Shoreline Report including Critical Areas Review, Ordinary High Water Determination, and Impact Assessment

In-Water and Overwater Structures Removal Project Camas Mill, Camas, WA

Revised February 2023



Georgia-Pacific Consumer Operations, LLC Camas, WA Prepared by



19803 North Creek Pkwy Bothell, WA 98011

EXECUTIVE SUMMARY

Georgia-Pacific Consumer Operations LLC (GP), is planning to abate, remove, and demolish several structures associated with discontinued operations at Camas Mill in the city of Camas and in unincorporated areas of Clark County, Washington. The structures to be removed are located in-water and/or overwater on the Columbia River and Camas Slough and are located within the City of Camas or Clark County Shoreline Management Areas.

The In-water and Overwater Removals Project (Project) will include the following activities:

- Demolition of structures;
- Pipe and concrete cutting and removal;
- Piling removal using vibratory hammers or, in some cases, saw-cutting;
- Sediment dredging; and
- Excavation/filling to create final riverbank and riverbed contours.

The Shoreline Management Act (Revised Code of Washington 90.58) requires jurisdictions with shorelines to develop and implement a Shoreline Master Program. Such programs (referred to as "Shoreline Management Plans") have been developed by the City of Camas (2021) and Clark County (2016). The majority of the Project area is within the shoreline areas managed by the City of Camas under the City's Shoreline Management Plan (City of Camas 2021), with the exception of one dolphin to be removed that is located within the Clark County Shoreline Management Zone and is managed under the County's Shoreline Management Plan (Clark County (2016). Under the state Shoreline Management Act, "Development" (Washington Administrative Code 173-27-030(6)) does not include dismantling or removing structures if there is no other associated development or redevelopment. Therefore, the removal of the structures themselves is not regulated under the Act, including:

- Sediment dredging,
- Filling at the Wood Chip Yard to restore grades, and
- Excavation/filling to create final riverbank and riverbed contours and to cover the portion of retained Berger Crane Foundation.

Wood Environment and Infrastructure Solutions, Inc. (Wood) conducted surveys in between July 2019 and July 2020 to characterize the shoreline environment and fish and wildlife habitat, document the presence and extent of wetlands, and determine the Ordinary High Water Mark location in the Project area. A Shoreline Report was prepared by Wood in March 2021 that addresses the Project as proposed at that time; this report has been updated by Tetra Tech to reflect the current planned Project. To support permitting under the state Shoreline Management Act, the City's Shoreline Management Plan, as well as evaluations of Waters of the U.S. and of the State, this report includes:

• A description of the proposed Project, project activities, and estimated timing;

- An analysis of available site information and a discussion of the existing shoreline environment;
- The results of field investigations to determine and delineate the extent of Waters of the U.S. and state, including wetlands;
- Ordinary high-water determination;
- A Fish and Wildlife Conservation Area review to identify habitats present and the potential for species listed as Priority Species by the Washington State Department of Fish and Wildlife and for species protected under the Endangered Species Act; and
- An impacts assessment of potential effects of the Project and a discussion of the best management practices to be implemented during Project implementation to mitigate those potential effects.

Critical areas within the study area include the Columbia River including Camas Slough and associated the associated shoreline area along with seven wetland areas associated with the Slough. The study area includes a 300-foot area around proposed structure removals on the main Mill parcel and Lady Island.

Beneficial long-term effects of the Project to fish and wildlife habitat conservation areas and species include:

- Reduced riverbed and riverbank obstructions,
- Removal of creosote-treated piles,
- Reduced shading along the river and reduction of predator refugia, and
- Creation of new shallow nearshore habitat.

The Project has been designed to avoid and minimize impacts to shoreline and critical areas to the extent possible. Permanent impacts to shoreline areas would result from placement of fill where the riverbank and riverbed would be shaped to new shallow nearshore topographic contours following removal of structures; however, the Project would reduce the overall amount of previously placed artificial fill along the riverbank.

No trees are within the Project footprint and no trees would be removed by the Project.

It is anticipated that the Project will require review and approvals under the state Shoreline Management Act, including a Substantial Development permit, as well as potentially a Conditional Use Permit under the City of Camas Shoreline Management program. Other approvals will be needed from the City of Camas, Clark County, the Washington State Department of Ecology, the Washington State Department of Natural Resources, and the Washington State Department of Fish and Wildlife, as well as permits and approvals to comply with the Clean Water Act Sections 404 and 401 through the U.S. Army Corps of Engineers and Washington State Department of Ecology.

