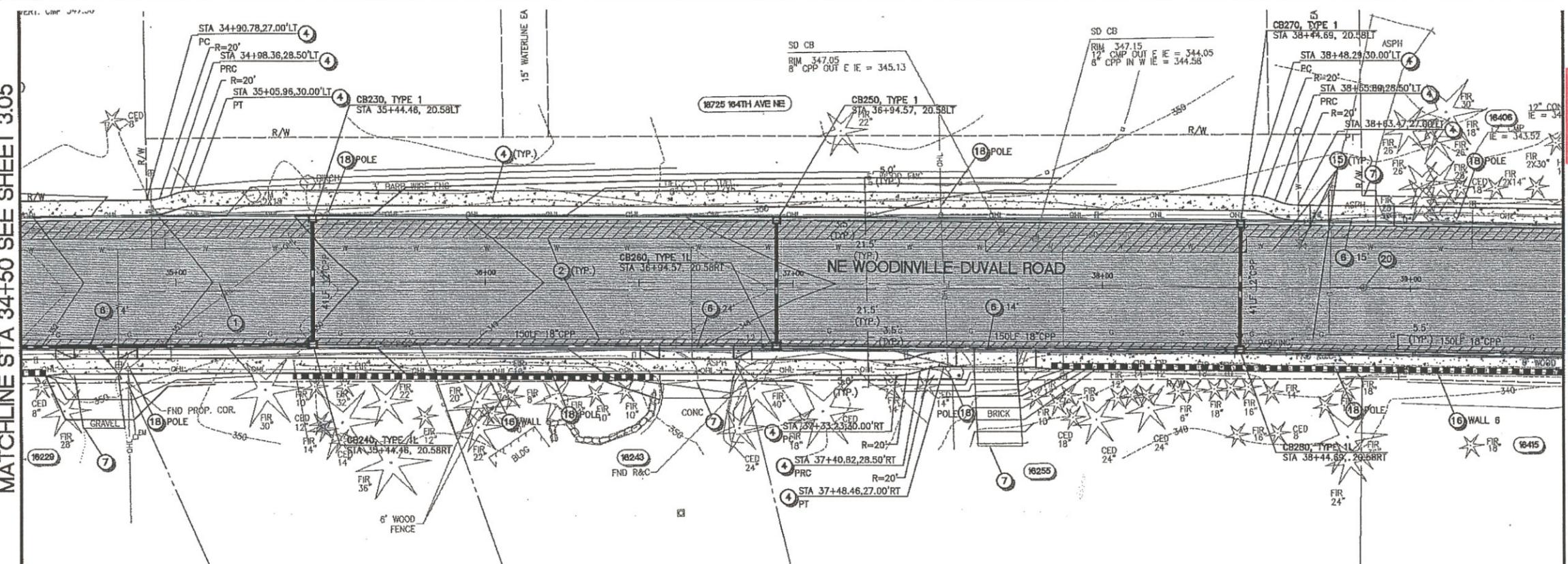
**ROADWAY AND DRAINAGE PLAN AND PROFILE**

DATE: 10/20/11  
DESIGNED BY: PW10-3001  
DRAWN BY: SCALE: 1"=20'  
SHEET X OF X  
DRAWING NO.: 3.05

MATCHLINE STA 34+50 SEE SHEET 3.05

EXHIBIT 9  
PAGE 56 OF 145

MATCHLINE STA 39+50 SEE SHEET 3.07



CONSTRUCTION NOTES

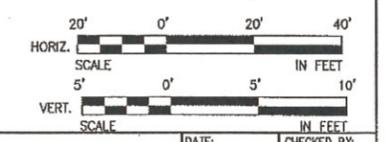
- CONSTRUCTION CENTERLINE, SEE SHEETS 1.02 AND 1.03 FOR DETAILS.
- CONSTRUCT ASPHALT CONCRETE PAVEMENT SECTION PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
- OVERLAY ROADWAY PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
- CONSTRUCT CEMENT CONCRETE SIDEWALK PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
- CONSTRUCT CEMENT CONCRETE TRAFFIC CURB AND GUTTER PER WSDOT STD PLAN F-10.12-00.
- CONSTRUCT CEMENT CONCRETE DRIVEWAY PER WSDOT STD PLAN F-80.10-00. TYPE PER PLAN.
- RECONSTRUCT DRIVEWAY TO THE LIMITS SHOWN, SEE SHEETS 3.XX-3.XX FOR APPLICABLE DRIVEWAY PROFILE. PAVEMENT SECTION SHALL BE 2" HMA OVER 4" CSTC.
- CONSTRUCT SIDEWALK RAMP PER RAMP SCHEDULE ON SHEET 3.14.
- CONNECT TO EXISTING STORM DRAIN.
- ADJUST EXISTING CATCH BASIN OR MANHOLE TO FINISH GRADE.
- ADJUST EXISTING UTILITY VALVE OR BOX TO FINISH GRADE.
- REMOVE EXISTING GRATE AND REPLACE WITH SOLID LOCKING COVER.
- PROVIDE ETHAFOAM IF VERTICAL CLEARANCE BETWEEN PIPE IS LESS THAN 6". SEE SPECIFICATIONS FOR DETAILS.
- EXISTING LANDSCAPE FEATURE OR STRUCTURE TO REMAIN, PROTECT DURING CONSTRUCTION.
- PROTECT EXISTING UTILITY DURING CONSTRUCTION.
- CONSTRUCT MODULAR BLOCK WALL PER DETAIL AND WALL TABLE ON SHEET 5.07.
- CONSTRUCT SOLDIER PILE WALL PER DETAILS AND PROFILE ON SHEETS 5.01-5.06.
- EXISTING UTILITY TO BE RELOCATED, REMOVED AND/OR ADJUSTED TO FINISH GRADE BY OTHERS. CONTRACTOR SHALL WORK AROUND THE FACILITY UNTIL RELOCATION/ADJUSTMENT WORK IS COMPLETED.
- LANDSCAPE ISLAND PER DETAIL ON SHEET 3.14.
- INSTALL OR RESET SURVEY MONUMENT AND CASE PER CITY OF WOODINVILLE STD PLAN 380.
- CONSTRUCT CEMENT CONCRETE TRAFFIC CURB PER WSDOT STD PLAN F-10.12-00.
- CONSTRUCT PRECAST CEMENT CONCRETE DUAL FACED SLOPED MOUNTABLE CURB PER WSDOT STD PLAN F-10.64-02.
- INSTALL SOLID LOCKING COVER PER WSDOT STD PLAN B-30.20-01.

GENERAL NOTES

- ALL DIMENSIONS AND STATION AND OFFSET REFERENCES ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
- CONSTRUCTION CENTERLINE AND RIGHT-OF-WAY CENTERLINE ARE NOT THE SAME. STATION AND OFFSET REFERENCES ARE TO CONSTRUCTION CENTERLINE.
- ALL STORM DRAIN PIPE SHALL BE 12" CORRUGATED POLYETHYLENE PIPE UNLESS NOTED OTHERWISE.

LEGEND

- REFERENCE CURB RETURN DATA TABLE ON SHEET 3.14
- 3" ASPHALT CONCRETE PAVEMENT OVERLAY
- FULL DEPTH ASPHALT CONCRETE PAVEMENT
- CEMENT CONCRETE SIDEWALK



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WEB: WWW.OTAK.COM

**PRELIMINARY**

**KINDA A. SHAPLEK**  
REGISTERED PROFESSIONAL ENGINEER  
NO. 40888

**JULIO M. VANDERKAM**  
REGISTERED PROFESSIONAL ENGINEER  
NO. 30792

P.E. STAMP BOX

NO.	REVISION	DATE	BY	CK
1				
2				
3				
4				
5				

**CITY OF WOODINVILLE**  
17301 133rd AVE NE  
WOODINVILLE, WA 98072  
PHONE: (425) 489-2700  
FAX: (425) 489-2705

PROJECT INFORMATION

**WOODINVILLE-DUVAL ROADWAY PROJECT**

SHEET TITLE:

**ROADWAY AND DRAINAGE PLAN AND PROFILE**

DATE: **Aug-2011**  
DESIGNED BY: **PW10-XXX**  
DRAWN BY:  
SHEET **X** OF **X**  
DRAWING NO.: **3.06**

MATCHLINE STA 39+50 SEE SHEET 3.06

MATCHLINE STA 44+50 SEE SHEET 3.08

EXHIBIT 9  
PAGE 57 OF 149

**CONSTRUCTION NOTES**

1. CONSTRUCTION CENTERLINE, SEE SHEETS 1.02 AND 1.03 FOR DETAILS.
2. CONSTRUCT ASPHALT CONCRETE PAVEMENT SECTION PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
3. OVERLAY ROADWAY PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
4. CONSTRUCT CEMENT CONCRETE SIDEWALK PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
5. CONSTRUCT CEMENT CONCRETE TRAFFIC CURB AND GUTTER PER WSDOT STD PLAN F-10.12-00.
6. CONSTRUCT CEMENT CONCRETE DRIVEWAY PER WSDOT STD PLAN F-80.10-00. TYPE PER PLAN.
7. RECONSTRUCT DRIVEWAY TO THE LIMITS SHOWN, SEE SHEETS 3.XX-3.XX FOR APPLICABLE DRIVEWAY PROFILE. PAVEMENT SECTION SHALL BE 2" HMA OVER 4" CSTC.
8. CONSTRUCT SIDEWALK RAMP PER RAMP SCHEDULE ON SHEET 3.14.
9. CONNECT TO EXISTING STORM DRAIN.
10. ADJUST EXISTING CATCH BASIN OR MANHOLE TO FINISH GRADE.
11. ADJUST EXISTING UTILITY VALVE OR BOX TO FINISH GRADE.
12. REMOVE EXISTING GRATE AND REPLACE WITH SOLID LOCKING COVER.
13. PROVIDE ETHAFOAM IF VERTICAL CLEARANCE BETWEEN PIPE IS LESS THAN 6". SEE SPECIFICATIONS FOR DETAILS.
14. EXISTING LANDSCAPE FEATURE OR STRUCTURE TO REMAIN, PROTECT DURING CONSTRUCTION.
15. PROTECT EXISTING UTILITY DURING CONSTRUCTION.
16. CONSTRUCT MODULAR BLOCK WALL PER DETAIL AND WALL TABLE ON SHEET 5.07.
17. CONSTRUCT SOLDIER PILE WALL PER DETAILS AND PROFILE ON SHEETS 5.01-5.06.
18. EXISTING UTILITY TO BE RELOCATED, REMOVED AND/OR ADJUSTED TO FINISH GRADE BY OTHERS. CONTRACTOR SHALL WORK AROUND THE FACILITY UNTIL RELOCATION/ADJUSTMENT WORK IS COMPLETED.
19. LANDSCAPE ISLAND PER DETAIL ON SHEET 3.14.
20. INSTALL OR RESET SURVEY MONUMENT AND CASE PER CITY OF WOODINVILLE STD PLAN 380.
21. CONSTRUCT CEMENT CONCRETE TRAFFIC CURB PER WSDOT STD PLAN F-10.12-00.
22. CONSTRUCT PRECAST CEMENT CONCRETE DUAL FACED SLOPED MOUNTABLE CURB PER WSDOT STD PLAN F-10.64-02.
23. INSTALL SOLID LOCKING COVER PER WSDOT STD PLAN B-30.20-01.

**GENERAL NOTES**

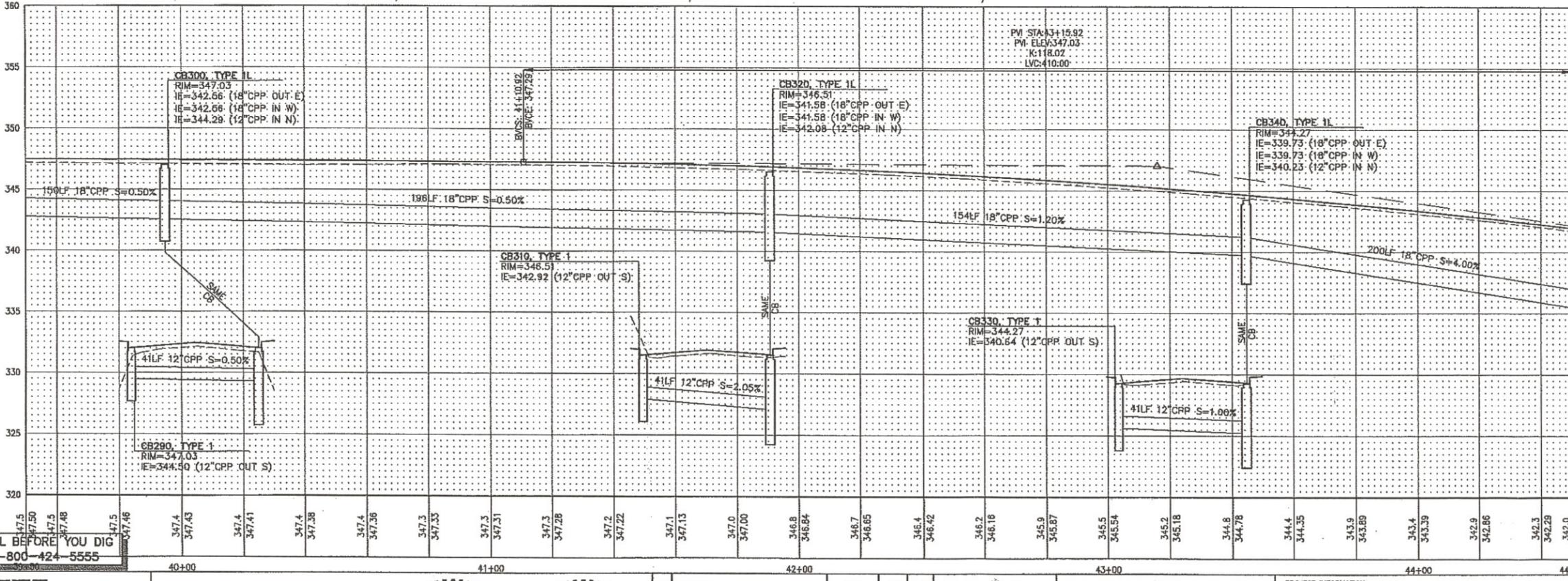
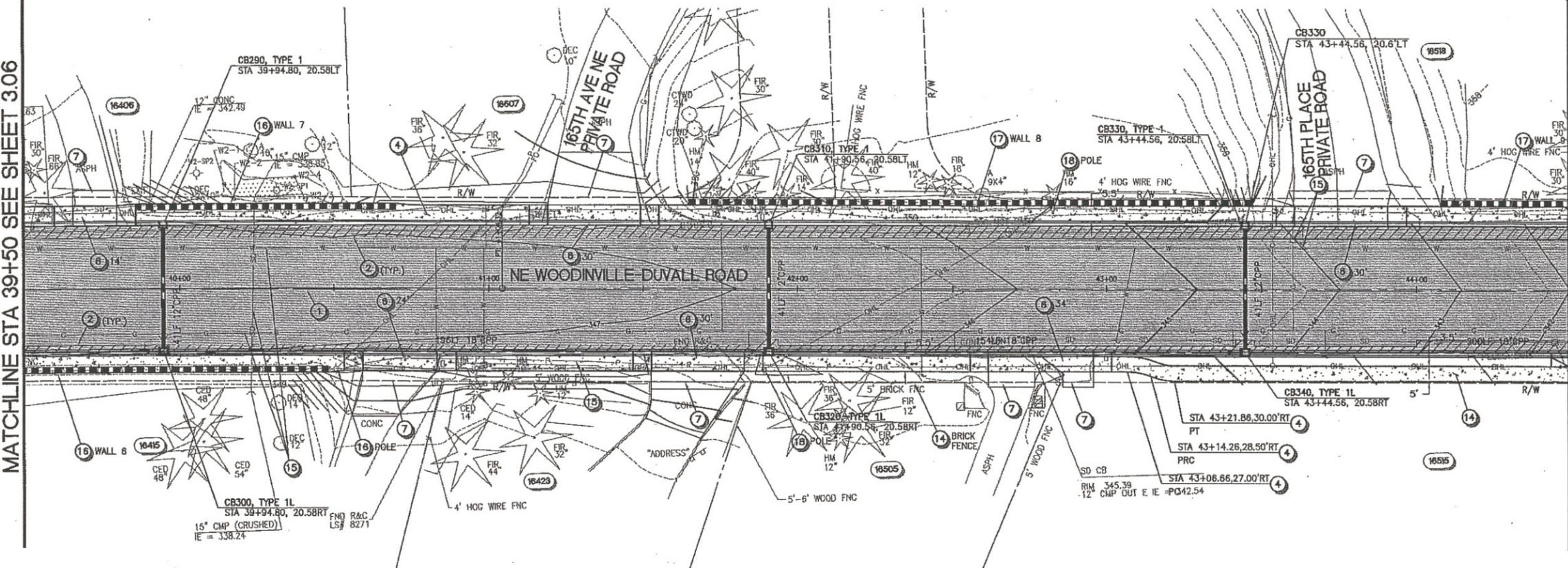
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**LEGEND**

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- 3" ASPHALT CONCRETE PAVEMENT OVERLAY
- FULL DEPTH ASPHALT CONCRETE PAVEMENT
- CEMENT CONCRETE SIDEWALK

HORIZ. SCALE: 1" = 20'

VERT. SCALE: 1" = 5'



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WEB: WWW.OTAK.COM

**PRELIMINARY**

**PROFESSIONAL ENGINEER**

**PROFESSIONAL ENGINEER**

P.E. STAMP BOX

NO.	REVISION	DATE	BY	CK
1				
2				
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5				



**CITY OF WOODINVILLE**  
17301 133rd AVE NE  
WOODINVILLE, WA 98072  
PHONE: (425) 489-2700  
FAX: (425)489-2705

PROJECT INFORMATION

**WOODINVILLE-DUWALL ROADWAY PROJECT**

SHEET TITLE: **ROADWAY AND DRAINAGE PLAN AND PROFILE**

DATE: <b>Aug-2011</b>	CHECKED BY:
DESIGNED BY: <b>PW10-XXX</b>	PROJECT NO.:
DRAWN BY:	SCALE: <b>1"=20'</b>
SHEET <b>X</b> OF <b>X</b>	
DRAWING NO.: <b>3.07</b>	