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In-Water and Overwater Structures Removal Project

List of Acronyms

°F	degrees Fahrenheit
BMP	best management practice
ССС	Clark County Code
СМС	Camas Municipal Code
CRD	Columbia River Datum
CWA	Clean Water Act of 1972
DPS	distinct population segment
Ecology	Washington Department of Ecology
ESA	Endangered Species Act
ESU	evolutionarily significant unit
FEMA	Federal Emergency Management Agency
FR	Federal Register
GIS	geographic information system
GP	Georgia-Pacific Consumer Operations, LLC
HGM	hydrogeomorphic
HPA	Hydraulic Project Approval
IPaC	Information for Planning and Consultation (USFWS)LA Lease Area
NAVD88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Oceanic and Atmospheric Administration, National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
ОНШМ	ordinary high-water mark
PHS	priority habitats and species
RCW	Revised Code of Washington
RM	river mile
SEPA	Washington State Environmental Policy Act
SF	square foot/feet
SR	State Route

USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
Wood	Wood Environment and Infrastructure Solutions, Inc.
WRIA	Water Resources Inventory Area

1.0 INTRODUCTION

Georgia-Pacific Consumer Operations LLC (GP) is planning to abate, remove, and demolish structures associated with prior operations along the waterfront at the Camas Mill located in the City of Camas and in unincorporated areas of Clark County, Washington. The structures to be removed are located in-water and/or overwater on the Columbia River and Camas Slough and within the Shoreline Management Area of the City of Camas, or in-water within unincorporated Clark County. This report documents the activities to be conducted in shoreline areas and presents an impacts assessment including a discussion of methods and results used to evaluate the impacts.

The structures to be removed include:

- A warehouse;
- Five docks/piers;
- Conveyor housings;
- An aboveground oil storage tank;
- Crane foundation;
- Approximately 3,000 pilings that are associated with the above structures, serve as mooring dolphins, or are abandoned; and
- Associated utilities.

The majority of the Project area is within the shoreline areas managed by the City of Camas under the City's Shoreline Management Plan (City of Camas 2021), with the exception of one dolphin to be removed that is located within the Clark County Shoreline Management zone and is managed under the County's Shoreline Management Plan (Clark County (2016). Under the state Shoreline Management Act, "Development" (Washington Administrative Code [WAC] 173-27-030(6)) does not include dismantling or removing structures if there is no other associated development or redevelopment. Therefore, the removal of the structures themselves is not regulated under the state Shoreline Management Act. However, other activities of the Project are regulated under the Act, including:

- Sediment dredging,
- Filling at the Wood Chip Yard to restore grades, and
- Excavation/filling to create final riverbank and riverbed contours and to cover the portion of retained Berger Crane Foundation.

River dredging will occur to enable barge access to piers for removal. Example photographs of the structures to be removed are presented in **Appendix A**.

GP is the sole organization responsible for maintaining, developing, removing, and deconstructing facilities identified here.

Wood Environment and Infrastructure Solutions, Inc. (Wood), at the request of GP, performed a field investigation of the Project study area between July 2019 and July 2020 and prepared a Shoreline and

Critical Areas Review and Impact Assessment in 2021 to support the Washington State Environmental Policy Act (SEPA), shoreline review, permitting under the Clean Water Act of 1972 (CWA), and other project review requirements associated with the Project as proposed in 2021. This report has been updated by Tetra Tech to reflect the current planned Project. This report provides:

- A description of the proposed Project, Project activities, and estimated timing;
- An analysis of available site information and a discussion of the existing shoreline environment;
- The results of field investigations to determine and delineate the extent of Waters of the U.S. and state, including wetlands;
- Ordinary high-water determination;
- A Fish and Wildlife Conservation Area review to identify habitats present and the potential for species listed as Priority Species by the Washington Department of Fish and Wildlife (WDFW) and for species protected under the Endangered Species Act (ESA); and
- An impacts assessment of potential effects of the Project and a discussion of the best management practices (BMP) to be implemented during Project implementation to mitigate those potential effects.

Information relative to fish and wildlife habitat conservation areas protected as critical areas is also presented. Additional detail on specific species and habitats listed under the ESA is provided in the *Biological Assessment* for this Project (Tetra Tech 2023).