MATCHLINE STA 44+50 SEE SHEET 3.07

MATCHLINE STA 49+50 SEE SHEET 3.09

EXHIBIT 9  
PAGE 58 OF 148

**CONSTRUCTION NOTES**

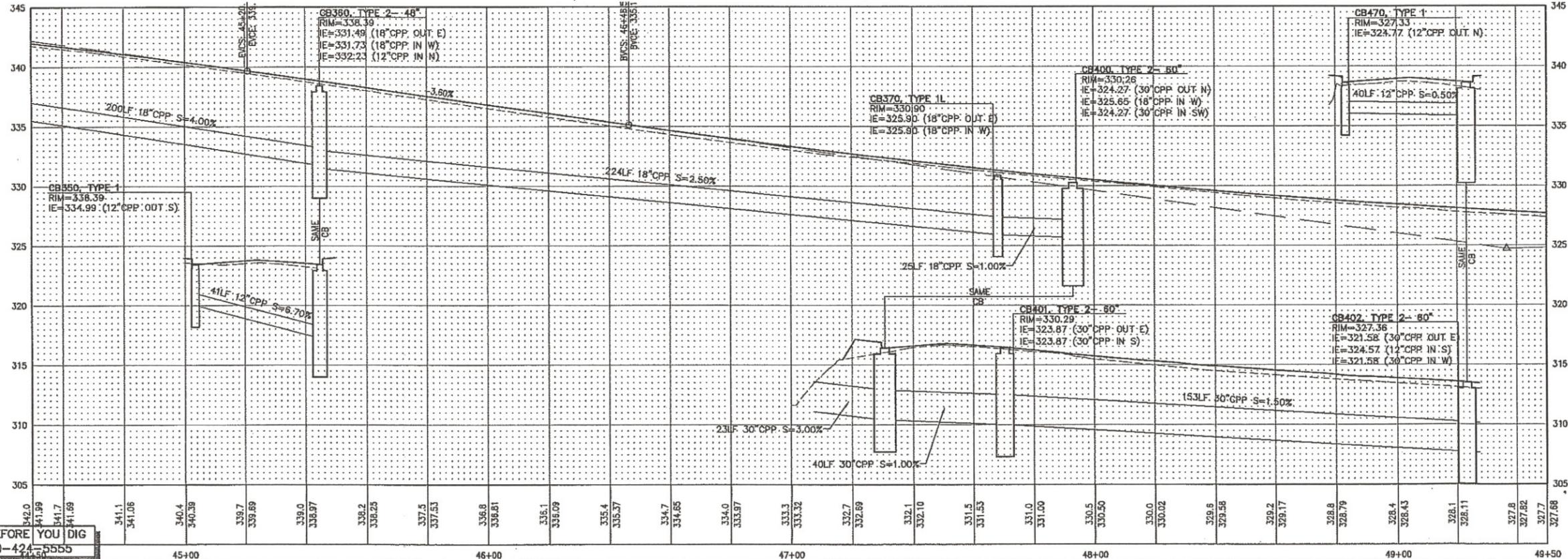
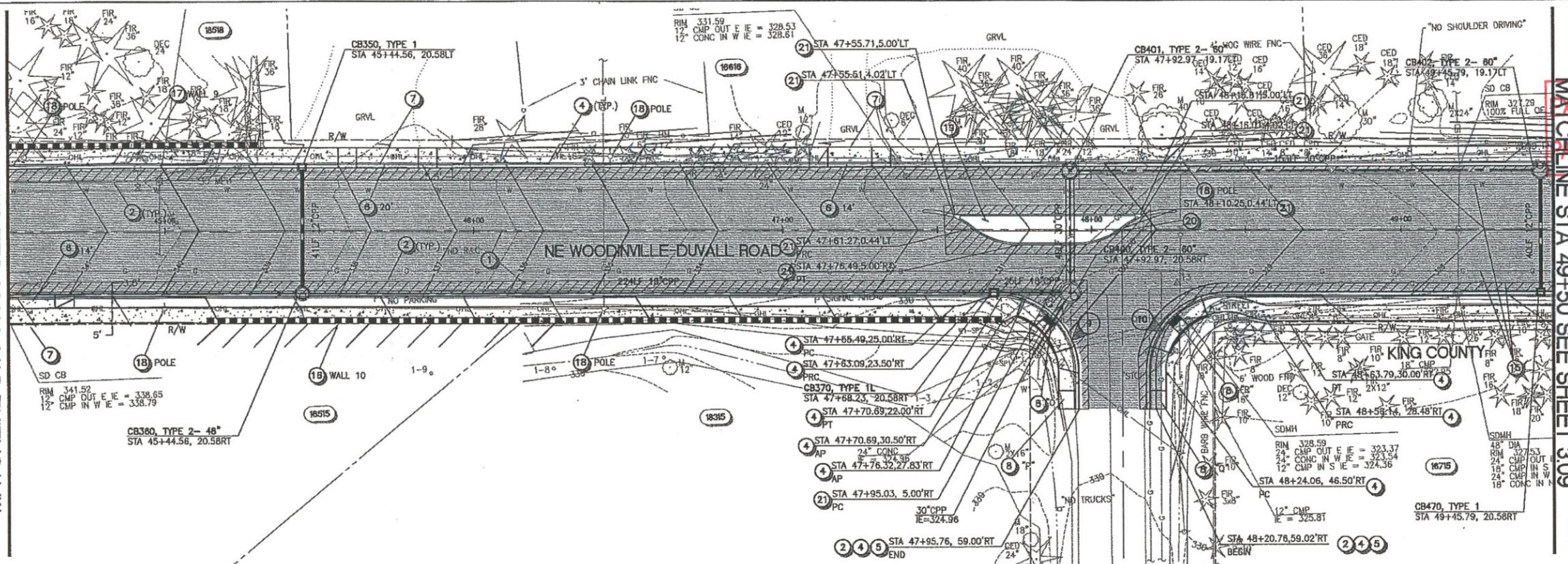
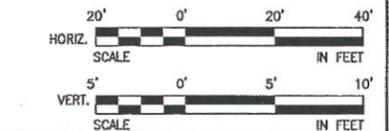
1. CONSTRUCTION CENTERLINE, SEE SHEETS 1.02 AND 1.03 FOR DETAILS.
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**GENERAL NOTES**

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**LEGEND**

- REFERENCE CURB RETURN DATA TABLE ON SHEET 3.14
- 3" ASPHALT CONCRETE PAVEMENT OVERLAY
- FULL DEPTH ASPHALT CONCRETE PAVEMENT
- CEMENT CONCRETE SIDEWALK



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**PRELIMINARY**

**KINDI A. SHAPLEY**  
Professional Engineer  
No. 10098  
State of Washington

**JACO M. VANDERBOSSCH**  
Professional Engineer  
No. 120792  
State of Washington

P.E. STAMP BOX

NO.	REVISION	DATE	BY	CK
1				
2				
3				
4				
5				

**CITY OF WOODINVILLE**  
17301 133rd AVE NE  
WOODINVILLE, WA 98072  
PHONE: (425) 489-2700  
FAX: (425) 489-2705

PROJECT INFORMATION

**WOODINVILLE-DUVAL**  
**ROADWAY PROJECT**

SHEET TITLE:

**ROADWAY AND DRAINAGE PLAN AND PROFILE**

DATE: **Nov-2011**

DESIGNED BY: **AW/SP/11**

DRAWN BY: **AW/SP/11**

PROJECT NO.: **PM10-100**

SCALE: **1"=20'**

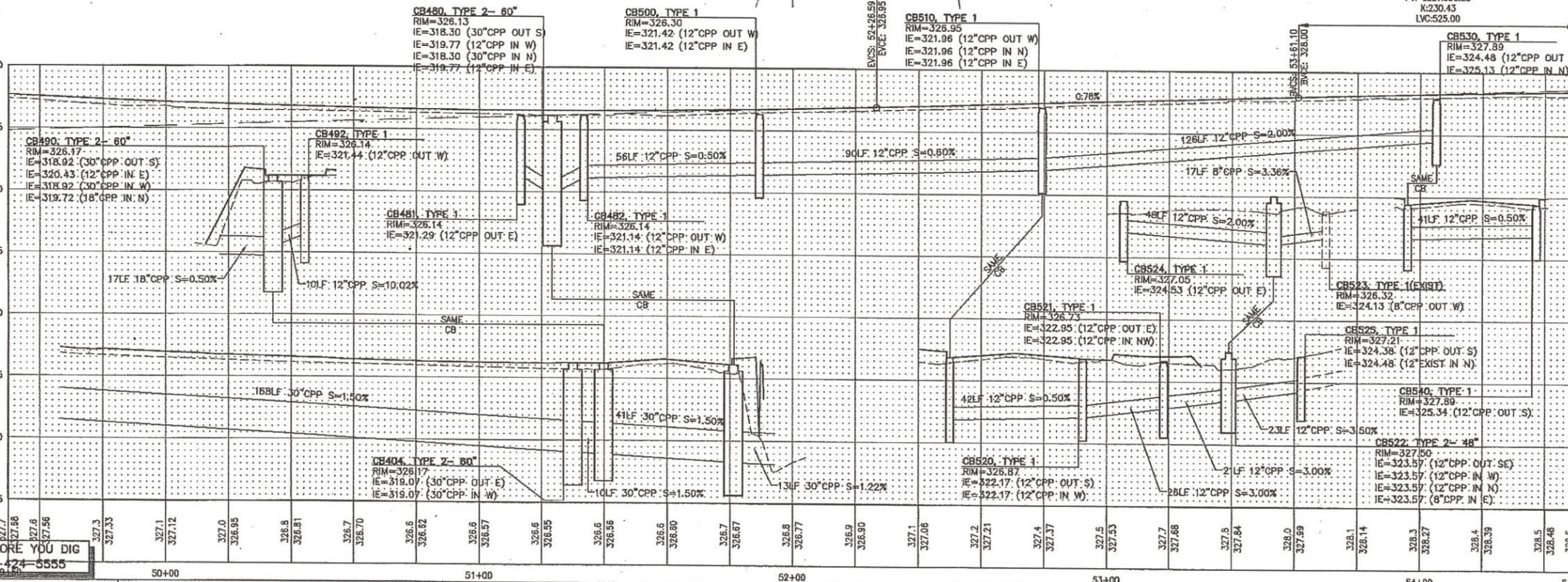
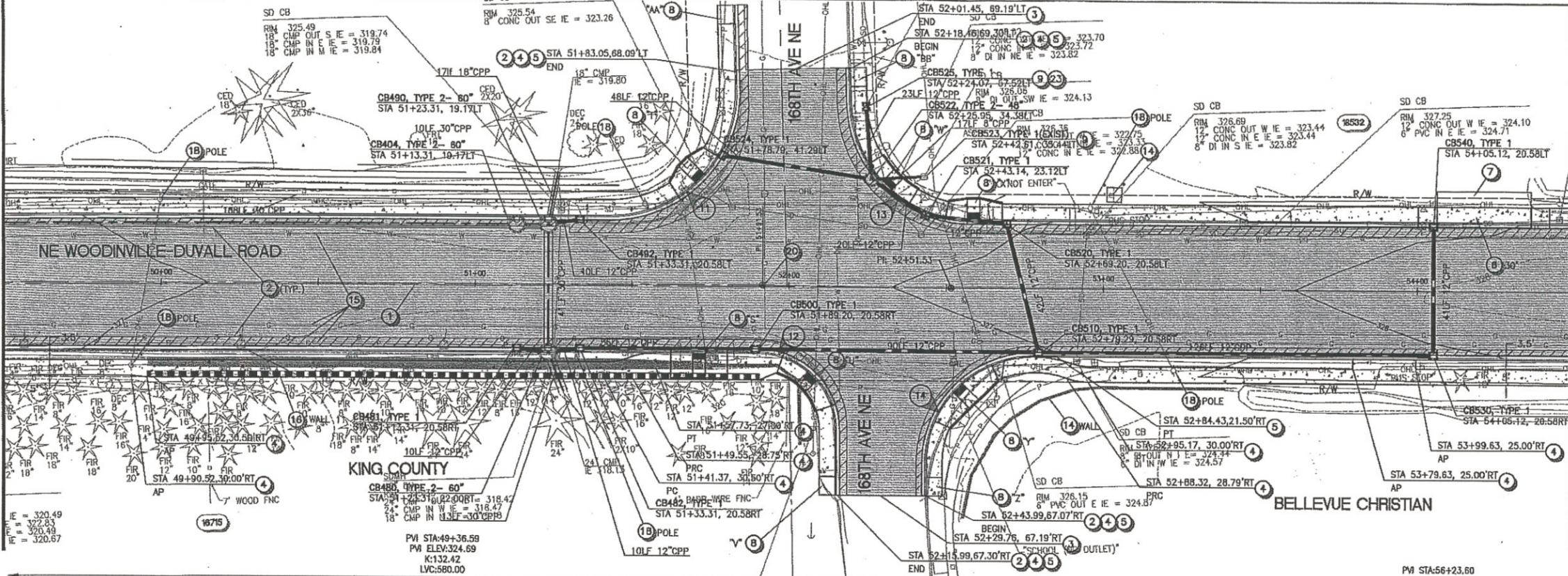
SHEET **X** OF **X**

DRAWING NO.: **3.08**

MATCHLINE STA 49+50 SEE SHEET 3.08

MATCHLINE STA 54+50 SEE SHEET 3.10

EXHIBIT 9  
PAGE 59 OF 145



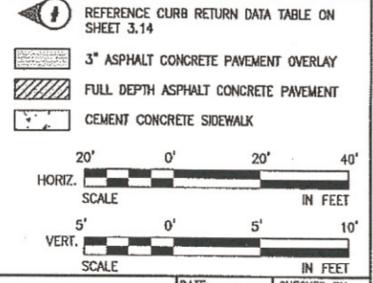
CONSTRUCTION NOTES

- CONSTRUCTION CENTERLINE, SEE SHEETS 1.02 AND 1.03 FOR DETAILS.
- CONSTRUCT ASPHALT CONCRETE PAVEMENT SECTION PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
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- PROVIDE ETHAFOAM IF VERTICAL CLEARANCE BETWEEN PIPE IS LESS THAN 6". SEE SPECIFICATIONS FOR DETAILS.
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GENERAL NOTES

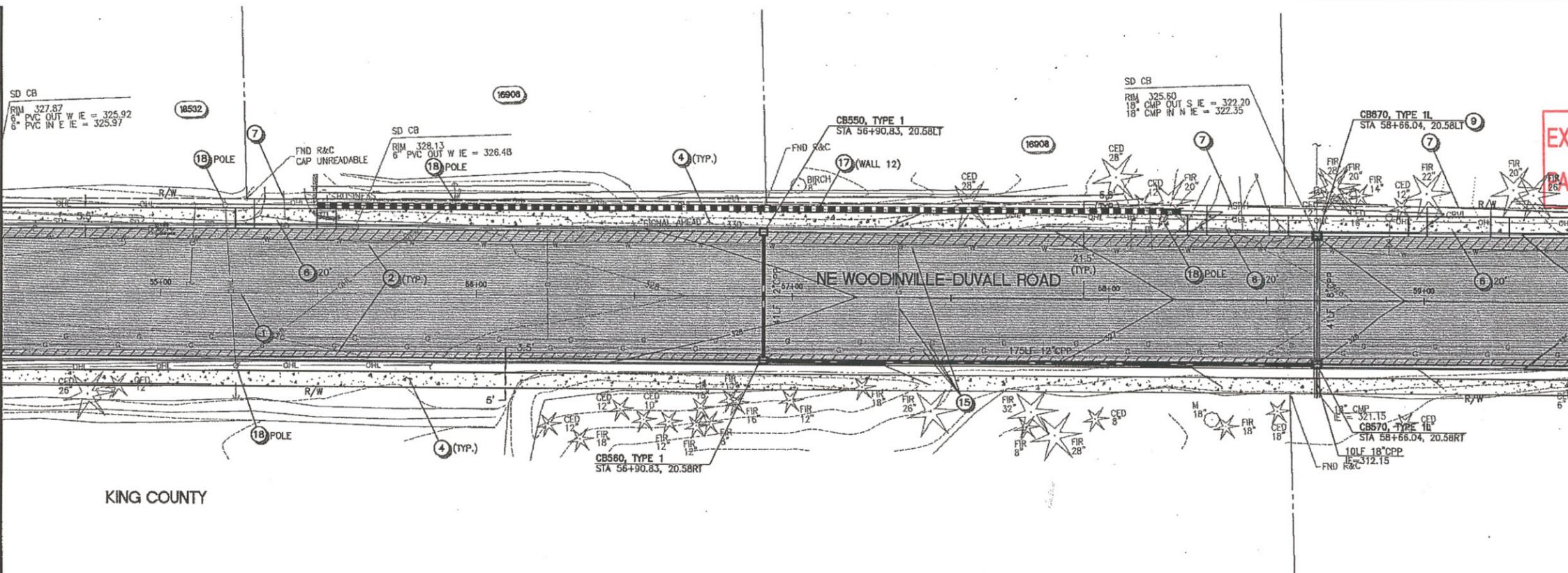
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LEGEND



XREF LIST  
 Lscale 20  
 Resolved  
 TTBULK  
 S423B 90  
 S423Y 220  
 C423R 500  
 C423N 01  
 C423G 50  
 WASSEAL  
 NMVSEAL

MATCHLINE STA 54+50 SEE SHEET 3.09



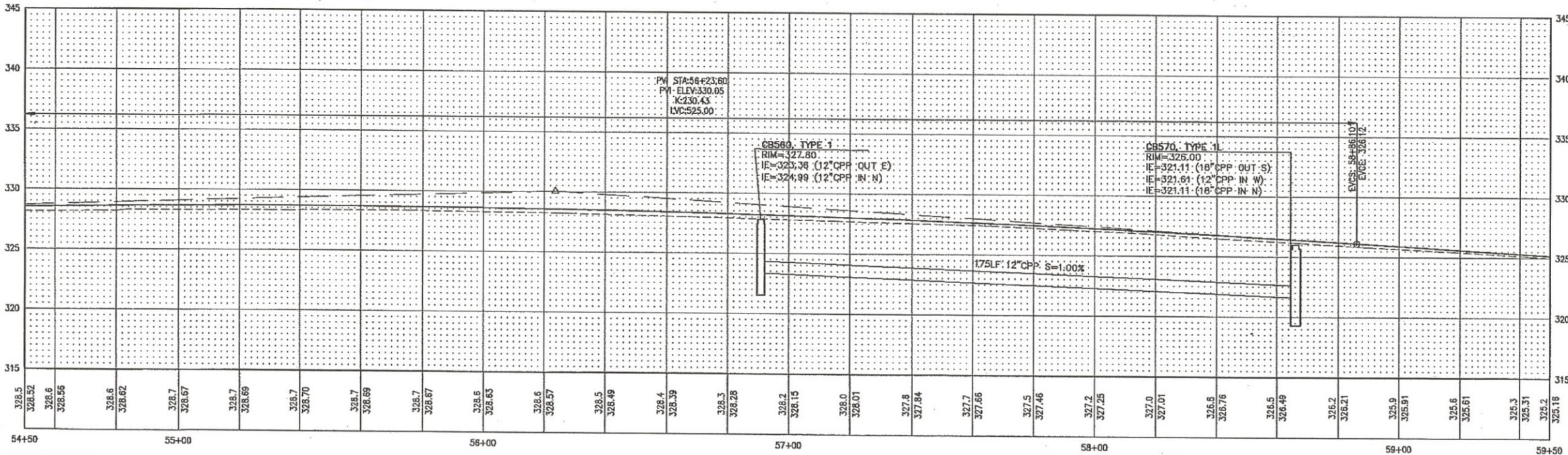
KING COUNTY

EXHIBIT 9  
 PAGE 60 OF 155

MATCHLINE STA 59+50 SEE SHEET 3.11



- ### CONSTRUCTION NOTES
- CONSTRUCT CENTERLINE, SEE SHEETS 1.02 AND 1.03 FOR DETAILS.
  - CONSTRUCT ASPHALT CONCRETE PAVEMENT SECTION PER TYPICAL ROADWAY SECTION ON SHEET 3.14.
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### LEGEND

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- FULL DEPTH ASPHALT CONCRETE PAVEMENT
- CEMENT CONCRETE SIDEWALK

HORIZ. SCALE: 1" = 20'  
 VERT. SCALE: 1" = 5'

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**PRELIMINARY**

**PRELIMINARY**

P.E. STAMP BOX

NO.	REVISION	DATE	BY	CK.
1				
2				
3				
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5				

**CITY OF WOODINVILLE**  
 17301 133rd AVE NE  
 WOODINVILLE, WA 98072  
 PHONE: (425) 489-2700  
 FAX: (425) 489-2705

PROJECT INFORMATION

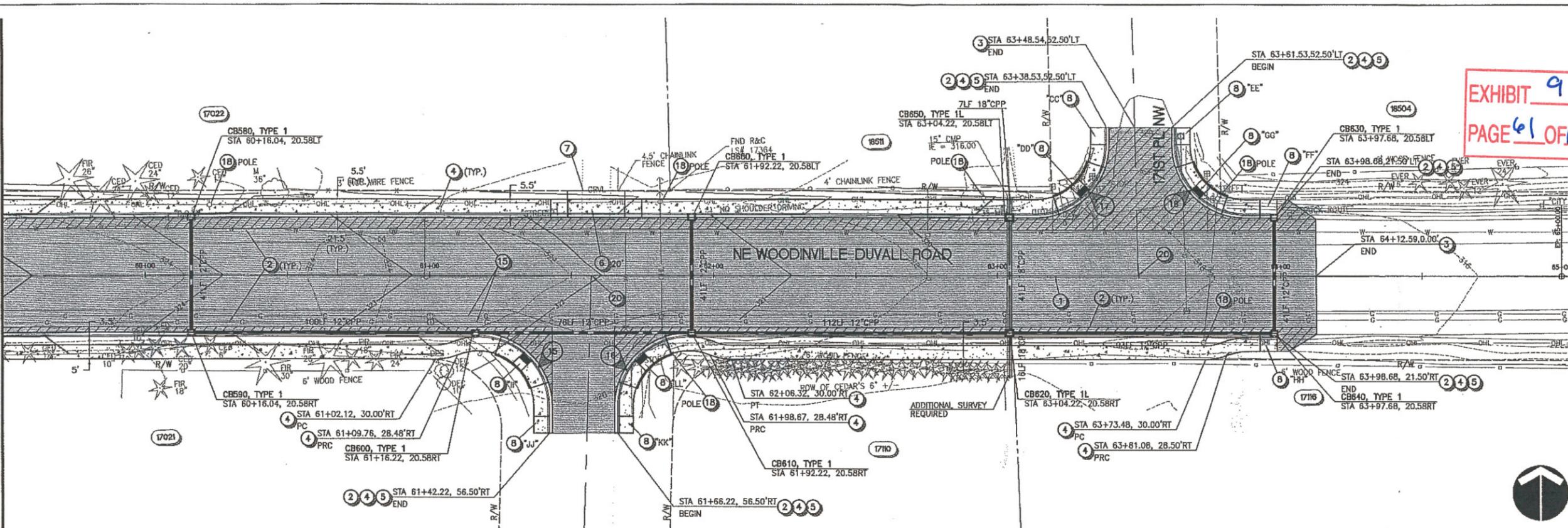
**WOODINVILLE-DUWALL ROADWAY PROJECT**

SHEET TITLE:

**ROADWAY AND DRAINAGE PLAN AND PROFILE**

DATE: **Aug 2010**  
 DESIGNED BY: PROJECT NO.:  
 DRAWN BY: SCALE: 1"=20'  
 SHEET **X** OF **X**  
 DRAWING NO.: **3.10**

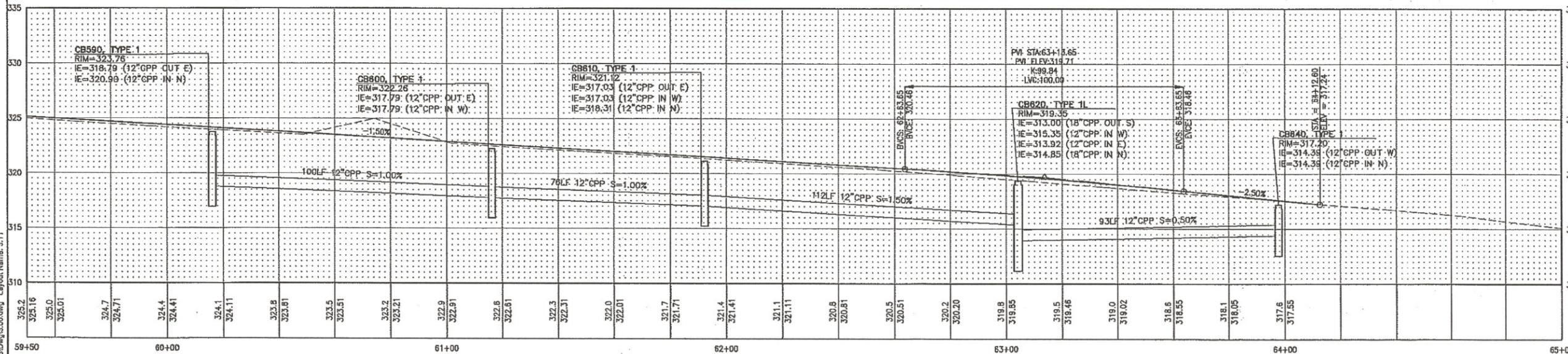
MATCHLINE STA 59+50 SEE SHEET 3.10



**CONSTRUCTION NOTES**

- 1 CONSTRUCTION CENTERLINE, SEE SHEETS 1.02 AND 1.03 FOR DETAILS.
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- 12 REMOVE EXISTING GRATE AND REPLACE WITH SOLID LOCKING COVER.
- 13 PROVIDE ETHAFOAM IF VERTICAL CLEARANCE BETWEEN PIPE IS LESS THAN 6". SEE SPECIFICATIONS FOR DETAILS.
- 14 EXISTING LANDSCAPE FEATURE OR STRUCTURE TO REMAIN, PROTECT DURING CONSTRUCTION.
- 15 PROTECT EXISTING UTILITY DURING CONSTRUCTION.
- 16 CONSTRUCT MODULAR BLOCK WALL PER DETAIL AND WALL TABLE ON SHEET 5.07.
- 17 CONSTRUCT SOLDIER PILE WALL PER DETAILS AND PROFILE ON SHEETS 5.01-5.08.
- 18 EXISTING UTILITY TO BE RELOCATED, REMOVED AND/OR ADJUSTED TO FINISH GRADE BY OTHERS. CONTRACTOR SHALL WORK AROUND THE FACILITY UNTIL RELOCATION/ADJUSTMENT WORK IS COMPLETED.
- 19 LANDSCAPE ISLAND PER DETAIL ON SHEET 3.14.
- 20 INSTALL OR RESET SURVEY MONUMENT AND CASE PER CITY OF WOODINVILLE STD PLAN 380.
- 21 CONSTRUCT CEMENT CONCRETE TRAFFIC CURB PER WSDOT STD PLAN F-10.12-00.
- 22 CONSTRUCT PRECAST CEMENT CONCRETE DUAL FACED SLOPED MOUNTABLE CURB PER WSDOT STD PLAN F-10.64-02.
- 23 INSTALL SOLID LOCKING COVER PER WSDOT STD PLAN B-30.20-01.

EXHIBIT 9  
PAGE 61 OF 145

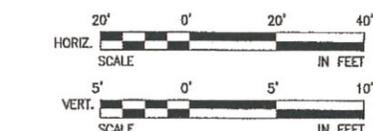


**GENERAL NOTES**

1. ALL DIMENSIONS AND STATION AND OFFSET REFERENCES ARE TO FACE OF CURB UNLESS NOTED OTHERWISE.
2. CONSTRUCTION CENTERLINE AND RIGHT-OF-WAY CENTERLINE ARE NOT THE SAME. STATION AND OFFSET REFERENCES ARE TO CONSTRUCTION CENTERLINE.
3. ALL STORM DRAIN PIPE SHALL BE 12" CORRUGATED POLYETHYLENE PIPE UNLESS NOTED OTHERWISE.

**LEGEND**

- REFERENCE CURB RETURN DATA TABLE ON SHEET 3.14
- 3" ASPHALT CONCRETE PAVEMENT OVERLAY
- FULL DEPTH ASPHALT CONCRETE PAVEMENT
- CEMENT CONCRETE SIDEWALK



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PRELIMINARY

P.E. STAMP BOX

NO.	REVISION	DATE	BY	CK
1				
2				
3				
4				
5				

**CITY OF WOODINVILLE**  
17301 133rd AVE NE  
WOODINVILLE, WA 98072  
PHONE: (425) 489-2700  
FAX: (425) 489-2705

PROJECT INFORMATION  
**WOODINVILLE-DUVAL**  
**ROADWAY PROJECT**

SHEET TITLE:  
**ROADWAY AND DRAINAGE PLAN AND PROFILE**

DATE: <b>Aug-2011</b>	CHECKED BY:
DESIGNED BY:	PROJECT NO.:
DRAWN BY:	SCALE:
SHEET <b>X</b> OF <b>X</b>	
DRAWING NO.: <b>3.11</b>	

Apr 13, 2011 - 4:35pm CharlineF K:\projects\1400314231\dwg\3.00.dwg Layout Name: 3.11

# Appendix D — Wetland Delineation Data Sheets

This Appendix includes the wetland delineation data sheets.

EXHIBIT <u>9</u>
PAGE <u>62</u> OF <u>45</u>

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

EXHIBIT 9  
-SP1  
PAGE 43 OF 45

Project/Site: Woodinville-Duvall Road City/County: Woodinville, King Sampling Date: 7-27-2011

Applicant/Owner: City of Woodinville State: WA Sampling Point: WL-SP1

Investigator(s): DG SB Section, Township, Range: 12, T26N, R5E

Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_

Subregion (LRR): A Lat: 47°45'41" Long: -122°07'1" Datum: \_\_\_\_\_

Soil Map Unit Name: Alderwood gravelly sandy loam NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.) extremely dry season

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_

Are Vegetation N, Soil N, or Hydrology N 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: <u>SW corner of Woodinville-Duvall Road and 167th Ave NE where Cold Creek flows to culvert within right of way. Wetland 1.</u>	

**VEGETATION - Use scientific names of plants.**

Tree Stratum (Plot size: <u>10'</u> radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Acer macrophyllum</u>			<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. <u>overhanging plot but not rooted in</u>				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10'</u> radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Rubus spectabilis</u>	<u>85%</u>	<u>D</u>	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Sambucus racemosa</u>	<u>tr</u>		<u>FACU</u>	OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
6. _____				UPL species _____ x 5 = _____
<u>85</u> = Total Cover				Column Totals: _____ (A) _____ (B)
Herb Stratum (Plot size: <u>10'</u> radius)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index = B/A = _____
1. <u>Tolmiea menziesii</u>	<u>35</u>	<u>D</u>	<u>FAC</u>	
2. <u>Geranium robertianum</u>	<u>5</u>		<u>NI</u>	
3. <u>Geum macrophyllum</u>	<u>5</u>		<u>FACW-</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>45</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>15</u>				
Remarks: _____				

**SOIL**

Sampling Point: WLI-SPI

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	10YR 2/2			5	C	M	sandy silt loam	EXHIBIT 91 PAGE 64 OF 145
7-19	10YR 3/2		7.5YR 4/6	10	C	PL, M	gravelly sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                         | <input type="checkbox"/> 2 cm Muck (A10)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                     | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Other (Explain in Remarks)   |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                 |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                     |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input checked="" type="checkbox"/> Redox Dark Surface (F6)       | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)               |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                   |   |

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (Inches): \_\_\_\_\_

Hydric Soil Present? Yes  No \_\_\_\_\_

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

**Primary Indicators (minimum of one required; check all that apply)**

**Secondary Indicators (2 or more required)**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)   | <input checked="" type="checkbox"/> Drainage Patterns (B10)                |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                              | <input type="checkbox"/> Dry-Season Water Table (C2)                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                               | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)         |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Geomorphic Position (D2)                          |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                            | <input type="checkbox"/> Shallow Aquitard (D3)                             |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)               | <input type="checkbox"/> FAC-Neutral Test (D5)                             |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)                  | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input checked="" type="checkbox"/> Other (Explain in Remarks)                    | <input type="checkbox"/> Frost-Heave Hummocks (D7)                         |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <i>stream channel</i>   |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |   |  |

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No \_\_\_\_\_

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

Remarks: *moist soil even after 2 months of drought.*

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

Project/Site: Woodinville Duwam Road City/County: Woodinville/King Sampling Date: 1/25/09  
 Applicant/Owner: City of Woodinville State: WA Sampling Point: WLI-SP2  
 Investigator(s): DG/SB Section, Township, Range: 12/26N/5E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): A Lat: 47° 45' 41" Long: 122° 07' 1" Datum: \_\_\_\_\_  
 Soil Map Unit Name: Aldenwood Gravelly Sandy Loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation N, Soil N, or Hydrology N 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 <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		

Remarks: Doesn't meet criteria. Upland plot for Wetland 1

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata:	<u>4</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>50</u> (A/B)
4. _____				Prevalence Index worksheet:	
= Total Cover				Total % Cover of:	Multiply by:
Sapling/Shrub Stratum (Plot size: <u>10' radius</u> )				OBL species <u>0</u> x 1 = <u>0</u>	
1. <u>Rubus spectabilis</u>	<u>75</u>	<u>D</u>	<u>FAC</u>	FACW species <u>5</u> x 2 = <u>10</u>	
2. <u>Rubus parviflorus</u>	<u>20</u>		<u>FAC-</u>	FAC species <u>110</u> x 3 = <u>330</u>	
3. <u>Oemleria cerasiformis</u>	<u>15</u>		<u>FACU</u>	FACU species <u>25</u> x 4 = <u>100</u>	
4. _____				UPL species <u>30</u> x 5 = <u>150</u>	
5. _____				Column Totals: <u>170</u> (A) <u>590</u> (B)	
= Total Cover				Prevalence Index = B/A = <u>3.47</u>	
Herb Stratum (Plot size: <u>10' radius</u> )				Hydrophytic Vegetation Indicators:	
1. <u>Tolmiea menziesii</u>	<u>15</u>	<u>D</u>	<u>FAC</u>	<u>No</u> Dominance Test is >50%	
2. <u>Unknown grass</u>	<u>15</u>	<u>D</u>	<u>NL</u>	<u>No</u> Prevalence Index is ≤3.0 <sup>1</sup>	
3. <u>Festuca sp.</u>	<u>5</u>		<u>NL</u>	____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
4. <u>Ceranium robertianum</u>	<u>5</u>		<u>NI</u>	____ Wetland Non-Vascular Plants <sup>1</sup>	
5. <u>Hieracium sp.</u>	<u>5</u>		<u>NL</u>	____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
6. <u>Phalaris arundinacea</u>	<u>5</u>		<u>FACW</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
7. <u>Taraxacum officinale</u>	<u>5</u>		<u>FACU</u>		
8. <u>Cerastium sp.</u>	<u>TR</u>		<u>NL</u>		
9. <u>Cirsium vulgare</u>	<u>TR</u>		<u>FACU</u>		
10. <u>Poa sp.</u>	<u>TR</u>		<u>NL</u>		
11. _____					
= Total Cover				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	
Woody Vine Stratum (Plot size: <u>10' radius</u> )					
1. <u>Rubus wsinus</u>	<u>5</u>	<u>D</u>	<u>FACU</u>		
2. _____					
= Total Cover					
% Bare Ground in Herb Stratum <u>30</u>					
Remarks:					

**SOIL**

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR 4/2	90	-				Sandy silt loam	
5-18	10YR 3/3	70	-				Gravelly sandy loam + cobbles	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                         | <input type="checkbox"/> 2 cm Muck (A10)  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                     | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Other (Explain in Remarks)   |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                 |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                     |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                  | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)               |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                   |   |

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks: No redox features & brighter chroma at depth

**HYDROLOGY**

Wetland Hydrology Indicators:

- |   |   |
|---|---|
| <b>Primary Indicators (minimum of one required; check all that apply)</b> | <b>Secondary Indicators (2 or more required)</b>                                  |
| <input type="checkbox"/> Surface Water (A1)                               | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2)                            | <input type="checkbox"/> Salt Crust (B11)   |
| <input type="checkbox"/> Saturation (A3)                                  | <input type="checkbox"/> Aquatic Invertebrates (B13)                              |
| <input type="checkbox"/> Water Marks (B1)                                 | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                               |
| <input type="checkbox"/> Sediment Deposits (B2)                           | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)            |
| <input type="checkbox"/> Drift Deposits (B3)                              | <input type="checkbox"/> Presence of Reduced Iron (C4)                            |
| <input type="checkbox"/> Algal Mat or Crust (B4)                          | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)               |
| <input type="checkbox"/> Iron Deposits (B5)                               | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                         | <input type="checkbox"/> Other (Explain in Remarks)                               |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)        | <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)        |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)          | <input type="checkbox"/> Drainage Patterns (B10)                                  |
|   | <input type="checkbox"/> Dry-Season Water Table (C2)                              |
|   | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                |
|   | <input type="checkbox"/> Geomorphic Position (D2)                                 |
|   | <input type="checkbox"/> Shallow Aquitard (D3)                                    |
|   | <input type="checkbox"/> FAC-Neutral Test (D5)                                    |
|   | <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)                           |
|   | <input type="checkbox"/> Frost-Heave Hummocks (D7)                                |

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

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

Remarks: Soil completely dry



**SOIL**

EXHIBIT 9  
PAGE 16 OF 145

Sampling Point: WL2-SPI

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

Depth (inches)	Matrix		Redox Features			Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-10	10YR 3/2		7.5YR 4/6	2	C	PL	sandy silt	
10-15	7.5YR 3/2		7.5YR 4/6	30	C	PL/M	gravelly sandy silt loam	
15-19	7.5YR 4/4	90					sandy silt	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:

<b>Primary Indicators (minimum of one required; check all that apply)</b>	<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	

(includes capillary fringe)

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

Remarks: Soil is moist to surface although 2 months of record setting drought has occurred.

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

EXHIBIT 9  
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Project/Site: Woodinville-Duvall Road City/County: Woodinville, King Sampling Date: 7-23-09  
 Applicant/Owner: City of Woodinville State: WA Sampling Point: WL2-SP2  
 Investigator(s): DG SB Section, Township, Range: 1 T26 N R5E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): A Lat: 47° 45' 42" Long: 122° 07' 13" Datum: \_\_\_\_\_  
 Soil Map Unit Name: Alderwood gravelly sandy loam NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.) extremely dry season  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation N, Soil N, or Hydrology N 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 <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: <u>wetland 2 upland plot</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>10' radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Corylus cornuta</u>	<u>55</u>	<u>D</u>	<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. <u>Pyrus malus</u>	<u>35</u>	<u>D</u>	<u>NI</u>	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (AB)
4. _____				
<u>90</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>0</u> x 1 = <u>0</u>
3. _____				FACW species <u>0</u> x 2 = <u>0</u>
4. _____				FAC species <u>0</u> x 3 = <u>0</u>
5. _____				FAGU species <u>115</u> x 4 = <u>460</u>
= Total Cover				UPL species <u>45</u> x 5 = <u>225</u>
				Column Totals: <u>160</u> (A) <u>685</u> (B)
				Prevalence Index = B/A = <u>4.28</u>
Herb Stratum (Plot size: <u>10' radius</u> )				Hydrophytic Vegetation Indicators:
1. <u>Geranium robertianum</u>	<u>10</u>	<u>D</u>	<u>NI</u>	<u>No</u> Dominance Test is >50%
2. <u>Athyrium filix-femina</u>	<u>tr</u>		<u>FAC</u>	<u>No</u> Prevalence Index is ≤3.0 <sup>1</sup>
3. _____				____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				____ Wetland Non-Vascular Plants <sup>1</sup>
5. _____				____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>10</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present?
1. <u>Rubus ursinus</u>	<u>45</u>	<u>D</u>	<u>FACU</u>	Yes _____ No <u>X</u>
2. <u>Rubus armeniacus</u>	<u>15</u>	<u>D</u>	<u>FACU</u>	
<u>60</u> = Total Cover				
% Bare Ground in Herb Stratum <u>45</u>				
Remarks:				

SOIL

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 3/2		None				sandy silt	
8-13	10YR 3/4		None				sandy loam	
13-18	10YR 3/6		None				gravelly sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S6)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):  
Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks: Bright chroma and no redoximorphic features.

HYDROLOGY

Wetland Hydrology Indicators:

<b>Primary Indicators (minimum of one required; check all that apply)</b>	<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	

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

Remarks: Soil is dry and pit is 1-2' higher than culvert inlet.

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

EXHIBIT 9  
PAGE 71 OF 145

Project/Site: Woodinville-Duvall Road City/County: Woodinville, King Sampling Date: 7-23-09  
 Applicant/Owner: City of Woodinville State: WA Sampling Point: DP-5  
 Investigator(s): DG SB Section, Township, Range: 2 T26N R5E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): A Lat: 47° 45' 42" Long: 122° 07' 23" Datum: \_\_\_\_\_  
 Soil Map Unit Name: Alderwood gravelly sandy loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.) extremely dry season  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation N, Soil N, or Hydrology N 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: <u>Ditch on north shoulder of Woodinville-Duvall Road, east of 162nd Ave.</u>	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species <u>0</u> x 1 = _____
3. _____	_____	_____	_____	FACW species <u>80</u> x 2 = <u>160</u>
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species <u>40</u> x 4 = <u>160</u>
6. _____	_____	_____	_____	UPL species _____ x 5 = _____
_____ = Total Cover				Column Totals: <u>120</u> (A) <u>320</u> (B)
_____ = Total Cover				Prevalence Index = B/A = <u>2.67</u>
Herb Stratum (Plot size: <u>5' x 10' in ditch</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Phalaris arundinacea</u>	<u>80</u>	<u>D</u>	<u>FACU</u>	_____ Dominance Test is >50%
2. <u>Polygonum sachalinense</u>	<u>40</u>	<u>D</u>	<u>FACU</u>	<u>X</u> Prevalence Index is ≤3.0 <sup>1</sup>
3. <u>Convolvulus arvensis</u>	<u>25</u>	_____	<u>NI</u>	_____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	_____	_____	_____ Wetland Non-Vascular Plants <sup>1</sup>
5. _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. <u>Rubus armeniacus</u>	<u>tr</u>	_____	<u>FACU</u>	Yes <u>X</u> No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: _____				

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10YR 3/2		-				Sandy silt loam	
9-13	10YR 3/3						gravelly silt loam	
13-18	10YR 3/3		7.5YR 4/4	5	C	PL	sandy silt loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:

<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

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: Soil moist but not saturated. Water flows in ditch during storms.