This document has been prepared to meet the requirements of the City of Camas and Clark County Shoreline Master Programs and requirements for critical areas reports (Camas Municipal Code [CMC] 16.51.140 and Clark County Code [CCC] 40.440, 40.450, and 40.460). It has also been developed to provide information relevant to the SEPA process.

Note that this report does not include review of other critical areas as described in the CMC, such as geologically hazardous areas, frequently flooded areas, or critical aquifer recharge areas. Floodplain effects have been evaluated and summarized in separate reports (Wood 2023c.

1.1 Project Location

The Project area lies within the City of Camas, Washington, except for one dolphin to be removed on the Columbia River that is located outside the City limits within unincorporated Clark County, Washington. The legal description is Township 1 North, Range 3 East, Sections 8, 9, 10, 11, 15, and 16, Willamette Meridian.

Figure 1 provides an overview of the Project location. Note that figures are presented at the end of this narrative.

Figures 2A through 2E show the locations of structures to be removed that include:

- Areas along the riverbank within the main Mill parcel,
- Riverbank locations on Lady Island,
- In-water locations in the Camas Slough, and

• In-water locations extending approximately 3 miles downriver from the Mill on the Columbia River mainstem.

A bathymetric and upland survey of the Project footprint was completed in 2020, and Project drawings are based on that information (**Figures 3 and 4**).

Figure 5 indicates the extent of the preliminary grading plan.

The Project area consists of a portion of the Camas Slough, which runs between Lady Island and the city of Camas, Washington, located on the north bank of the main channel, lower Columbia River. Lady Island lies between the Camas Slough and the Columbia River main channel. The Project is between river mile (RM) 117 and RM 121, with the majority of activity at approximately RM 119 to RM 120.

The structures to be removed are located adjacent to the riverbank or entirely or partly below the ordinary high water mark (OHWM) of the Camas Slough/Columbia River and are located within either the City of Camas Shoreline Management Area or Clark County Shoreline Management Area. The Columbia River is protected as a Water of the U.S. and is also classified as a Shoreline of Statewide Significance under the Washington State Shoreline Management Act (Revised Code of Washington [RCW] 90.58).

1.2 Land Ownership

As stated, the proposed Project would occur on property owned or leased by GP (**Table 1**). The Project area is designated as industrial land use (City of Camas 2019a,b). Lady Island is designated as Industrial land use and is classified as Medium Intensity and High-Intensity shoreline designations (City of Camas 2015, 2019b; Clark County 2019).

Assessor Number	Owner	Parcel Type Description/Zoning
08370-0000	Fort James Camas, LLC (GP) ^{1/}	Manufacturing—paper products/Heavy Industrial/Lady Island
09104-4013	Georgia-Pacific Corporation	Manufacturing—lumber and wood products/Heavy Industrial
09104-4015	Fort James Camas, LLC (GP)	Manufacturing—paper products/Heavy Industrial/Main Mill Parcel
09104-4027	Specialty Minerals Inc. ^{2/} (GP)	Storage warehouse/Heavy Industrial
50090-1000	Fort James Camas, LLC (GP)	Tidelands/Water
50090-2000	Fort James Camas, LLC (GP)	Tidelands/Water
50090-3000	Fort James Camas, LLC (GP)	Tidelands/Water
50090-4000	Fort James Camas, LLC (GP)	Tidelands/Water
50081-4000	Fort James Camas, LLC (GP)	Tidelands/Water
50081-4001	Fort James Camas, LLC (GP)	Tidelands/Water
50081-7000	Fort James Camas, LLC (GP)	Tidelands/Water
50081-8000	Fort James Camas, LLC (GP)	Tidelands/Water

Table 1.	Parcels Included in the Projec	t Area
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Notes:

1/ Previous corporate name, Fort James Camas LLC, is shown on County's tax parcel information.

2/ Specialty Minerals was a part of Fort James Camas LLC.

1.2.1 Georgia-Pacific Property

The structures to be removed along the riverbank are within the main Mill parcel (Parcel 09104-4013), which supports a large variety of industrial and warehouse structures related to pulp and papermaking processes and materials management, along with a variety of office and safety-related buildings. The Mill has a long history at this location.