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

EXHIBIT 9  
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7-23-09

Project/Site: Woodinville-Duvall Road City/County: Woodinville, King Sampling Date: 7-23-09  
 Applicant/Owner: City of Woodinville State: WA Sampling Point: WL3-SPT  
 Investigator(s): DG SB Section, Township, Range: 11 T26N R5E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): A Lat: 47°45'41" Long: 122°07'46" Datum: \_\_\_\_\_  
 Soil Map Unit Name: Everett gravelly sandy loam NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (if no, explain in Remarks.) extremely dry season  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation N, Soil N, or Hydrology N 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: <u>Ditch on south shoulder of Woodinville-Duvall Road, east of 156th Ave. Wetland 3</u>	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
= Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: <u>2' x 10'</u> in ditch)				Hydrophytic Vegetation Indicators:
1. <u>Phalaris arundinacea</u>	<u>50</u>	<u>D</u>	<u>FACW</u>	<u>X</u> Dominance Test is >50%
2. <u>Veronica americana</u>	<u>tr</u>		<u>OBL</u>	___ Prevalence Index is ≤3.0 <sup>1</sup>
3. <u>Epilobium ciliatum</u>	<u>tr</u>		<u>FACW</u>	___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				___ Wetland Non-Vascular Plants <sup>1</sup>
5. _____				___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>50</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____				
2. _____				
= Total Cover				
% Bare Ground in Herb Stratum <u>50</u>				
Remarks:				

Sampling Point: W3-SP1

**SOIL**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	7.5YR 2.5/1	100					mucky silt, saturated	
5-12	4/10BG	100					coarse sand	
12-14	4/10BG	90	7.5YR 3/4	10	CS	M	coarse sand	
14-18	2.5Y 4/2	100					coarse sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S6)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input checked="" type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):  
Type: compacted sand  
Depth (inches): 12

Hydric Soil Present? Yes  No

Remarks: Gleyed sand with mottles due to hardpan perching groundwater seeps.

**HYDROLOGY**

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	

Field Observations:

Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>1/2"</u>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>1"</u>
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>1"</u>

Wetland Hydrology Present? Yes  No

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

Remarks: Groundwater seeps saturate soil in ditch due to compacted hardpan.

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

EXHIBIT 9

Project/Site: Woodinville-Duwall Road City/County: Woodinville, King Sampling Date: 7-27-2015  
 Applicant/Owner: City of Woodinville State: WA Sampling Point: WU4-31  
 Investigator(s): DG SR Section, Township, Range: 11 T26N R5E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): A Lat: 47°45'41" Long: 122°07'52" Datum: \_\_\_\_\_  
 Soil Map Unit Name: Everett gravelly sandy loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.) extremely dry season  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

PAGE 1 OF 15

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____	
Wetland Hydrology Present?	Yes <u>X</u> No _____	
Remarks: <u>slope on south shoulder of Woodinville-Duwall Road, east of 156th Ave Wetland 4</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>10' radius</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Rubus spectabilis</u>	<u>tr</u>	_____	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Acer macrophyllum</u>	<u>tr</u>	_____	<u>FACU</u>	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
<u>&lt;5</u> = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Phalaris arundinacea</u>	<u>50</u>	<u>D</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Athyrium filix-femina</u>	<u>tr</u>	_____	<u>FAC</u>	<input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
3. <u>Agrostis sp.</u>	<u>5</u>	_____	<u>NI</u>	<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	_____	_____	<input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup>
5. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>50</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. <u>Rubus armeniacus</u>	<u>tr</u>	_____	<u>FACU</u>	Yes <u>X</u> No _____
2. _____	_____	_____	_____	
<u>&lt;5</u> = Total Cover				
% Bare Ground in Herb Stratum <u>40</u>				
Remarks:				

**SOIL**

Sampling Point: WL4-SP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-6	2.5Y 5/2		7.5YR 4/6	5	C	M	loamy sand
6-16	2.5Y 5/3		-				sandy loam

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.      <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histlic Epipedon (A2) <input type="checkbox"/> Black Histlic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input checked="" type="checkbox"/> Sandy Redox (S6) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)
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**Indicators for Problematic Hydric Soils<sup>3</sup>:**

<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)	<p><sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
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**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)	

**Field Observations:**

Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>2-6"</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: moist soil in pit, groundwater seepage on slope.

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

Project/Site: Woodinville-Duwall Road City/County: Woodinville, King Sampling Date: 7-23-09  
 Applicant/Owner: City of Woodinville State: WA Sampling Point: W014-SP2  
 Investigator(s): DG SB Section, Township, Range: 11 T26N R5E

Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): A Lat: 47°45' 41" Long: 122°07' 52" Datum: \_\_\_\_\_

Soil Map Unit Name: Everett gravelly sandy loam NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.) extremely dry season  
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation N, Soil N, or Hydrology N 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 <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: <u>Slope on south shoulder of Woodinville-Duwall Road, east of 156th Ave. Wetland 4</u>	

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
= Total Cover				
Seeping/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Rubus spectabilis</u>	<u>.5</u>	<u>D</u>	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
<u>5</u> = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Phalaris arundinacea</u>	<u>45</u>	<u>D</u>	<u>FACW</u>	<u>X</u> Dominance Test is >50%
2. <u>Athyrium filix-femina</u>	<u>25</u>		<u>FAC</u>	Prevalence Index is ≤3.0 <sup>1</sup>
3. <u>Agrostis sp.</u>	<u>20</u>		<u>NL</u>	Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				Wetland Non-Vascular Plants <sup>1</sup>
5. _____				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
<u>70</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. <u>Rubus armeniacus</u>	<u>11</u>		<u>FACU</u>	Yes <u>X</u> No _____
2. _____				
= Total Cover				
% Bare Ground in Herb Stratum <u>40</u>				
Remarks:				

SOIL

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 3/2						Silty sand	
4-11	2.5Y 4/1		7.5YR 4/6		C	PL	sandy loam	
11-16	2.5Y 4/2						sandy loam hardpan	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input checked="" type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**  
Type: hardpan  
Depth (inches): 11

Hydric Soil Present? Yes  No

Remarks: hardpan is perching water.

HYDROLOGY

**Wetland Hydrology Indicators:**

<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>5"</u>	

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

Remarks: groundwater seep on cut slope is saturating soil.

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

Project/Site: Woodinville-Duvall Road City/County: Woodinville, King Sampling Date: 7-23-09  
 Applicant/Owner: City of Woodinville State: WA Sampling Point: WU4-SP3  
 Investigator(s): DG SB Section, Township, Range: 11 T26N R5E

Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): A Lat: 47° 45' 41" Long: 122° 07' 50" Datum: \_\_\_\_\_

Soil Map Unit Name: Everett gravelly sandy loam NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.) extremely dry season

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_

Are Vegetation N, Soil N, or Hydrology N 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 <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		
Remarks: <u>South shoulder of Woodinville-Duvall Road, east of 156th Ave</u> <u>Wetlands 3 &amp; 4 Upland pit</u>			

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>10'x10'</u> , on slope)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
1. <u>Pseudotsuga menziesii</u>	<u>10</u>		<u>FACU</u>	
2. <u>Acer macrophyllum</u>	<u>70</u>	<u>D</u>	<u>FACU</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)
3. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____
4. _____				
80 = Total Cover				FACW species <u>0</u> x 2 = <u>0</u>
Sapling/Shrub Stratum (Plot size: <u>10'x10'</u> )				FAC species <u>35</u> x 3 = <u>105</u>
1. <u>Salix scouleriana</u>	<u>35</u>	<u>D</u>	<u>FAC</u>	FACU species <u>85</u> x 4 = <u>340</u>
2. _____				UPL species <u>70</u> x 5 = <u>350</u>
3. _____				Column Totals: <u>190</u> (A) <u>795</u> (B)
4. _____				Prevalence Index = B/A = <u>4.18</u>
35 = Total Cover				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> No Dominance Test is >50% <input checked="" type="checkbox"/> No Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: _____)				
1. <u>Agrostis sp.</u>	<u>65</u>	<u>D</u>	<u>NL</u>	
2. <u>Polystichum munitum</u>	<u>5</u>		<u>FACU</u>	
3. <u>Digitalis purpurea</u>	<u>5</u>		<u>FACU</u>	
4. <u>Festuca sp.</u>	<u>5</u>		<u>NL</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
75 = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>20</u>				
Remarks:				

SOIL

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 3/3		None				sandy silt	
8-16	2.5Y 3/3		None				silty sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils<sup>3</sup>:

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                         | <input type="checkbox"/> 2 cm Muck (A10)            |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                     | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                 |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                     |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                  |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)               |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                   |   |
- <sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks: No redoximorphic features

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	

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

Remarks: No signs of hydrology on cut slope.

# Appendix E — Wetland Rating Forms

This Appendix includes the Ecology wetland rating forms for each wetland delineated and a summary of the local wetland ratings.

Wetland name or number: 1

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**WETLAND RATING FORM - WESTERN WASHINGTON**  
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users  
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland 1 Date of site visit: 7/23/09  
Rated by : S. Anderson Trained by Ecology? Yes  No  Date: Jan. 2006  
SEC: 12 TWSHP: 26N RNGE: 5E Is S/T/R in Appendix D? Yes  No

Map of wetland unit: Figure \_\_\_\_\_ Estimated size: \_\_\_\_\_

SUMMARY OF RATING									
<b>Category based on FUNCTIONS provided by wetland</b>									
I <input type="checkbox"/>	II <input type="checkbox"/>								
III <input checked="" type="checkbox"/>	IV <input type="checkbox"/>								
Category I = Score >=70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score <30	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Score for Water Quality Functions</td> <td style="text-align: right; padding: 2px;">12</td> </tr> <tr> <td style="padding: 2px;">Score for Hydrologic Functions</td> <td style="text-align: right; padding: 2px;">18</td> </tr> <tr> <td style="padding: 2px;">Score for Habitat Functions</td> <td style="text-align: right; padding: 2px;">17</td> </tr> <tr> <td style="padding: 2px;"><b>TOTAL score for functions</b></td> <td style="text-align: right; padding: 2px;"><b>47</b></td> </tr> </table>	Score for Water Quality Functions	12	Score for Hydrologic Functions	18	Score for Habitat Functions	17	<b>TOTAL score for functions</b>	<b>47</b>
Score for Water Quality Functions	12								
Score for Hydrologic Functions	18								
Score for Habitat Functions	17								
<b>TOTAL score for functions</b>	<b>47</b>								
<b>Category based on SPECIAL CHARACTERISTICS of wetland</b>									
I <input type="checkbox"/>	II <input type="checkbox"/>								
Does not Apply <input checked="" type="checkbox"/>									
<b>Final Category</b>	(choose the "highest" category from above)								
<span style="border: 1px solid black; padding: 5px; display: inline-block;">III</span>									

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	<input type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>
Bog	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>
None of the above	<input type="checkbox"/>

Wetland Class	
Depressional	<input type="checkbox"/>
Riverine	<input checked="" type="checkbox"/>
Lake-fringe	<input type="checkbox"/>
Slope	<input type="checkbox"/>
Flats	<input type="checkbox"/>
Freshwater Tidal	<input type="checkbox"/>
Check if multiple HGM classes are present	<input type="checkbox"/>

Comments:

**Does the wetland unit 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.

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<b>Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)</b>		<b>YES</b>	<b>NO</b>
SP1.	<i>Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered (T/E) <b>plant or animal</b> species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SP2.	<i>Has the wetland unit been documented as habitat for any state listed Threatened or Endangered <b>animal</b> species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SP3.	<i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SP4.	<i>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.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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 into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

## Classification of Vegetated Wetlands in Western Washington

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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 Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater 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 being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).*

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water

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 unit **meet both** of the following criteria?

The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

At least 30% of the open water area is deeper than 6.6 feet (2 m)?

NO - go to 4                       YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

The wetland is on a slope (*slope can be very gradual*).

The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

The water leaves the wetland **without being impounded**.

*NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*

NO - go to 5                       YES - the wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

- The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from the stream or river.
- The overbank flooding occurs once every two years.
- NO - go to 6  YES - the wetland class is **Riverine**

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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 unit located in a very flat area with no obvious depression and no stream or river running through it and providing water? The wetland seems to be maintained by higher ground water 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 second class is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

<i>HGM Classes Within a Delineated Wetland Boundary</i>	<i>Class to Use in Rating</i>	
Slope + Riverine	Riverine	<input type="checkbox"/>
Slope + Depressional	Depressional	<input type="checkbox"/>
Slope + Lake-fringe	Lake-fringe	<input type="checkbox"/>
Depressional + Riverine along stream within boundary	Depressional	<input type="checkbox"/>
Depressional + Lake-fringe	Depressional	<input type="checkbox"/>
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	<input type="checkbox"/>

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.





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*These questions apply to wetlands of all HGM classes*

**HABITAT FUNCTIONS** - Indicators that wetland functions to provide important habitat.

<p><b>H 1. Does the wetland unit have the potential to provide habitat for many species?</b></p>	<p>Points</p>								
<p><b>H 1.1 <u>Vegetation structure</u> (see p. 72)</b>  <i>Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Aquatic bed</li> <li><input checked="" type="checkbox"/> Emergent plants</li> <li><input checked="" type="checkbox"/> Scrub/shrub (areas where shrubs have &gt;30% cover)</li> <li><input type="checkbox"/> Forested (areas where trees have &gt;30% cover)</li> </ul> <p><i>If the unit has a forested class, check if:</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 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.</li> </ul> <p><i>Add the number of vegetation types that qualify. If you have:</i></p> <table style="width: 100%;"> <tr> <td>4 structures or more</td> <td style="text-align: right;"><b>Points = 4</b></td> </tr> <tr> <td>3 structures</td> <td style="text-align: right;"><b>Points = 2</b></td> </tr> <tr> <td>2 structures</td> <td style="text-align: right;"><b>Points = 1</b></td> </tr> <tr> <td>1 structure</td> <td style="text-align: right;"><b>Points = 0</b></td> </tr> </table> <p style="text-align: right;"><i>Map of Cowardin vegetation classes</i></p>	4 structures or more	<b>Points = 4</b>	3 structures	<b>Points = 2</b>	2 structures	<b>Points = 1</b>	1 structure	<b>Points = 0</b>	<p style="text-align: center;">1</p> <p style="text-align: right;"><b>Figure</b></p>
4 structures or more	<b>Points = 4</b>								
3 structures	<b>Points = 2</b>								
2 structures	<b>Points = 1</b>								
1 structure	<b>Points = 0</b>								
<p><b>H 1.2 <u>Hydroperiods</u> (see p. 73)</b>  <i>Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Permanently flooded or inundated</li> <li><input type="checkbox"/> Seasonally flooded or inundated</li> <li><input checked="" type="checkbox"/> Occasionally flooded or inundated</li> <li><input checked="" type="checkbox"/> Saturated only</li> <li><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</li> <li><input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</li> <li><input type="checkbox"/> <i>Lake-fringe wetland = 2 points</i></li> <li><input type="checkbox"/> <i>Freshwater tidal wetland = 2 points</i></li> </ul> <table style="width: 100%;"> <tr> <td>4 or more types present</td> <td style="text-align: right;"><b>Points = 3</b></td> </tr> <tr> <td>3 types present</td> <td style="text-align: right;"><b>Points = 2</b></td> </tr> <tr> <td>2 types present</td> <td style="text-align: right;"><b>Points = 1</b></td> </tr> <tr> <td>1 type present</td> <td style="text-align: right;"><b>Points = 0</b></td> </tr> </table> <p style="text-align: right;"><i>Map of hydroperiods</i></p>	4 or more types present	<b>Points = 3</b>	3 types present	<b>Points = 2</b>	2 types present	<b>Points = 1</b>	1 type present	<b>Points = 0</b>	<p style="text-align: center;">2</p> <p style="text-align: right;"><b>Figure</b></p>
4 or more types present	<b>Points = 3</b>								
3 types present	<b>Points = 2</b>								
2 types present	<b>Points = 1</b>								
1 type present	<b>Points = 0</b>								
<p><b>H 1.3 <u>Richness of Plant Species</u> (see p. 75)</b>  <i>Count the number of plant species in the wetland that cover at least 10 sq. ft. (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.</i></p> <p style="text-align: right;"><i>If you counted:</i></p> <table style="width: 100%;"> <tr> <td>&gt;19 species</td> <td style="text-align: right;"><b>Points = 2</b></td> </tr> <tr> <td>5-19 species</td> <td style="text-align: right;"><b>Points = 1</b></td> </tr> <tr> <td>&lt;5 species</td> <td style="text-align: right;"><b>Points = 0</b></td> </tr> </table> <p><i>List species below if you want to:</i></p>	>19 species	<b>Points = 2</b>	5-19 species	<b>Points = 1</b>	<5 species	<b>Points = 0</b>	<p style="text-align: center;">1</p>		
>19 species	<b>Points = 2</b>								
5-19 species	<b>Points = 1</b>								
<5 species	<b>Points = 0</b>								

Total for page 4



	Points
<p><b>H 2. Does the wetland unit have the opportunity to provide habitat for many species?</b></p> <p>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."</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference. No structures are within undisturbed part of buffer (<i>relatively undisturbed also means no grazing, no landscaping, no daily human use</i>). <b>Points = 5</b></li> <li><input type="checkbox"/> 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;50% of circumference. <b>Points = 4</b></li> <li><input type="checkbox"/> 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference. <b>Points = 4</b></li> <li><input type="checkbox"/> 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt;25% circumference. <b>Points = 3</b></li> <li><input type="checkbox"/> 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt;50% circumference. <b>Points = 3</b></li> </ul> <p style="text-align: center;"><b>If buffer does not meet any of the criteria above:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland &gt;95% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></li> <li><input checked="" type="checkbox"/> No paved areas or buildings within 50 m of wetland for &gt;50% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></li> <li><input type="checkbox"/> Heavy grazing in buffer. <b>Points = 1</b></li> <li><input type="checkbox"/> Vegetated buffers are &lt;2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). <b>Points = 0</b></li> <li><input type="checkbox"/> Buffer does not meet any of the criteria above. <b>Points = 1</b></li> </ul> <p style="text-align: right;">Aerial photo showing buffers <b>Figure</b></p>	2
<p>H 2.2 <u>Corridors and Connections</u> (see p. 81)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 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? (<i>Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.</i>)</p> <p style="text-align: center;">YES = 4 points (go to H 2.3) <span style="margin-left: 100px;">NO = go to H 2.2.2</span></p>	
<p>H 2.2.2 Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet 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 <b>OR</b> a <b>Lake-fringe</b> wetland, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;">YES = 2 points (go to H 2.3) <span style="margin-left: 100px;">NO = go to H 2.2.3</span></p>	2
<p>H 2.2.3 Is the wetland:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> within 5 miles (8 km) of a brackish or salt water estuary <b>OR</b></li> <li><input type="checkbox"/> within 3 miles of a large field or pasture &gt; 40 acres in size <b>OR</b></li> <li><input type="checkbox"/> within 1 mile of a lake greater than 20 acres in size?</li> </ul> <p style="text-align: center;">YES = 1 point <span style="margin-left: 100px;">NO = 0 points</span></p>	

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Total for page 4

H 2.3 <u>Near or Adjacent to Other Priority Habitats Listed by WDFW (see p. 82)</u>	Points
<p>Which of the following priority habitats are within 330 feet (100 m) of the wetland unit?  <i>NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Aspen stands:</b> Pure or mixed stands of aspen &gt;0.4 ha (1 acre).</li> <li><input type="checkbox"/> <b>Biodiversity Areas and Corridors:</b> Areas of habitat that are relatively important to various species of native fish and wildlife (<i>full descriptions in WDFW PHS report p. 152</i>).</li> <li><input type="checkbox"/> <b>Herbaceous Balds:</b> Variable size patches of grass and forbs on shallow soils over bedrock.</li> <li><input type="checkbox"/> <b>Old-growth/Mature forests:</b> (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) &gt; 81 cm (32 in) dbh or &gt; 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadence, number 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.</li> <li><input type="checkbox"/> <b>Oregon white Oak:</b> Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (<i>full descriptions in WDFW PHS report p. 158</i>).</li> <li><input checked="" type="checkbox"/> <b>Riparian:</b> The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</li> <li><input type="checkbox"/> <b>Westside Prairies:</b> Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (<i>full descriptions in WDFW PHS report p. 161</i>).</li> <li><input type="checkbox"/> <b>Instream:</b> The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.</li> <li><input type="checkbox"/> <b>Nearshore:</b> Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (<i>full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A</i>).</li> <li><input type="checkbox"/> <b>Caves:</b> 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.</li> <li><input type="checkbox"/> <b>Cliffs:</b> Greater than 7.6 m (25 ft) high and occurring below 5,000 ft.</li> <li><input type="checkbox"/> <b>Talus:</b> 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.</li> <li><input checked="" type="checkbox"/> <b>Snags and Logs:</b> 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 &gt; 51 cm (20 in) in western Washington and are &gt; 2 m (6.5 ft) in height. Priority logs are &gt; 30 cm (12 in) in diameter at the largest end, and &gt; 6 m (20 ft) long.</li> </ul> <p style="margin-top: 10px;">If wetland has:      <b>3+ priority habitats = 4 points</b>                      <b>1 priority habitat = 1 point</b>                                           <b>2 priority habitats = 3 points</b>                                      <b>No habitats = 0 points</b></p> <p>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</p>	3

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Choose the **one** description of the landscape around the wetland that best fits.