The Project area also includes the banks of Lady Island. Lady Island is owned in its entirety by GP (Parcel 08370-0000). Lady Island includes both developed and undeveloped areas, including the wastewater treatment facilities for the Mill, a dredged materials management area, an industrial landfill, and structures conveying overhead electrical infrastructure. Washington State Route (SR) 14 crosses the northeast portion of the island, connecting to the city of Camas via bridges across Camas Slough to the north and east. Undeveloped portions of Lady Island are mainly forested.

Activities on Lady Island include storage of dredged materials and treatment of construction stormwater at GP's wastewater treatment facilities for stormwater from main Mill parcel area during demolition.

Lady Island is zoned as Heavy Industrial land use and is classified as Medium Intensity and High Intensity shoreline designations (City of Camas 2015, 2019b). Shorelines are classified as Medium Intensity east of Camas Mill and south of SR 14, and High Intensity within the main Mill parcel.

1.2.2 State Aquatic Lands Lease Areas

GP has an established state aquatic lands lease along with several easements with the Washington Department of Natural Resources (WDNR) in Camas Slough and the Columbia River for use of state bedlands.

One dolphin located downriver of the main mill site at approximately RM 117 is on state aquatic bedlands within Clark County. This area is known as Lease Area (LA) 1, and the single nine-pile dolphin at this location would be removed. All other activities on state-owned land are within the city of Camas.

1.3 Study Area Definition

As required under CMC 16.53.030, the study area for this report extends 300 feet beyond the limits of the proposed action. The study area comprises a series of polygons along the river and riverbanks. For individual structures, piles, and dolphins to be removed, the study area was the structure plus the required 300-foot surrounding area (see **Figures 2A through 2E**).

The main Mill main parcel comprises the terrestrial portions of the study area (called "main Mill parcel" throughout this report). The study area also includes the portions of Lady Island.

The U.S. Army Corps of Engineers (USACE) currently maintains a 17-foot-deep and 300-foot-wide federal navigation channel in the Columbia River adjacent to the south side of Lady Island. No part of the Project would affect the federal navigation channel.

1.4 Project Description

Project activities would be conducted in-water in the Camas Slough and Columbia River, along the riverbank areas, and in the Shoreline Area on the main Mill parcel. **Table 2** summarizes structures to be removed from in-water locations and also indicates which aquatic land LAs or land easement the structures are located within. **Table 3** summarizes overwater structures to be removed. **Table 4** summarizes structures to be removed that are located upland of the OHWM and within the City's Shoreline Area.

Table 2. Summary of In-water Removals

Structure to be Demolished	Location within State Aquatic Lands Lease Area Number or Easement	In-water Filling or Dredging required?
Open-water dolphins and piling	Lease Areas (LA): 3, 4, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, and 19	None
Downriver dolphin in Clark County	LA 1	None
Dock Warehouse piers - access dredging	LA 17	Dredging
Berger Crane foundation	LA 17	Filling
Tug Dock	LA 17	None

Table 3. Quantity and Area of Overwater Removals along Riverbank

Structure to be Demolished	Filling or Excavation/Dredging	Total Area Covered by Structures (SF)
<u>Riverbank Structures</u> : Truck Dock, Dock Warehouse, and PECO Dock ^{1/}	Excavation/dredging and filling	40,450

Note:

1/ Together, the Truck Dock, Dock Warehouse, and PECO Dock cover approximately 1,055 lineal feet along the riverbank. Given the contiguous nature of the structures, removal activities are summarized for all three structures together.

Table 4. Other Structures to be Removed in Shoreline Area

Structure	Filling or Excavation	Total Area of Ground Disturbance (SF)	Notes
Aboveground Oil Storage Tank	None	0	Demolition is to slab, and no ground disturbance planned
South Wood Chip Storage Area	Excavate remaining wood chips and back fill to design grades	155,580	Approximately 11,100 CY of fill for restoration of area topography (all located landward of OHWM)
Product Conveyor Housing ^{1/}	None	0	Elevated housing, no ground disturbance
Wood Chip Conveyor Housings ^{1/}	None	0	Elevated housing, no ground disturbance

Note:

1/ Conveyor housings cross over the South Wood Chip Storage Area and the Truck Dock area. The adjacent North Wood Chip Storage Area is approximately 3.0 acres of upland habitat outside of the shoreline zone, but will be graded and reclaimed collectively with activities proposed in the South Wood Chip Storage Area.