- 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 is Lake-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

<b>H2. TOTAL Score - opportunity for providing habitat</b> <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i>	10
<b>Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1</b>	17



<p><b>SC 2.0 <u>Natural Heritage Wetlands</u> (see p. 87)</b>                  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.</p> <p><b>SC 2.1</b> Is the wetland unit 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 <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/>  <input type="checkbox"/> YES - contact WNHP/DNR (see p. 79) and go to SC 3.2 <input checked="" type="checkbox"/> NO</p> <p><b>SC 2.2</b> Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species?  <input type="checkbox"/> YES = <b>Category I</b> <input checked="" type="checkbox"/> NO - not a Heritage wetland</p>	<p><b>Category</b></p>
<p><b>SC 3.0 <u>Bogs</u> (see p. 87)</b>                  Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetations 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.</p> <ol style="list-style-type: none"> <li>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 the soil profile? (See Appendix B for a field key to identify organic soils.)  <input type="checkbox"/> YES - go to Q. 3 <input checked="" type="checkbox"/> NO - go to Q. 2</li> <li>Does the unit have organic soils, either peats or mucks, that are &lt;16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond?  <input type="checkbox"/> YES - go to Q. 3 <input checked="" type="checkbox"/> NO - not a bog for purpose of rating</li> <li>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 (&gt;30% of total shrub and herbaceous cover consists of species in Table 3)?  <input type="checkbox"/> YES - is a bog for purpose of rating <input type="checkbox"/> NO - go to Q. 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.</li> <li>Is the unit forested (&gt;30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (&gt;30% coverage of total shrub/herbaceous cover)?  <input type="checkbox"/> YES = <b>Category I</b> <input type="checkbox"/> NO - not a bog for purpose of rating</li> </ol>	

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<p><b>SC 4.0 Forested Wetlands (see p. 90)</b></p> <p>Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? <i>If you answer Yes, you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> <b>Old-growth forests:</b> (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</p> <p style="padding-left: 40px;">NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter.</p> <p><input type="checkbox"/> <b>Mature forests:</b> (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have 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.</p> <p><input type="checkbox"/> YES = <b>Category I</b>      <input checked="" type="checkbox"/> NO - not a forested wetland w/ special characteristics</p>	<p><b>Category</b></p>
<p><b>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</b></p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (&gt;.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>).</p> <p><input type="checkbox"/> YES = go to SC 5.1      <input checked="" type="checkbox"/> NO - not a wetland in a coastal lagoon</p> <p><b>SC 5.1</b> Does the wetland meet all of the following 3 conditions?</p> <p><input type="checkbox"/> 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).</p> <p><input type="checkbox"/> At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4,350 square feet).</p> <p><input type="checkbox"/> YES = <b>Category I</b>      <input type="checkbox"/> NO = <b>Category II</b></p>	

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<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b>                  Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?</p> <p><input type="checkbox"/> YES - go to SC 6.1                      <input checked="" type="checkbox"/> NO - not an interdunal wetland for rating  <i>If you answer Yes, you will still need to rate the wetland based on its functions.</i></p> <p>In practical terms, that means the following geographic areas:</p> <ul style="list-style-type: none"> <li>• Long Beach Peninsula - lands west of SR 103</li> <li>• Grayland-Westport - lands west of SR 105</li> <li>• Ocean Shores-Copalis - lands west of SR 1115 and SR 109.</li> </ul> <p>SC 6.1 Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger?  <input type="checkbox"/> YES = Category II                      <input type="checkbox"/> NO - go to SC 6.2</p> <p>SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?  <input type="checkbox"/> YES = Category III</p>	<p style="text-align: center;"><b>Category</b></p>
<p><b>Category of wetland based on Special Characteristics</b>                  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.</p>	<p style="text-align: center;">NA</p>

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Wetland name or number: 2

**WETLAND RATING FORM - WESTERN WASHINGTON**  
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users  
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland 2 Date of site visit: 7/23/09  
Rated by S. Anderson Trained by Ecology? Yes  No  Date: Jan. 2006  
SEC: 1 TOWNSHIP: 26N RANGE: 5E Is S/T/R in Appendix D? Yes  No

Map of wetland unit: Figure \_\_\_\_\_ Estimated size: \_\_\_\_\_

SUMMARY OF RATING									
Category based on FUNCTIONS provided by wetland:									
I <input type="checkbox"/>	II <input type="checkbox"/>								
III <input checked="" type="checkbox"/>	IV <input type="checkbox"/>								
Category I = Score >=70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score <30	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Score for Water Quality Functions</td> <td style="text-align: right; border: 1px solid black;">14</td> </tr> <tr> <td>Score for Hydrologic Functions</td> <td style="text-align: right; border: 1px solid black;">16</td> </tr> <tr> <td>Score for Habitat Functions</td> <td style="text-align: right; border: 1px solid black;">14</td> </tr> <tr> <td><b>TOTAL score for functions</b></td> <td style="text-align: right; border: 1px solid black;"><b>44</b></td> </tr> </table>	Score for Water Quality Functions	14	Score for Hydrologic Functions	16	Score for Habitat Functions	14	<b>TOTAL score for functions</b>	<b>44</b>
Score for Water Quality Functions	14								
Score for Hydrologic Functions	16								
Score for Habitat Functions	14								
<b>TOTAL score for functions</b>	<b>44</b>								
Category based on SPECIAL CHARACTERISTICS of wetland									
I <input type="checkbox"/>	II <input type="checkbox"/>								
Does not Apply <input checked="" type="checkbox"/>									
<b>Final Category</b>	(choose the "highest" category from above) <span style="border: 1px solid black; padding: 2px 10px;"><b>III</b></span>								

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	<input type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>
Bog	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>
None of the above	<input type="checkbox"/>

Wetland Class	
Depressional	<input checked="" type="checkbox"/>
Riverine	<input type="checkbox"/>
Lake-fringe	<input type="checkbox"/>
Slope	<input type="checkbox"/>
Flats	<input type="checkbox"/>
Freshwater Tidal	<input type="checkbox"/>
Check if unit has multiple HGM classes present	<input type="checkbox"/>

Comments:

**Does the wetland unit 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.

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<b>Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)</b>		<b>YES</b>	<b>NO</b>
SP1.	<i>Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered <b>animal or plant</b> species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SP2.	<i>Has the wetland unit been documented as habitat for any state listed Threatened or Endangered <b>animal</b> species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SP3.	<i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SP4.	<i>Does the wetland unit have a local significance in addition to its functions?</i> 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.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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 into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

**Classification of Vegetated Wetlands in Western Washington**

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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 Saltwater Tidal Fringe, it is rated as an Estuarine wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater 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 being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

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 unit **meet both** of the following criteria?

- The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
  - At least 30% of the open water area is deeper than 6.6 feet (2 m)?
- NO - go to 4                       YES - the wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

- The wetland is on a slope (*slope can be very gradual*).
  - The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
  - The water leaves the wetland **without being impounded**.
- NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).*
- NO - go to 5                       YES - the wetland class is **Slope**

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A

5. Does the entire wetland unit **meet all** of the following criteria?
- The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.
  - The overbank flooding occurs once every two years.
  - 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 unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high ground water 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 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 being rated. If the area of the second class is less than 10% of the unit, classify the wetland using the class that represent more than 90% of the total area.

<i>HGM Classes Within a Delineated Wetland Boundary</i>	<i>Class to Use in Rating</i>	
Slope + Riverine	Riverine	<input type="checkbox"/>
Slope + Depressional	Depressional	<input type="checkbox"/>
Slope + Lake-fringe	Lake-fringe	<input type="checkbox"/>
Depressional + Riverine along stream within boundary	Depressional	<input type="checkbox"/>
Depressional + Lake-fringe	Depressional	<input type="checkbox"/>
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	<input type="checkbox"/>

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D Depressional and Flats Wetlands		Points
<b>WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.</b>		
<b>D 1. Does the wetland unit have the <u>potential</u> to improve water quality? (see p. 38)</b>		
D 1.1 Characteristics of surface water flows out of the wetland:		
<input type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) <b>Points = 3</b>		2
<input checked="" type="checkbox"/> Unit has an intermittently flowing, or highly constricted permanently flowing outlet. <b>Points = 2</b>		
<input type="checkbox"/> Unit has an unconstricted, or slightly constricted, surface outlet ( <i>permanently flowing</i> ). <b>Points = 1</b>		
<input type="checkbox"/> Unit is a flat depression (Q. 7 on key) or in the Flats class, with permanent surface outflow and <b>no obvious natural outlet</b> and/or outlet is a man-made ditch. (If ditch is not permanently flowing, treat unit as "intermittently flowing.") <b>Points = 1</b>		
Provide photo or drawing <b>Figure</b> _____		
D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions):		0
<input type="checkbox"/> YES <b>Points = 4</b>		
<input checked="" type="checkbox"/> NO <b>Points = 0</b>		
D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class):		
<input checked="" type="checkbox"/> Wetland has persistent, ungrazed vegetation $\geq 95\%$ of area. <b>Points = 5</b>		5
<input type="checkbox"/> Wetland has persistent, ungrazed vegetation $\geq 1/2$ of area. <b>Points = 3</b>		
<input type="checkbox"/> Wetland has persistent, ungrazed vegetation $\geq 1/10$ of area. <b>Points = 1</b>		
<input type="checkbox"/> Wetland has persistent, ungrazed vegetation $< 1/10$ of area. <b>Points = 0</b>		
Map of Cowardin vegetation classes <b>Figure</b> _____		
D 1.4 Characteristics of seasonal ponding or inundation.		
<i>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.</i>		0
<input type="checkbox"/> Area seasonally ponded is $> 1/2$ total area of wetland. <b>Points = 4</b>		
<input type="checkbox"/> Area seasonally ponded is $> 1/4$ total area of wetland. <b>Points = 2</b>		
<input checked="" type="checkbox"/> Area seasonally ponded is $< 1/4$ total area of wetland. <b>Points = 0</b>		
Map of hydroperiods <b>Figure</b> _____		
<b>Total for D 1</b>	<i>Add the points in the boxes above</i>	<b>7</b>
<b>D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? (see p. 44)</b>		
Answer YES if you know or believe there are pollutants in ground water or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes, or ground water downgradient from the wetland. Note which of the following conditions provide the sources of pollutants:		
<input type="checkbox"/> Grazing in the wetland or within 150 feet.		Multiplier 2
<input checked="" type="checkbox"/> Untreated stormwater discharges to wetland.		
<input type="checkbox"/> Tilled fields or orchards within 150 feet of wetland.		
<input checked="" type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging.		
<input checked="" type="checkbox"/> Residential, urban areas, golf courses are within 150 feet of wetland.		
<input type="checkbox"/> Wetland is fed by ground water high in phosphorus or nitrogen.		
<input type="checkbox"/> Other: _____		
YES - multiplier is 2	NO - multiplier is 1	
<b>TOTAL - Water Quality Functions</b>	Multiply the score from D 1. by D 2. <i>Add score to table on p. 1</i>	<b>14</b>

<b>D Depressional and Flats Wetlands</b>		<b>EXHIBIT</b> Points <b>PAGE 01 OF 145</b>	9
<b>HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding/stream degradation:</b>			
<b>D 3. Does wetland unit have the <u>potential</u> to reduce flooding/erosion? (see p. 46)</b>			
D 3.1 Characteristics of surface water flows out of the wetland:			
<input type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet). <b>Points = 4</b>			
<input checked="" type="checkbox"/> Unit has an intermittently flowing, <b>OR</b> highly constricted permanently flowing outlet. <b>Points = 2</b>			
<input type="checkbox"/> Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and <b>no obvious natural outlet</b> and/or outlet is a man-made ditch. (If ditch is not permanently flowing, treat unit at "intermittently flowing.") <b>Points = 1</b>		2	
<input type="checkbox"/> Unit has an unconstricted, or slightly constricted, surface outlet (permanently flowing). <b>Points = 0</b>			
D 3.2 Depth of storage during wet periods. <i>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).</i>			
<input type="checkbox"/> Marks of ponding are 3 feet or more above the surface or bottom of outlet. <b>Points = 7</b>			
<input type="checkbox"/> The wetland is a "headwater" wetland. <b>Points = 5</b>		3	
<input type="checkbox"/> Marks of ponding between 2 feet to <3 feet from surface or bottom of outlet. <b>Points = 5</b>			
<input checked="" type="checkbox"/> Marks are at least 0.5 feet to <2 feet from surface or bottom of outlet. <b>Points = 3</b>			
<input type="checkbox"/> Wetland is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water. <b>Points = 1</b>			
<input type="checkbox"/> Marks of ponding are less than 0.5 feet. <b>Points = 0</b>			
D 3.3 Contribution of wetland to storage in the watershed. <i>Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland itself.</i>			
<input type="checkbox"/> The area of the basin is <10 times the area of the unit. <b>Points = 5</b>		3	
<input checked="" type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit. <b>Points = 3</b>			
<input type="checkbox"/> The area of the basin is >100 times the area of the unit. <b>Points = 0</b>			
<input type="checkbox"/> Entire unit is in the <b>Flats</b> class (basin=wetland) <b>Points = 5</b>			
<b>Total for D 3</b>	<i>Add the points in the boxes above</i>	<b>8</b>	
<b>D 4. Does wetland unit have the <u>opportunity</u> to reduce flooding/erosion? (see p. 49)</b>			
Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, 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.			
<i>Note which of the following indicators of opportunity apply:</i>			
<input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems.			
<input type="checkbox"/> Wetland drains to a river or stream that has flooding problems.			
<input checked="" type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems.			
<input type="checkbox"/> Other: _____			
YES - multiplier is 2	NO - multiplier is 1	<b>Multiplier</b>	
		2	
<b>TOTAL - Hydrologic Functions</b>	Multiply the score from D 3. by D 4. <i>Add score to table on p. 1</i>	<b>16</b>	

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*These questions apply to wetlands of all HGM classes*

**HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat.**

**H 1. Does the wetland unit have the potential to provide habitat for many species?**

H 1.1 Vegetation structure (see p. 72)  
 Check the types of vegetation classes present (as defined by Cowardin). Size threshold for 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)
- Forested (areas where trees have >30% cover)

If the unit has a forested class, check if:

- The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation types that qualify. If you have:

4 structures or more	Points = 4
3 structures	Points = 2
2 structures	Points = 1
1 structure	Points = 0

Map of Cowardin classes Figure 1

---

H 1.2 Hydroperiods (see p. 73)  
 Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).

- Permanently flooded or inundated 4 or more types present Points = 3
- Seasonally flooded or inundated 3 types present Points = 2
- Occasionally flooded or inundated 2 types present Points = 1
- Saturated only 1 type present Points = 0
- Permanently flowing stream or river in, or adjacent to, the wetland
- Seasonally flowing stream in, or adjacent to, the wetland
- Lake-fringe wetland = 2 points
- Freshwater tidal wetland = 2 points

Map of hydroperiods Figure 2

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H 1.3 Richness of Plant Species (see p. 75)  
 Count the number of plant species in the wetland that cover at least 10 sq. ft. (different patches of the same species can be combined to meet the size threshold). You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle.

If you counted:

>19 species	Points = 2
5-19 species	Points = 1
<5 species	Points = 0

List species below if you want to:

Figure 1

Total for page 4

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**H 1.4 Interspersion of Habitats (see p. 76)**  
Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

None = 0 points      Low = 1 point      Moderate = 2 points

High = 3 points

[riparian braided channels]

NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". Use map of Cowardin vegetation classes.

2

**H 1.5 Special Habitat Features (see p. 77)**  
Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

- Large, downed, woody debris within the wetland (>4 inches in diameter and 6 feet long).
- Standing snags (diameter at the bottom >4 inches) in the wetland.
- Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m).
- Stable steep banks of fine material that might be used by beaver/muskrat for denning (>30° slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet turned brown/gray).

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.

2

Note: The 20% stated in early printings of the manual on page 78 is an error.

**H 1. TOTAL Score - potential for providing habitat**  
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

8

Comments:

	Points
<p><b>H 2. Does the wetland unit have the opportunity to provide habitat for many species?</b></p> <p><b>H 2.1 Buffers</b> (see p. 80)  <i>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."</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference. No structures are within undisturbed part of buffer (<i>relatively undisturbed also means no grazing, no landscaping, no daily human use</i>). <b>Points = 5</b></li> <li><input type="checkbox"/> 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;50% of circumference. <b>Points = 4</b></li> <li><input type="checkbox"/> 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference. <b>Points = 4</b></li> <li><input type="checkbox"/> 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt;25% circumference. <b>Points = 3</b></li> <li><input type="checkbox"/> 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt;50% circumference. <b>Points = 3</b></li> </ul> <p style="text-align: center;"><b>If buffer does not meet any of the criteria above:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland &gt;95% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></li> <li><input type="checkbox"/> No paved areas or buildings within 50 m of wetland for &gt;50% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></li> <li><input type="checkbox"/> Heavy grazing in buffer. <b>Points = 1</b></li> <li><input type="checkbox"/> Vegetated buffers are &lt;2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). <b>Points = 0</b></li> <li><input checked="" type="checkbox"/> Buffer does not meet any of the criteria above. <b>Points = 1</b></li> </ul> <p style="text-align: right;"><b>Aerial photo showing buffers</b> <b>Figure</b></p>	1
<p><b>H 2.2 Corridors and Connections</b> (see p. 81)</p> <p><b>H 2.2.1</b> Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 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? (<i>Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.</i>)</p> <p style="text-align: center;">YES = 4 points (go to H 2.3) <span style="float: right;">NO = go to H 2.2.2</span></p>	
<p><b>H 2.2.2</b> Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet 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 <b>OR</b> a <b>Lake-fringe</b> wetland, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;">YES = 2 points (go to H 2.3) <span style="float: right;">NO = go to H 2.2.3</span></p>	1
<p><b>H 2.2.3</b> Is the wetland:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> within 5 miles (8 km) of a brackish or salt water estuary <b>OR</b></li> <li><input type="checkbox"/> within 3 miles of a large field or pasture &gt; 40 acres in size <b>OR</b></li> <li><input checked="" type="checkbox"/> within 1 mile of a lake greater than 20 acres in size?</li> </ul> <p style="text-align: center;">YES = 1 point <span style="float: right;">NO = 0 points</span></p>	

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Total for page 2

H 2.3	Points
<p><u>Near or Adjacent to Other Priority Habitats Listed by WDFW (see p. 82)</u>                      Which of the following priority habitats are within 330 feet (100 m) of the wetland unit?  <i>NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Aspen stands:</b> Pure or mixed stands of aspen &gt;0.4 ha (1 acre).</li> <li><input type="checkbox"/> <b>Biodiversity Areas and Corridors:</b> Areas of habitat that are relatively important to various species of native fish and wildlife (<i>full descriptions in WDFW PHS report p. 152</i>).</li> <li><input type="checkbox"/> <b>Herbaceous Balds:</b> Variable size patches of grass and forbs on shallow soils over bedrock.</li> <li><input type="checkbox"/> <b>Old-growth/Mature forests:</b> (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/acre) &gt;81 cm (32 in) dbh or &gt; 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadance, 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.</li> <li><input type="checkbox"/> <b>Oregon white Oak:</b> Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (<i>full descriptions in WDFW PHS report p. 158</i>).</li> <li><input type="checkbox"/> <b>Riparian:</b> The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</li> <li><input type="checkbox"/> <b>Westside Prairies:</b> Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (<i>full descriptions in WDFW PHS report p. 161</i>).</li> <li><input type="checkbox"/> <b>Instream:</b> The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.</li> <li><input type="checkbox"/> <b>Nearshore:</b> Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (<i>full descriptions of habitats and the definition of relatively undisturbed are in WDFW report pp. 167-169 and glossary in Appendix A</i>).</li> <li><input type="checkbox"/> <b>Caves:</b> 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.</li> <li><input type="checkbox"/> <b>Cliffs:</b> Greater than 7.6 m (25 ft) high and occurring below 5,000 ft.</li> <li><input type="checkbox"/> <b>Talus:</b> 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.</li> <li><input checked="" type="checkbox"/> <b>Snags and Logs:</b> 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 &gt; 51 cm (20 in) in western Washington and are &gt; 2 m (6.5 ft) in height. Priority logs are &gt; 30 cm (12 in) in diameter at the largest end, and &gt; 6 m (20 ft) long.</li> </ul> <p>If wetland has:      <b>3+ priority habitats = 4 points</b>                      <b>1 priority habitat = 1 point</b>                                                       <b>2 priority habitats = 3 points</b>                                      <b>No habitats = 0 points</b></p> <p>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</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">                         EXHIBIT 9                          PAGE 105 OF 145                     </div> <p style="text-align: center; margin-top: 20px;">1</p>

H 2.4 Wetland Landscape (see p. 84)		Points
<p>Choose the <b>one</b> description of the landscape around the wetland that best fits.</p> <p>There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands</p>		
<input type="checkbox"/> OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	Points = 5	3
<input type="checkbox"/> 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	
<input checked="" type="checkbox"/> There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	Points = 3	
<input type="checkbox"/> The wetland is Lake-fringe on a lake <b>with</b> disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	Points = 3	
<input type="checkbox"/> There is at least 1 wetland within 1/2 mile.	Points = 2	
<input type="checkbox"/> There are no wetlands within 1/2 mile.	Points = 0	
<p><b>H 2. TOTAL Score</b> - opportunity for providing habitat                      Add the scores from H2.1, H2.2, H2.3, H2.4</p>		6
<p><b>Total Score for Habitat Functions</b> - add the points for H1 and H2, and record the result on p. 1</p>		14

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**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

*Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.*

<b>Wetland Type</b> <i>Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.</i>	<b>Category</b>
<p><b>SC 1.0 <u>Estuarine Wetlands</u> (see p. 86)</b>                      Does the wetland unit meet the following criteria for Estuarine wetlands?  <input type="checkbox"/> The dominant water regime is tidal,  <input type="checkbox"/> Vegetated, and  <input type="checkbox"/> With a salinity greater than 0.5 ppt.  <input type="checkbox"/> YES = <i>Go to SC 1.1</i> <input checked="" type="checkbox"/> NO - not an estuarine wetland</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content;">                         EXHIBIT <u>9</u>                          PAGE <u>167</u> OF <u>145</u> </div>
<p><b>SC 1.1</b> 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?  <input type="checkbox"/> YES = <b>Category I</b> <input type="checkbox"/> NO = <i>Go to SC 1.2</i></p>	
<p><b>SC 1.2</b> Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions?                      The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has &lt;10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover &gt;10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.  <input type="checkbox"/> At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland.  <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.  <input type="checkbox"/> YES = <b>Category I</b> <input type="checkbox"/> NO = <b>Category II</b></p>	



<p><b>SC 2.0 <u>Natural Heritage Wetlands</u> (see p. 87)</b>                  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.</p> <p>SC 2.1 Is the wetland unit 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 <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/>  <input type="checkbox"/> YES - contact WNHP/DNR (see p. 79) and go to SC 3.2 <input checked="" type="checkbox"/> NO</p> <p>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?  <input type="checkbox"/> YES = <b>Category I</b> <input checked="" type="checkbox"/> NO - not a Heritage wetland</p>	<p><b>Category</b></p>
<p><b>SC 3.0 <u>Bogs</u> (see p. 87)</b>                  Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. If you answer Yes, you will still need to rate the wetland based on its function.</p> <ol style="list-style-type: none"> <li>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 the soil profile? (See Appendix B for a field key to identify organic soils.)  <input type="checkbox"/> YES - go to Q. 3 <input checked="" type="checkbox"/> NO - go to Q. 2</li> <li>Does the unit have organic soils, either peats or mucks, that are &lt;16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond?  <input type="checkbox"/> YES - go to Q. 3 <input checked="" type="checkbox"/> NO - not a bog for purpose of rating</li> <li>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 (&gt;30% of total shrub and herbaceous cover consists of species in Table 3)?  <input type="checkbox"/> YES - is a bog for purpose of rating <input type="checkbox"/> NO - go to Q. 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.</li> <li>Is the unit forested (&gt;30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (&gt;30% coverage of total shrub/herbaceous cover)?  <input type="checkbox"/> YES - <b>Category I</b> <input type="checkbox"/> NO - not a bog for purpose of rating</li> </ol>	

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<p><b>SC 4.0 Forested Wetlands (see p. 90)</b>                  Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? <i>If you answer Yes, you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> <b>Old-growth forests:</b> (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</p> <p style="padding-left: 40px;">NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter.</p> <p><input type="checkbox"/> <b>Mature forests:</b> (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have 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.</p> <p><input type="checkbox"/> YES = <b>Category I</b>      <input checked="" type="checkbox"/> NO - not a forested wetland w/ special characteristics</p>	<p><b>Category</b></p>
<p><b>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</b>                  Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p>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.</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (&gt;.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>).</p> <p><input type="checkbox"/> YES = <i>go to SC 5.1</i>      <input checked="" type="checkbox"/> NO - not a wetland in a coastal lagoon</p>	
<p><b>SC 5.1</b> Does the wetland meet all of the following 3 conditions?</p> <p><input type="checkbox"/> 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).</p> <p><input type="checkbox"/> At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4,350 square feet).</p> <p><input type="checkbox"/> YES = <b>Category I</b>      <input type="checkbox"/> NO = <b>Category II</b></p>	

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<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b>                  Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?</p> <p><input type="checkbox"/> YES - go to SC 6.1                      <input checked="" type="checkbox"/> NO - not an interdunal wetland for rating  <i>If you answer YES, you will still need to rate the wetland based on its functions.</i></p> <p>In practical terms, that means the following geographic areas:</p> <ul style="list-style-type: none"> <li>• Long Beach Peninsula - lands west of SR 103</li> <li>• Grayland-Westport - lands west of SR 105</li> <li>• Ocean Shores-Copalis - lands west of SR 1115 and SR 109.</li> </ul> <p>SC 6.1 Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger?  <input type="checkbox"/> YES = <b>Category II</b>                      <input type="checkbox"/> NO - go to SC 6.2</p> <p>SC 6.2 Is the wetland unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?  <input type="checkbox"/> YES = <b>Category III</b></p>	<p><b>Category</b></p>
<p><b>Category of wetland based on Special Characteristics</b>                  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.</p>	<p>NA</p>

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Wetland name or number: 3

**WETLAND RATING FORM - WESTERN WASHINGTON**

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland 3 Date of site visit: 7/23/09

Rated by S. Anderson Trained by Ecology? Yes  No  Date: Jan. 2006

SEC: 11 TWSHP: 26N RNGE: 5E Is S/T/R in Appendix D? Yes  No

Map of wetland unit: Figure \_\_\_\_\_ Estimated size: \_\_\_\_\_

SUMMARY OF RATING									
Category based on FUNCTIONS provided by wetland:									
I <input type="checkbox"/>	II <input type="checkbox"/>								
III <input type="checkbox"/>	IV <input checked="" type="checkbox"/>								
Category I = Score >=70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score <30	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Score for Water Quality Functions</td> <td style="text-align: right; border: 1px solid black; width: 50px;">8</td> </tr> <tr> <td style="padding: 2px;">Score for Hydrologic Functions</td> <td style="text-align: right; border: 1px solid black;">6</td> </tr> <tr> <td style="padding: 2px;">Score for Habitat Functions</td> <td style="text-align: right; border: 1px solid black;">7</td> </tr> <tr> <td style="padding: 2px;"><b>TOTAL score for functions</b></td> <td style="text-align: right; border: 1px solid black;"><b>21</b></td> </tr> </table>	Score for Water Quality Functions	8	Score for Hydrologic Functions	6	Score for Habitat Functions	7	<b>TOTAL score for functions</b>	<b>21</b>
Score for Water Quality Functions	8								
Score for Hydrologic Functions	6								
Score for Habitat Functions	7								
<b>TOTAL score for functions</b>	<b>21</b>								
Category based on SPECIAL CHARACTERISTICS of wetland									
I <input type="checkbox"/>	II <input type="checkbox"/>								
Does not Apply <input checked="" type="checkbox"/>									
<b>Final Category</b> (choose the "highest" category from above)									
<div style="border: 1px solid black; padding: 5px; display: inline-block;">IV</div>									

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	<input type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>
Bog	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>
None of the above	<input type="checkbox"/>

Wetland Class	
Depressional	<input type="checkbox"/>
Riverine	<input type="checkbox"/>
Lake-fringe	<input type="checkbox"/>
Slope	<input checked="" type="checkbox"/>
Flats	<input type="checkbox"/>
Freshwater Tidal	<input type="checkbox"/>
Check if multiple HGM classes are present	<input type="checkbox"/>

Comments:

**Does the wetland unit 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.

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<b>Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)</b>		<b>YES</b>	<b>NO</b>
SP1.	<i>Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered (T/E) <b>plant or animal</b> species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SP2.	<i>Has the wetland unit been documented as habitat for any state listed Threatened or Endangered <b>animal</b> species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SP3.	<i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SP4.	<i>Does the wetland unit have a local significance in addition to its functions?</i> 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.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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 into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply and go to Question 8.

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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)?

- 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 Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater 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 being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water

- 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 unit meet both of the following criteria?

- The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

- At least 30% of the open water area is deeper than 6.6 feet (2 m)?

- NO - go to 4
YES - the wetland class is Lake-fringe (Lacustrine Fringe)

4. Does the entire wetland unit meet all of the following criteria?

- The wetland is on a slope (slope can be very gradual).
The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
The water leaves the wetland without being impounded.

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).

- NO - go to 5
YES - the wetland class is Slope

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5. Does the entire wetland unit meet all of the following criteria?
- The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.
  - The overbank flooding occurs once every two years.
  - 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 unit located in a very flat area with no obvious depression and no stream or river running through it and providing water? The unit seems to be maintained by higher ground water 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 second class is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

<i>HGM Classes Within a Delineated Wetland Boundary</i>	<i>Class to Use in Rating</i>	
Slope + Riverine	Riverine	<input type="checkbox"/>
Slope + Depressional	Depressional	<input type="checkbox"/>
Slope + Lake-fringe	Lake-fringe	<input type="checkbox"/>
Depressional + Riverine along stream within boundary	Depressional	<input type="checkbox"/>
Depressional + Lake-fringe	Depressional	<input type="checkbox"/>
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	<input type="checkbox"/>

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.

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S - Slope Wetlands		Points
<b>WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality.</b>		
<b>S 1. Does the wetland unit have the <u>potential</u> to improve water quality? (see p. 64)</b>		
S 1.1 Characteristics of average slope of the unit:		1
<input type="checkbox"/> Slope is 1% or less (a 1% slope has a 1-foot vertical drop for every 100 ft. horizontal distance) <b>Points = 3</b>		
<input type="checkbox"/> Slope is 1% - 2% <b>Points = 2</b>		
<input checked="" type="checkbox"/> Slope is 2% - 5% <b>Points = 1</b>		
<input type="checkbox"/> Slope is greater than 5% <b>Points = 0</b>		
S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (use NRCS definitions)		0
YES = 3 points	NO = 0 points	
S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: choose the points appropriate for the description that best fits 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.		3
Dense, uncut, herbaceous vegetation >90% of wetland area <b>Points = 6</b>		
Dense, uncut, herbaceous vegetation >1/2 of wetland area <b>Points = 3</b>		
Dense, woody vegetation >1/2 of wetland area <b>Points = 2</b>		
Dense, uncut, herbaceous vegetation >1/4 of wetland area <b>Points = 1</b>		
Does not meet any of the criteria above for vegetation <b>Points = 0</b>		
Aerial photo or map with vegetation polygons		Figure
<b>Total for S 1</b>	Add the points in the boxes above	4
<b>S 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? (see p. 67)</b>		
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 an opportunity.		
<input type="checkbox"/> Grazing in the wetland or within 150 feet of the wetland		
<input checked="" type="checkbox"/> Untreated stormwater discharges to the wetland		
<input type="checkbox"/> Tilled fields, logging, or orchards within 150 feet of the wetland		
<input checked="" type="checkbox"/> Residential, urban areas, or golf courses are within 150 feet upslope of wetland		
<input type="checkbox"/> Other:		
YES - multiplier is 2	NO - multiplier is 1	Multiplier
		2
<b>TOTAL - Water Quality Functions</b>	Multiply the score from S 1. by S 2. Add score to table on p. 1	8

<b>S Slope Wetlands</b>		Points
<b>HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion</b>		
<b>S 3. Does wetland unit have the potential to reduce flooding/erosion? (see p. 68)</b>		
<p>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 the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (&gt;75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.</p> <p><input type="checkbox"/> Dense, uncut, <b>rigid</b> vegetation covers &gt;90% of wetland area <b>Points = 6</b></p> <p><input checked="" type="checkbox"/> Dense, uncut, <b>rigid</b> vegetation covers &gt;1/2 of wetland area <b>Points = 3</b></p> <p><input type="checkbox"/> Dense, uncut, <b>rigid</b> vegetation covers &gt;1/4 of wetland area <b>Points = 1</b></p> <p><input type="checkbox"/> More than 3/4 of area is grazed, mowed, tilled, or vegetation is not rigid <b>Points = 0</b></p>		
<p>S 3.2 Characteristics of the slope wetland that holds back small amounts of flood flows: the slope wetland has small surface depressions that can retain water over at least 10% of its area</p> <p>YES = 2 points                      NO = 0 points</p>		0
<i>Record the points from the boxes above</i>		3
<b>S 4. Does wetland unit have the opportunity to reduce flooding and erosion? (see p. 70)</b>		
<p>Is the wetland in a landscape position where the reduction in water velocity it provides help to protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? Note which of the following conditions apply.</p> <p><input checked="" type="checkbox"/> Wetland has surface runoff that drains to a river or stream that has flooding problems</p> <p><input type="checkbox"/> Other: _____</p>		Multiplier
<p>YES - multiplier is 2                      NO - multiplier is 1</p>		2
<b>TOTAL - Hydrologic Functions</b>	Multiply the score from S 3. by S 4. <i>Add score to table on p. 1</i>	6

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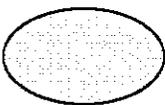
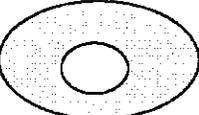
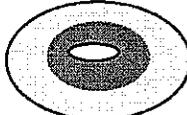
*These questions apply to wetlands of all HGM classes*

**HABITAT FUNCTIONS** - Indicators that wetland functions to provide important habitat.

		Points								
<b>H 1.</b>	<b>Does the wetland unit have the potential to provide habitat for many species?</b>									
H 1.1	<p><u>Vegetation structure</u> (see p. 72)                      Check the types of vegetation classes present (as defined by Cowardin). Size threshold for class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.</p> <p> <input type="checkbox"/> Aquatic bed  <input checked="" type="checkbox"/> Emergent plants  <input type="checkbox"/> Scrub/shrub (areas where shrubs have &gt;30% cover)  <input type="checkbox"/> Forested (areas where trees have &gt;30% cover)</p> <p><i>If the unit has a forested class, check if:</i></p> <p> <input type="checkbox"/> 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.</p> <p><i>Add the number of vegetation types that qualify. If you have:</i></p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>4 structures or more</td> <td><b>Points = 4</b></td> </tr> <tr> <td>3 structures</td> <td><b>Points = 2</b></td> </tr> <tr> <td>2 structures</td> <td><b>Points = 1</b></td> </tr> <tr> <td>1 structure</td> <td><b>Points = 0</b></td> </tr> </table> <p style="text-align: right;"><i>Map of Cowardin vegetation classes</i></p>	4 structures or more	<b>Points = 4</b>	3 structures	<b>Points = 2</b>	2 structures	<b>Points = 1</b>	1 structure	<b>Points = 0</b>	0
4 structures or more	<b>Points = 4</b>									
3 structures	<b>Points = 2</b>									
2 structures	<b>Points = 1</b>									
1 structure	<b>Points = 0</b>									
H 1.2	<p><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 if less than 2.5 acres in size or 1/4 acre to count (see text for descriptions of hydroperiods).</p> <p> <input type="checkbox"/> Permanently flooded or inundated      4 or more types present      <b>Points = 3</b>  <input type="checkbox"/> Seasonally flooded or inundated      3 types present      <b>Points = 2</b>  <input checked="" type="checkbox"/> Occasionally flooded or inundated      2 types present      <b>Points = 1</b>  <input checked="" type="checkbox"/> Saturated only      1 type present      <b>Points = 0</b>  <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland  <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland  <input type="checkbox"/> <i>Lake-fringe wetland = 2 points</i>  <input type="checkbox"/> <i>Freshwater tidal wetland = 2 points</i></p> <p style="text-align: right;"><i>Map of hydroperiods</i></p>	1								
H 1.3	<p><u>Richness of Plant Species</u> (see p. 75)                      Count the number of plant species in the wetland that cover at least 10 sq. ft. (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.</p> <p style="text-align: right;">If you counted:</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>&gt;19 species</td> <td><b>Points = 2</b></td> </tr> <tr> <td>5-19 species</td> <td><b>Points = 1</b></td> </tr> <tr> <td>&lt;5 species</td> <td><b>Points = 0</b></td> </tr> </table> <p><i>List species below if you want to:</i></p>	>19 species	<b>Points = 2</b>	5-19 species	<b>Points = 1</b>	<5 species	<b>Points = 0</b>	1		
>19 species	<b>Points = 2</b>									
5-19 species	<b>Points = 1</b>									
<5 species	<b>Points = 0</b>									

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Total for page 2

	Points
<p><b>H 1.4 Interspersion of Habitats (see p. 76)</b>                      Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> <div style="text-align: center;">  <p>Moderate = 2 points</p> </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;"> <p>[riparian braided channels]</p> </div> </div> <p style="text-align: center; margin-top: 5px;"><b>High = 3 points</b></p> <p><b>NOTE:</b> If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". Use map of Cowardin vegetation classes.</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px; width: fit-content;"> <b>EXHIBIT 9</b>  <b>PAGE 118 OF 145</b>  <span style="font-size: small;">0</span> </div> <p style="text-align: center; font-size: 2em;">0</p>
<p><b>H 1.5 Special Habitat Features (see p. 77)</b>                      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.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Large, downed, woody debris within the wetland (&gt;4 inches in diameter and 6 feet long).</li> <li><input type="checkbox"/> Standing snags (diameter at the bottom &gt;4 inches) in the wetland.</li> <li><input type="checkbox"/> Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m).</li> <li><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver/muskrat for denning (&gt;30° slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet turned brown/gray</i>).</li> <li><input type="checkbox"/> At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>).</li> <li><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants.</li> </ul> <p style="font-size: small; margin-top: 10px;"><i>Note: The 20% stated in early printings of the manual on page 78 is an error.</i></p>	<p style="font-size: 2em;">0</p>
<p><b>H.1. TOTAL Score - potential for providing habitat</b>                      Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>	<p style="font-size: 2em;">2</p>
<p>Comments:</p>	

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	Points
<p>H 2.1 <u>Buffers</u> (see p. 80)  <i>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."</i></p> <p><input type="checkbox"/> 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference. No structures are within undisturbed part of buffer (<i>relatively undisturbed also means no grazing, no landscaping, no daily human use</i>). <b>Points = 5</b></p> <p><input type="checkbox"/> 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;50% of circumference. <b>Points = 4</b></p> <p><input type="checkbox"/> 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference. <b>Points = 4</b></p> <p><input type="checkbox"/> 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt;25% circumference. <b>Points = 3</b></p> <p><input type="checkbox"/> 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt;50% circumference. <b>Points = 3</b></p> <p><b>If buffer does not meet any of the criteria above:</b></p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland &gt;95% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></p> <p><input type="checkbox"/> No paved areas or buildings within 50 m of wetland for &gt;50% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></p> <p><input type="checkbox"/> Heavy grazing in buffer. <b>Points = 1</b></p> <p><input type="checkbox"/> Vegetated buffers are &lt;2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). <b>Points = 0</b></p> <p><input checked="" type="checkbox"/> Buffer does not meet any of the criteria above. <b>Points = 1</b></p> <p style="text-align: right;"><b>Aerial photo showing buffers</b> <b>Figure</b></p>	1
<p>H 2.2 <u>Corridors and Connections</u> (see p. 81)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 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? (<i>Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.</i>)</p> <p style="text-align: center;">YES = 4 points (go to H 2.3) <span style="float: right;">NO = go to H 2.2.2</span></p>	
<p>H 2.2.2 Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet 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 <b>OR</b> a <b>Lake-fringe</b> wetland, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;">YES = 2 points (go to H 2.3) <span style="float: right;">NO = go to H 2.2.3</span></p>	1
<p>H 2.2.3 Is the wetland:</p> <p><input type="checkbox"/> within 5 miles (8 km) of a brackish or salt water estuary <b>OR</b></p> <p><input checked="" type="checkbox"/> within 3 miles of a large field or pasture &gt; 40 acres in size <b>OR</b></p> <p><input type="checkbox"/> within 1 mile of a lake greater than 20 acres in size?</p> <p style="text-align: center;">YES = 1 point <span style="float: right;">NO = 0 points</span></p>	

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H 2.3	Points
<p><u>Near or Adjacent to Other Priority Habitats Listed by WDFW (see p. 82)</u>                      Which of the following priority habitats are within 330 feet (100 m) of the wetland unit?  <i>NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Aspen stands:</b> Pure or mixed stands of aspen &gt;0.4 ha (1 acre).</li> <li><input type="checkbox"/> <b>Biodiversity Areas and Corridors:</b> Areas of habitat that are relatively important to</li> <li><input type="checkbox"/> <b>Herbaceous Balds:</b> Variable size patches of grass and forbs on shallow soils over</li> <li><input type="checkbox"/> <b>Old-growth/Mature forests:</b> (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/acre) &gt;81 cm (32 in) dbh or &gt; 200 years of age. (Mature forests) S</li> <li><input type="checkbox"/> <b>Oregon white Oak:</b> Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (<i>full descriptions in WDFW PHS report p. 158</i>).</li> <li><input type="checkbox"/> <b>Riparian:</b> The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each</li> <li><input type="checkbox"/> <b>Westside Prairies:</b> Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (<i>full descriptions in WDFW PHS report p. 161</i>).</li> <li><input type="checkbox"/> <b>Instream:</b> The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream</li> <li><input type="checkbox"/> <b>Nearshore:</b> Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (<i>full descriptions of</i></li> <li><input type="checkbox"/> <b>Caves:</b> 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.</li> <li><input type="checkbox"/> <b>Cliffs:</b> Greater than 7.6 m (25 ft) high and occurring below 5,000 ft.</li> <li><input type="checkbox"/> <b>Talus:</b> 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.</li> <li><input type="checkbox"/> <b>Snags and Logs:</b> 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 &gt; 51 cm (20 in) in western Washington and are &gt; 2 m (6.5 ft) in height. Priority logs are &gt; 30 cm (12 in) in diameter at the largest end, and &gt; 6 m (20 ft) long.</li> </ul> <p>If wetland has:      <b>3+ priority habitats = 4 points</b>                      <b>1 priority habitat = 1 point</b>                                                       <b>2 priority habitats = 3 points</b>                                      <b>No habitats = 0 points</b></p> <p>Note: all vegetated wetlands are by definition a priority habitat but are not included in this list.</p>	<p style="text-align: center;">0</p>

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Nearby wetlands are addressed in question H 2.4		
Choose the <b>one</b> description of the landscape around the wetland that best fits.		
There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands)		Points = 5
<input type="checkbox"/>	OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	Points = 3
<input type="checkbox"/>	The wetland is Lake-fringe on a lake <b>with</b> disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	Points = 3
<input type="checkbox"/>	There is at least 1 wetland within 1/2 mile.	Points = 2
<input type="checkbox"/>	There are no wetlands within 1/2 mile.	Points = 0
<b>H2. TOTAL Score - opportunity for providing habitat</b>		3
<i>Add the scores from H2.1, H2.2, H2.3, H2.4</i>		5
<b>Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1</b>		7

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

Please determine if the wetland meets the attributes described below and choose the appropriate answer and Category.

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Wetland Type <i>Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.</i>	Category
<p><b>SC 1.0 Estuarine Wetlands (see p. 86)</b> Does the wetland unit meet the following criteria for Estuarine wetlands?</p> <p><input type="checkbox"/> The dominant water regime is tidal,  <input type="checkbox"/> Vegetated, and  <input type="checkbox"/> With a salinity greater than 0.5 ppt.  <input type="checkbox"/> YES = Go to SC 1.1 <input checked="" type="checkbox"/> NO - not an estuarine wetland</p>	
<p><b>SC 1.1</b> 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?</p> <p><input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Go to SC 1.2</p>	
<p><b>SC 1.2</b> Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has &lt;10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover &gt;10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.</p> <p><input type="checkbox"/> At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland.  <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.  <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p>	

<p><b>SC 2.0 <u>Natural Heritage Wetlands</u> (see p. 87)</b>                  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.</p> <p><b>SC 2.1</b> Is the wetland unit 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 <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/>  <input type="checkbox"/> YES - contact WNHP/DNR (see p. 79) and go to SC 3.2 <input checked="" type="checkbox"/> NO</p> <p><b>SC 2.2</b> Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state Threatened or Endangered plant species?  <input type="checkbox"/> YES = <b>Category I</b> <input checked="" type="checkbox"/> NO - not a Heritage wetland</p>	<p><b>Category:</b></p>
<p><b>SC 3.0 <u>Bogs</u> (see p. 87)</b>                  Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetations 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.</p> <ol style="list-style-type: none"> <li>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 the soil profile? (See Appendix B for a field key to identify organic soils.)  <input type="checkbox"/> YES - go to Q. 3 <input checked="" type="checkbox"/> NO - go to Q. 2</li> <li>Does the unit have organic soils, either peats or mucks, that are &lt;16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond?  <input type="checkbox"/> YES - go to Q. 3 <input checked="" type="checkbox"/> NO - not a bog for purpose of rating</li> <li>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 (&gt;30% of total shrub and herbaceous cover consists of species in Table 3)?  <input type="checkbox"/> YES - is a bog for purpose of rating <input type="checkbox"/> NO - go to Q. 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.</li> <li>Is the unit forested (&gt;30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (&gt;30% coverage of total shrub/herbaceous cover)?  <input type="checkbox"/> YES = <b>Category I</b> <input type="checkbox"/> NO - not a bog for purpose of rating</li> </ol>	<p><b>Category:</b></p>

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<p><b>SC 4.0 Forested Wetlands (see p. 90)</b>                  Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? <i>If you answer Yes, you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> <b>Old-growth forests:</b> (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</p> <p style="margin-left: 40px;">NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter.</p> <p><input type="checkbox"/> <b>Mature forests:</b> (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have 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.</p> <p><input type="checkbox"/> YES = <b>Category I</b>      <input checked="" type="checkbox"/> NO - not a forested wetland w/ special characteristics</p>	<p style="border: 1px solid black; padding: 2px;"><b>Category</b></p>
<p><b>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</b>                  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.</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (&gt;.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>).</p> <p><input type="checkbox"/> YES = go to SC 5.1      <input checked="" type="checkbox"/> NO - not a wetland in a coastal lagoon</p>	
<p><b>SC 5.1</b> Does the wetland meet all of the following 3 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).</p> <p><input type="checkbox"/> At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4,350 square feet).</p> <p><input type="checkbox"/> YES = <b>Category I</b>      <input type="checkbox"/> NO - not a wetland in a coastal lagoon</p>	

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<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b>                  Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?</p> <p><input type="checkbox"/> YES - go to SC 6.1                      <input checked="" type="checkbox"/> NO - not an interdunal wetland for rating  <i>If you answer Yes, you will still need to rate the wetland based on its functions.</i></p> <p>In practical terms, that means the following geographic areas:</p> <ul style="list-style-type: none"> <li>• Long Beach Peninsula - lands west of SR 103</li> <li>• Grayland-Westport - lands west of SR 105</li> <li>• Ocean Shores-Copalis - lands west of SR 1115 and SR 109.</li> </ul> <p>SC 6.1 Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger?  <input type="checkbox"/> YES = <b>Category II</b>                      <input type="checkbox"/> NO - go to SC 6.2</p> <p>SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?  <input type="checkbox"/> YES = <b>Category III</b></p>	<p style="text-align: center;"><b>Category</b></p>
<p><b>Category of wetland based on Special Characteristics</b>                  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.</p>	<p style="text-align: center;">NA</p>

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Wetland name or number: 4

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**WETLAND RATING FORM - WESTERN WASHINGTON**  
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users  
Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland 4 Date of site visit: 7/23/09  
Rated by S. Anderson Trained by Ecology? Yes  No  Date: Jan. 2006  
SEC: 11 TOWNSHIP: 26N RANGE: 5E Is S/T/R in Appendix D? Yes  No

Map of wetland unit: Figure \_\_\_\_\_ Estimated size: \_\_\_\_\_

SUMMARY OF RATING									
Category based on FUNCTIONS provided by wetland:									
I <input type="checkbox"/>	II <input type="checkbox"/>								
III <input type="checkbox"/>	IV <input checked="" type="checkbox"/>								
Category I = Score >=70 Category II = Score 51-69 Category III = Score 30-50 Category IV = Score <30	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Score for Water Quality Functions</td> <td style="text-align: right; padding: 2px;">8</td> </tr> <tr> <td style="padding: 2px;">Score for Hydrologic Functions</td> <td style="text-align: right; padding: 2px;">6</td> </tr> <tr> <td style="padding: 2px;">Score for Habitat Functions</td> <td style="text-align: right; padding: 2px;">8</td> </tr> <tr> <td style="padding: 2px;"><b>TOTAL score for functions</b></td> <td style="text-align: right; padding: 2px;"><b>22</b></td> </tr> </table>	Score for Water Quality Functions	8	Score for Hydrologic Functions	6	Score for Habitat Functions	8	<b>TOTAL score for functions</b>	<b>22</b>
Score for Water Quality Functions	8								
Score for Hydrologic Functions	6								
Score for Habitat Functions	8								
<b>TOTAL score for functions</b>	<b>22</b>								
Category based on SPECIAL CHARACTERISTICS of wetland									
I <input type="checkbox"/>	II <input type="checkbox"/>								
Does not Apply <input checked="" type="checkbox"/>									
<b>Final Category</b> (choose the "highest" category from above)									
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 5px;"><b>IV</b></td> </tr> </table>		<b>IV</b>							
<b>IV</b>									

Check the appropriate type and class of wetland being rated.

Wetland Type	
Estuarine	<input type="checkbox"/>
Natural Heritage Wetland	<input type="checkbox"/>
Bog	<input type="checkbox"/>
Mature Forest	<input type="checkbox"/>
Old Growth Forest	<input type="checkbox"/>
Coastal Lagoon	<input type="checkbox"/>
Interdunal	<input type="checkbox"/>
None of the above	<input type="checkbox"/>

Wetland Class	
Depressional	<input type="checkbox"/>
Riverine	<input type="checkbox"/>
Lake-fringe	<input type="checkbox"/>
Slope	<input checked="" type="checkbox"/>
Flats	<input type="checkbox"/>
Freshwater Tidal	<input type="checkbox"/>
Check if multiple HGM classes are present	<input type="checkbox"/>

Comments:

**Does the wetland unit 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.

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<b>Check List for Wetlands That May Need Special Protection (in addition to the protection recommended for its category)</b>		<b>YES</b>	<b>NO</b>
SP1.	<i>Has the wetland unit been documented as a habitat for any federally listed Threatened or Endangered (T/E) plant or animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SP2.	<i>Has the wetland unit been documented as habitat for any state listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SP3.	<i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SP4.	<i>Does the wetland unit have a local significance in addition to its functions?</i> 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.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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 into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands in Western Washington

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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)?
[checked] 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 Saltwater Tidal Fringe, it is rated as an Estuarine wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Saltwater 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 being kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. xx).

- 2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water
[checked] 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 unit meet both of the following criteria?
[ ] The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);
[ ] At least 30% of the open water area is deeper than 6.6 feet (2 m)?
[checked] NO - go to 4 [ ] YES - the wetland class is Lake-fringe (Lacustrine Fringe)

- 4. Does the entire wetland unit meet all of the following criteria?
[ ] The wetland is on a slope (slope can be very gradual).
[ ] The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
[ ] The water leaves the wetland without being impounded.
NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 feet in diameter and less than 1 foot deep).
[ ] NO - go to 5 [checked] YES - the wetland class is Slope

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5. Does the entire wetland unit meet all of the following criteria?

- The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.
- The overbank flooding occurs once every two years.
- 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 unit located in a very flat area with no obvious depression and no stream or river running through it and providing water? The unit seems to be maintained by higher ground water 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 second class is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

<i>HGM Classes Within a Delineated Wetland Boundary</i>	<i>Class to Use in Rating</i>	
Slope + Riverine	Riverine	<input type="checkbox"/>
Slope + Depressional	Depressional	<input type="checkbox"/>
Slope + Lake-fringe	Lake-fringe	<input type="checkbox"/>
Depressional + Riverine along stream within boundary	Depressional	<input type="checkbox"/>
Depressional + Lake-fringe	Depressional	<input type="checkbox"/>
Saltwater Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics	<input type="checkbox"/>

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.



<b>S Slope Wetlands</b>		Points
<b>HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion.</b>		
<b>S 3. Does wetland unit have the potential to reduce flooding/erosion? (see p. 68)</b>		<b>9</b>
<p>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 the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (&gt;75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches.</p> <p> <input type="checkbox"/> Dense, uncut, <b>rigid</b> vegetation covers &gt;90% of wetland area <b>Points = 6</b>  <input checked="" type="checkbox"/> Dense, uncut, <b>rigid</b> vegetation covers &gt;1/2 of wetland area <b>Points = 3</b>  <input type="checkbox"/> Dense, uncut, <b>rigid</b> vegetation covers &gt;1/4 of wetland area <b>Points = 1</b>  <input type="checkbox"/> More than 3/4 of area is grazed, mowed, tilled, or vegetation is not rigid <b>Points = 0</b> </p>		3
<p>S 3.2 Characteristics of the slope wetland that holds back small amounts of flood flows: the slope wetland has small surface depressions that can retain water over at least 10% of its area</p> <p>YES = 2 points                      NO = 0 points</p>		0
<i>Record the points from the boxes above</i>		3
<b>S 4. Does wetland unit have the opportunity to reduce flooding and erosion? (see p. 70)</b>		
<p>Is the wetland in a landscape position where the reduction in water velocity it provides help to protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? Note which of the following conditions apply.</p> <p> <input checked="" type="checkbox"/> Wetland has surface runoff that drains to a river or stream that has flooding problems   <input type="checkbox"/> Other: _____                 </p>		Multiplier
YES - multiplier is 2                      NO - multiplier is 1		2
<b>TOTAL - Hydrologic Functions</b>		6
<i>Multiply the score from S 3. by S 4. Add score to table on p. 1</i>		

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<p><b>H 1.4 Interspersion of Habitats (see p. 76)</b>  <i>Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1) or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.</i></p> <p>None = 0 points      Low = 1 point      Moderate = 2 points</p> <p>High = 3 points</p> <p>[riparian braided channels]</p> <p>NOTE: If you have four or more vegetation types or three vegetation types and open water, the rating is always "high". Use map of Cowardin vegetation classes.</p>	<table border="1"> <tr> <th>Points</th> </tr> <tr> <td>0</td> </tr> </table>	Points	0
Points			
0			
<p><b>H 1.5 Special Habitat Features (see p. 77)</b>  <i>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.</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Large, downed, woody debris within the wetland (&gt;4 inches in diameter and 6 feet long).</li> <li><input type="checkbox"/> Standing snags (diameter at the bottom &gt;4 inches) in the wetland.</li> <li><input type="checkbox"/> Undercut banks are present for at least 6.6 feet (2 m) and/or overhanging vegetation extends at least 3.3 feet (1 m) over a stream (or ditch) in or contiguous with the wetland, for at least 33 feet (10 m).</li> <li><input type="checkbox"/> Stable steep banks of fine material that might be used by beaver/muskrat for denning (&gt;30° slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet turned brown/gray</i>).</li> <li><input type="checkbox"/> At least 1/4 acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>).</li> <li><input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants.</li> </ul> <p>Note: The 20% stated in early printings of the manual on page 78 is an error.</p>	<table border="1"> <tr> <td>0</td> </tr> </table>	0	
0			
<p><b>H 1. TOTAL Score - potential for providing habitat</b>  <i>Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</i></p>	<table border="1"> <tr> <td>2</td> </tr> </table>	2	
2			
<p>Comments:</p>			

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H 2. Does the wetland unit have the opportunity to provide habitat for many species?		Points
<p>H 2.1 <u>Buffers</u> (see p. 80)  <i>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."</i></p> <p><input type="checkbox"/> 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference. No structures are within undisturbed part of buffer (<i>relatively undisturbed also means no grazing, no landscaping, no daily human use</i>). <b>Points = 5</b></p> <p><input type="checkbox"/> 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;50% of circumference. <b>Points = 4</b></p> <p><input type="checkbox"/> 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference. <b>Points = 4</b></p> <p><input type="checkbox"/> 100 m (330 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt;25% circumference. <b>Points = 3</b></p> <p><input type="checkbox"/> 50 m (170 feet) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt;50% circumference. <b>Points = 3</b></p> <p style="text-align: center;"><b>If buffer does not meet any of the criteria above:</b></p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80 feet) of wetland &gt;95% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></p> <p><input type="checkbox"/> No paved areas or buildings within 50 m of wetland for &gt;50% circumference. Light to moderate grazing, or lawns are OK. <b>Points = 2</b></p> <p><input type="checkbox"/> Heavy grazing in buffer. <b>Points = 1</b></p> <p><input type="checkbox"/> Vegetated buffers are &lt;2 m wide (6.6 feet) for more than 95% of the circumference (e.g., tilled fields, paving, basalt bedrock extend to edge of wetland). <b>Points = 0</b></p> <p><input checked="" type="checkbox"/> Buffer does not meet any of the criteria above. <b>Points = 1</b></p>		1
<b>Aerial photo showing buffers</b>		<b>Figure</b>
<p>H 2.2 <u>Corridors and Connections</u> (see p. 81)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (riparian or upland) at least 150 feet wide, has at least 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? (<i>Dams in riparian corridors, heavily used gravel roads, and paved roads are considered breaks in the corridor.</i>)</p> <p style="text-align: center;">YES = 4 points (go to H 2.3) <span style="float: right;">NO = go to H 2.2.2</span></p>		
<p>H 2.2.2 Is the wetland part of a relatively undisturbed/unbroken vegetated corridor (either riparian or upland) at least 50 feet 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 <b>OR</b> a <b>Lake-fringe</b> wetland, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;">YES = 2 points (go to H 2.3) <span style="float: right;">NO = go to H 2.2.3</span></p>		1
<p>H 2.2.3 Is the wetland:</p> <p><input type="checkbox"/> within 5 miles (8 km) of a brackish or salt water estuary <b>OR</b></p> <p><input checked="" type="checkbox"/> within 3 miles of a large field or pasture &gt; 40 acres in size <b>OR</b></p> <p><input type="checkbox"/> within 1 mile of a lake greater than 20 acres in size?</p> <p style="text-align: center;">YES = 1 point <span style="float: right;">NO = 0 points</span></p>		

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Total for page 2

		Points
<p>H 2.3 <u>Near or Adjacent to Other Priority Habitats Listed by WDFW (see p. 82)</u>                      Which of the following priority habitats are within 330 feet (100 m) of the wetland unit?  <i>NOTE: the connections do not have to be relatively undisturbed. These are DFW definitions. Check with your local DFW biologist if there are any questions</i></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Aspen stands:</b> Pure or mixed stands of aspen &gt;0.4 ha (1 acre).</li> <li><input type="checkbox"/> <b>Biodiversity Areas and Corridors:</b> Areas of habitat that are relatively important to</li> <li><input type="checkbox"/> <b>Herbaceous Balds:</b> Variable size patches of grass and forbs on shallow soils over</li> <li><input type="checkbox"/> <b>Old-growth/Mature forests:</b> (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/acre) &gt;81 cm (32 in) dbh or &gt; 200 years of age. (Mature forests) S</li> <li><input type="checkbox"/> <b>Oregon white Oak:</b> Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is 25% (<i>full descriptions in WDFW PHS report p. 158</i>).</li> <li><input type="checkbox"/> <b>Riparian:</b> The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each</li> <li><input type="checkbox"/> <b>Westside Prairies:</b> Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (<i>full descriptions in WDFW PHS report p. 161</i>).</li> <li><input type="checkbox"/> <b>Instream:</b> The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream</li> <li><input type="checkbox"/> <b>Nearshore:</b> Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coastal Nearshore, and Puget Sound Nearshore. (<i>full descriptions of</i></li> <li><input type="checkbox"/> <b>Caves:</b> 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.</li> <li><input type="checkbox"/> <b>Cliffs:</b> Greater than 7.6 m (25 ft) high and occurring below 5,000 ft.</li> <li><input type="checkbox"/> <b>Talus:</b> 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.</li> <li><input checked="" type="checkbox"/> <b>Snags and Logs:</b> 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 &gt; 51 cm (20 in) in western Washington and are &gt; 2 m (6.5 ft) in height. Priority logs are &gt; 30 cm (12 in) in diameter at the largest end, and &gt; 6 m (20 ft) long.</li> </ul> <p>If wetland has:      3+ priority habitats = <b>4 points</b>                      1 priority habitat = <b>1 point</b>                                                       2 priority habitats = <b>3 points</b>                                      No habitats = <b>0 points</b></p> <p>Note: all vegetated wetlands are by definition a priority habitat but are not included in this list.</p>	<p style="font-size: 2em; margin: 0;">1</p>	<div style="border: 2px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p style="margin: 0;">EXHIBIT <span style="font-size: 1.5em;">9</span></p> <p style="margin: 0;">PAGE <span style="font-size: 1.5em;">135</span> OF <span style="font-size: 1.5em;">145</span></p> </div>

Nearby wetlands are addressed in question H 2.4		
Choose the <b>one</b> description of the landscape around the wetland that best fits.		
There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands)		Points = 5
<input type="checkbox"/>	OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development).	
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed.	Points = 3
<input type="checkbox"/>	The wetland is Lake-fringe on a lake <b>with</b> disturbance, and there are 3 other Lake-fringe wetlands within 1/2 mile.	Points = 3
<input type="checkbox"/>	There is at least 1 wetland within 1/2 mile.	Points = 2
<input type="checkbox"/>	There are no wetlands within 1/2 mile.	Points = 0
<b>H 2. TOTAL Score - opportunity for providing habitat</b>		
<i>Add the scores from H2.1, H2.2, H2.3, H2.4</i>		6
<b>Total Score for Habitat Functions - add the points for H1 and H2, and record the result on p. 1</b>		8

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

*Please determine if the wetland meets the attributes described below and choose the appropriate answers and Category.*

<b>Wetland Type</b> <i>Check off any criteria that apply to the wetland. Check the appropriate Category when the appropriate criteria are met.</i>	<b>Category</b>
<p><b>SC 1.0 Estuarine Wetlands (see p. 86)</b>                      Does the wetland unit meet the following criteria for Estuarine wetlands?  <input type="checkbox"/> The dominant water regime is tidal,  <input type="checkbox"/> Vegetated, and  <input type="checkbox"/> With a salinity greater than 0.5 ppt.  <input type="checkbox"/> YES = <i>Go to SC 1.1</i> <input checked="" type="checkbox"/> NO - not an estuarine wetland</p>	<div style="border: 2px solid black; padding: 5px; display: inline-block;">                         EXHIBIT <u>9</u>                          PAGE <u>37</u> OF <u>45</u> </div>
<p><b>SC 1.1</b> 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?  <input type="checkbox"/> YES = <b>Category I</b> <input type="checkbox"/> NO = <i>Go to SC 1.2</i></p>	
<p><b>SC 1.2</b> Is the wetland unit at least 1 acre in size and meeting at least two of the following three conditions?  <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has &lt;10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover &gt;10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.   <input type="checkbox"/> At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland.  <input type="checkbox"/> The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.  <input type="checkbox"/> YES = <b>Category I</b> <input type="checkbox"/> NO - not an estuarine wetland</p>	



<p><b>SC 2.0</b> <u>Natural Heritage Wetlands</u> (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.</p> <p>SC 2.1 Is the wetland unit 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 <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/>  <input type="checkbox"/> YES - contact WNHP/DNR (see p. 79) and go to SC 3.2 <input checked="" type="checkbox"/> NO</p> <p>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?  <input type="checkbox"/> YES = <b>Category I</b> <input checked="" type="checkbox"/> NO - not a Heritage wetland</p>	<p><b>Category</b></p>
<p><b>SC 3.0</b> <u>Bogs</u> (see p. 87)                  Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetations 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.</p> <ol style="list-style-type: none"> <li>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 the soil profile? (See Appendix B for a field key to identify organic soils.)  <input type="checkbox"/> YES - go to Q. 3 <input checked="" type="checkbox"/> NO - go to Q. 2</li> <li>Does the unit have organic soils, either peats or mucks, that are &lt;16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond?  <input type="checkbox"/> YES - go to Q. 3 <input checked="" type="checkbox"/> NO - not a bog for purpose of rating</li> <li>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 (&gt;30% of total shrub and herbaceous cover consists of species in Table 3)?  <input type="checkbox"/> YES - is a bog for purpose of rating <input type="checkbox"/> NO - go to Q. 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.</li> <li>Is the unit forested (&gt;30% cover) with sitka spruce, subalpine fir, western redcedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on bog species plant list in Table 3 as a significant component of the ground cover (&gt;30% coverage of total shrub/herbaceous cover)?  <input type="checkbox"/> YES = <b>Category I</b> <input type="checkbox"/> NO - not a bog for purpose of rating</li> </ol>	

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SC 4.0 <b>Forested Wetlands</b> (see p. 90)	Category	
<p>Does the wetland unit have at least 1 acre of forest that meets one of these criteria for the Department of Fish and Wildlife's forests as priority habitat? <i>If you answer Yes, you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> <b>Old-growth forests:</b> (west of Cascade Crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</p> <p style="padding-left: 40px;">NOTE: The criterion for dbh is based on measurements for upland forests. 200-year-old trees in wetlands will often have a smaller dbh because their growth rates are often smaller. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter.</p> <p><input type="checkbox"/> <b>Mature forests:</b> (west of the Cascade Crest) Stands where the largest trees are 80 - 200 years old OR have 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.</p> <p><input type="checkbox"/> YES = <b>Category I</b>      <input checked="" type="checkbox"/> NO - not a forested wetland w/ special characteristics</p>	<div style="border: 2px solid black; padding: 5px; width: fit-content; margin: auto;"> <p>EXHIBIT 9</p> <p>PAGE 139 OF 145</p> </div>	
<p><b>SC 5.0 Wetlands in Coastal Lagoons</b> (see p. 91)</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p>The wetland lies in a depression adjacent to marine waters that is wholly or partially</p> <p><input type="checkbox"/> separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks.</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (&gt;.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>).</p> <p><input type="checkbox"/> YES = go to SC 5.1      <input checked="" type="checkbox"/> NO - not a wetland in a coastal lagoon</p>		
<p><b>SC 5.1</b> Does the wetland meet all of the following 3 conditions?</p> <p>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).</p> <p><input type="checkbox"/> At least 3/4 of the landward edge of the wetland has a 100 foot buffer of shrub, forest, or ungrazed or unmowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4,350 square feet).</p> <p><input type="checkbox"/> YES = <b>Category I</b>      <input type="checkbox"/> NO - not a wetland in a coastal lagoon</p>		



<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b>                  Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?</p> <p><input type="checkbox"/> YES - go to SC 6.1                      <input checked="" type="checkbox"/> NO - not an interdunal wetland for rating  <i>If you answer Yes, you will still need to rate the wetland based on its functions.</i></p> <p>In practical terms, that means the following geographic areas:</p> <ul style="list-style-type: none"> <li>• Long Beach Peninsula - lands west of SR 103</li> <li>• Grayland-Westport - lands west of SR 105</li> <li>• Ocean Shores-Copalis - lands west of SR 1115 and SR 109.</li> </ul> <p>SC 6.1 Is wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger?  <input type="checkbox"/> YES = <b>Category II</b>                      <input type="checkbox"/> NO - go to SC 6.2</p> <p>SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?  <input type="checkbox"/> YES = <b>Category III</b></p>	<p style="text-align: center;"><b>Category</b></p>
<p><b>Category of wetland based on Special Characteristics</b>                  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.</p>	<p style="text-align: center;">NA</p>

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# Appendix F — Summary Wetland Functional Assessment Forms

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This Appendix includes the wetland functional assessment form of each wetland delineated.

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# Summary of Wetland and Buffer Functions and Values

Wetland I.D. 1      Project: Woodinville-Duvall Road      Assessed by: D. Gresham, S. Anderson      Date: 7/23/09  
 Cowardin Class: Palustrine Scrub-Shrub      Wetland size: Unknown      Ecology Category: III      Local Rating: 3

Function/Value	Occurrence Y N	Rationale (attributes and/or indicators present)	Principal Function	Comments
Flood flow alteration	Y	WL receives limited overflow from adjacent stream when flow into culvert backs up during storms.	N	WL is so small in comparison to the contributing watershed that it provides little flood storage or attenuation.
Sediment removal	Y	Herbaceous veg. outside of channel, sediment sources upstream from WL.	N	Limited ponding in WL, limited sediment deposits observed.
Nutrient and toxic removal	Y	Road runoff is source of toxicants; excess nutrient sources upstream of WL; herbaceous veg. outside of stream channel.	N	WL is so small in comparison to the contributing watershed that it provides little nutrient and toxic removal.
Erosion control & shoreline stabilization	Y	Relatively dense veg. (herbaceous with some shrubs) outside of channel; limited signs of erosion.	N	WL is so small in comparison to the contributing watershed that it provides little erosions control.
Production and export of organic matter	Y	Herbaceous/deciduous veg. and seasonal flooding.	N	WL is so small that its production and export
General habitat suitability	Y	WL has 2 Cowardin classes (PEM and PSS), buffer to south relatively undeveloped, some connectivity to Lake Leota via seasonal stream.	N	WL is small and adjacent to busy road (Woodinville-Duvall Road)
Habitat for aquatic invertebrates	N	Limited due to lack of ponded water.	N	
Habitat for amphibians	N	Limited due to lack of ponded water.	N	
Habitat for wetland-associated mammals	N	Limited due to lack of ponded water.	N	Methodology (pg. 5) requires permanent inundation for this function to be provided.
Habitat for wetland-associated birds	N	WL lacks habitat for waterfowl, shorebirds, or herons	N	
General fish habitat	N	Seasonal stream does not provide fish habitat.	N	
Native plant richness	Y	WL is dominated by native species, with PEM and PSS Cowardin classes.	N	WL has only 2 vegetation strata (herb and shrub) and no mature trees, and is subject to mowing by road crews.
Educational or scientific use	N		N	Although WL is in public ROW, there is no available parking or documented scientific/ educational uses. The associated riparian corridor is in private ownership.
Uniqueness & heritage	N		N	WL is not currently listed by City of Woodinville, King County, USFWS, WDNR, Natural Heritage Program WDFW Priority Habitats and Species Program.

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# Summary of Wetland and Buffer Functions and Values

Wetland I.D. 2      Project: Woodinville-Duvall Road      Assessed by: D. Gresham, S. Anderson      Date: 7/23/09

Cowardin Class: Palustrine Scrub-Shrub/Palustrine Forested      Wetland size: Unknown      Ecology Category: III Local Rating: 3

Function/Value	Occurrence		Rationale (attributes and/or indicators present)	Principal Function	Comments
	Y	N			
Flood flow alteration	Y		Culvert outlet from WL appears to be clogged – water appears to pond seasonally.	Y	WL is small in comparison to the contributing watershed so it provides limited flood storage/ attenuation.
Sediment removal	Y		Sediment sources upstream from WL, dense shrubs.	Y	Limited sediment deposits observed.
Nutrient and toxic removal	Y		Road runoff is source of toxicants; excess nutrient sources upstream of WL; dense shrub layer	Y	Limited sediment deposits observed.
Erosion control & shoreline stabilization		N	WL does not contain a stream, so it does not have the opportunity to perform this function (pg. 3).	N	
Production and export of organic matter	Y		Deciduous veg. and seasonal flooding.	N	Culvert outlet may be clogged which would prevent export
General habitat suitability	Y		WL has 2 Cowardin classes (PSS and PFO), portions of buffer relatively undeveloped.	N	WL is small and adjacent to busy road (Woodinville-Duvall Road); buffer disturbed by single family residence with mowed lawn and Montessori School.
Habitat for aquatic invertebrates		N	Limited due to lack of ponded water.	N	
Habitat for amphibians		N	Limited due to lack of ponded water.	N	
Habitat for wetland-associated mammals		N	Limited due to lack of ponded water.	N	Methodology (pg. 5) requires permanent inundation for this function to be provided.
Habitat for wetland-associated birds		N	WL lacks habitat for waterfowl, shorebirds, or herons	N	
General fish habitat		N	No fish habitat present.	N	
Native plant richness	Y		WL is dominated by native species, with PSS and PFO Cowardin classes.	N	WL has only 2 vegetation strata (shrub and trees); south portion is subject to mowing by road crew and north portion to mowing by property owner; south portion surrounded by invasive Himalayan blackberries.
Educational or scientific use		N		N	Although a portion of the WL is in public ROW, the majority is in private ownership; there is no available parking or documented scientific/ educational uses.
Uniqueness & heritage		N		N	WL is not currently listed by City of Woodinville, King County, USFWS, WDNR Natural Heritage Program, or WDFW Priority Habitats and Species Program.

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# Summary of Wetland and Buffer Functions and Values

Wetland I.D. 3      Project: Woodinville-Duvall Road      Assessed by: D. Gresham, S. Anderson      Date: 7/23/09  
 Cowardin Class: Palustrine Emergent      Wetland size: 130 SF      Ecology Category: IV\*      Local Rating: 3\*

\* Wetland 3 is a man-made roadside ditch created out of uplands, although includes seep areas resulting from the road cut. It may be non-jurisdictional by the City of Woodinville, Washington State Dept. of Ecology, and the U.S. Army Corps of Engineers.

Function/Value	Occurrence		Rationale (attributes and/or indicators present)	Principal Function	Comments
	Y	N			
Flood flow alteration	Y		Ditch collects stormwater from the road that would otherwise flow to adjacent businesses.	N	Ditch retains little or no water and provides little or no flow attenuation.
Sediment removal	Y		Dense herbaceous veg., sediment sources upstream from ditch.	N	Limited sediment deposits observed, and little or no ponding in ditch, and unknown flow velocity.
Nutrient and toxic removal	Y		Road runoff is source of toxicants; excess nutrient sources upstream of ditch; dense herbaceous veg.	N	Soil has fine grain components (Silty Sandy Loam) but little or no ponding in ditch, and unknown flow velocity.
Erosion control & shoreline stabilization	N		Dense herbaceous veg., limited signs of erosion in ditch.	N	
Production of organic matter and its Export	Y		Herbaceous/deciduous veg. with seasonal flow and export.	N	
General habitat suitability		N	Feature is a man-made ditch.	N	Buffer functions compromised by adjacent road and houses with pets.
Habitat for aquatic invertebrates		N	Limited due to lack of ponded water.	N	
Habitat for amphibians		N	Limited due to lack of ponded water.	N	Buffer functions degraded by adjacent road.
Habitat for wetland-associated mammals		N	No ponded water and disturbed buffer.	N	Methodology (pg. 5) requires permanent inundation for this function to be provided.
Habitat for wetland-associated birds		N	Feature is a man-made ditch.	N	
General fish habitat		N	Ditch lacks fish habitat.	N	
Native plant richness		N	WL is dominated by non-native grass species.	N	WL has only 1 vegetation strata (herb) dominated by reed canarygrass.
Educational or scientific use		N	Feature is a man-made ditch.	N	
Uniqueness & heritage		N	Feature is a man-made ditch.	N	

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# Summary of Wetland and Buffer Functions and Values

**Wetland I.D. 4**

**Project:** Woodinville-Duvall Road

**Assessed by:** D. Gresham, S. Anderson

**Date:** 7/23/09

**Cowardin Class:** Palustrine Emergent

**Wetland size:** 440 SF    **Ecology Category:** IV\*

**Local Rating:** 3\*

\* Wetland 4 is a man-made roadside ditch created out of uplands, although includes seep areas resulting from the road cut. It may be non-jurisdictional by the City of Woodinville, Washington State Dept. of Ecology, and the U.S. Army Corps of Engineers.

Function/Value	Occurrence		Rationale (attributes and/or indicators present)	Principal Function	Comments
	Y	N			
Flood flow alteration	Y		Ditch collects stormwater from the road that would otherwise flow to adjacent businesses.	N	Ditch retains little or no water and provides little or no flow attenuation.
Sediment removal	Y		Dense herbaceous veg., sediment sources upstream from ditch.	N	Limited sediment deposits observed, and little or no ponding in ditch, and unknown flow velocity.
Nutrient and toxic removal	Y		Road runoff is source of toxicants; excess nutrient sources upstream of ditch; dense herbaceous veg.	N	Soil has fine grain components (Silty Sandy Loam) but little or no ponding in ditch, and unknown flow velocity.
Erosion control & shoreline stabilization	N		Dense herbaceous veg., limited signs of erosion in ditch	N	
Production of organic matter and its Export	Y		Herbaceous/deciduous veg. with seasonal flow and export.	N	
General habitat suitability		N	Feature is a man-made ditch.	N	Buffer functions compromised by adjacent road and houses with pets.
Habitat for aquatic invertebrates		N	Limited due to lack of ponded water.	N	
Habitat for amphibians		N	Limited due to lack of ponded water.	N	Buffer functions degraded by adjacent road.
Habitat for wetland-associated mammals		N	No ponded water and disturbed buffer.	N	Methodology (pg. 5) requires permanent inundation for this function to be provided.
Habitat for wetland-associated birds		N	Feature is a man-made ditch.	N	
General fish habitat		N	Ditch lacks fish habitat.	N	
Native plant richness		N	WL is dominated by non-native grass species.	N	WL has only 1 vegetation strata (herb) dominated by reed canarygrass.
Educational or scientific use		N	Feature is a man-made ditch.	N	
Uniqueness & heritage		N	Feature is a man-made ditch.	N	

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