Abbreviations:

CY = cubic yard

OHWM = ordinary high-water mark

SF = square feet

1.4.1 Dolphins and Pilings

Approximately 3,000 pilings comprising wood, carbon steel H-piling, concrete-filled pipe, or concrete would be removed from locations in the Camas Slough, and extending approximately 3 miles downriver from the main Mill parcel to RM 117 (see **Figures 2A–2E; Appendix A, Photographs 3, 4, and 5**). Dolphins are groups of 3, 5, 7, or 9 piles individually installed at an angle and bound together to create a sturdy structure for mooring purposes or to provide protection to an adjacent structure (see **Appendix A, Photographs 7 and 8,** for example of a dolphin). **Table 5** lists the locations and approximate number of pilings to be removed.

Location	In-water or Overwater	Approximate Number of Pilings ^{1/}
Open-water dolphins and pilings	In-water	250
One downriver dolphin in Clark County	In-water	9
Pilings at riverbank associated with in-water structures ^{2/}	In-water	200
Pilings associated with overwater structure foundations $^{\mbox{\tiny 3/}}$	Overwater	2,500
Estimated Total Numb	Approximately 3,000	

Table 5. Estimated Number of Pilings to be Removed

Notes:

1/ Numbers of piling are estimates and the total estimated number has been rounded up.

2/ In-water pilings include pilings associated with mooring dolphins, riverbank pilings, sheet pilings, pilings supporting the Dock Warehouse Piers, and pilings at the Tug Dock.

3/ Overwater pilings include pilings providing the foundations supporting the Dock Warehouse, PECO Dock, and Truck Dock along the riverbank.

1.4.2 Dock Warehouse Piers

Three piers servicing the warehouse each extend approximately 175 feet from the warehouse into the Camas Slough (**Figure 2E; Appendix A, Photograph 3**). The piers are decked with concrete and with concrete pile caps, supported by 54 octagonal, solid concrete piles, along with 21 concrete-filled carbon steel pipe piles. Most of the piles are protected with truck tires that function as bumpers.

Due to deep shoaling beneath the piers, dredging of sediments across approximately 1.6 acres beneath the piers will be required to enable barges and demolition crane to access the piers for removal. The piers will be removed following BMPs with protection from debris fall as well as following BMPs for pile removals.

Approximately 7,000 square feet (SF) of overwater shade would be removed from this location when the piers are removed.

1.4.3 Berger Crane Foundation

The Berger Crane foundation is located approximately along 1,000 feet west of the PECO Dock in Camas Slough, stands completely within the river approximately 40 feet distant from the top of the riverbank, and covers approximately 300 SF of the riverbed (**Figures 3 and 4**). The foundation is a remnant of a portion of a wood mill built in 1948 and demolished in 2002 or shortly thereafter. The narrow, 90-foot-long, wall-like structure, (**Appendix A, Photograph 6**) previously supported a large gantry crane (Berger Crane) that lifted logs from the river to the wood mill.

The foundation is a massive concrete structure made with steel reinforcement. The two end member columns were built on prepared bedrock that lies below the riverbed sediments to provide stability for the foundation. It is estimated that the structure extends approximately 15 to 25 feet below the current sediment line.

The structure would be demolished down to river stage (estimated to be +2 feet Columbia River Datum [CRD]), retaining the portion below water level. Approved clean, suitable fill material would be used to cover the retained lower columns and create river bottom contours that match the natural riverbed in this previously dredged location, resulting in restored shallow, nearshore river habitat.

1.4.4 Tug Dock

The Tug Dock is a 2,040 SF floating dock structure lying west of the Berger Crane foundation (Figure 2E). The Tug Dock is approximately 180 feet long and lies approximately 30 feet from and parallel to the riverbank. Built in 1984, the Tug Dock provided boat moorage and access to the river. This floating dock structure is held in place by pilings and is accessed from the top of the riverbank by an 80-footlong, modern, metal gangway (Appendix A, Photograph 7). Four large guidance/mooring dolphins in this location would be removed.

Once removed, approximately 2,040 SF of shade will have been removed from the nearshore area.

1.4.5 Riverbank Structures – Truck Dock, Dock Warehouse, and PECO Dock

Together, the Truck Dock, Dock Warehouse, and PECO Dock cover approximately 1,055 continuous feet of riverbank with about 12,100 SF of total area currently perched overwater. Following removal, approximately 40,450 SF of riverbank would no longer have structures.

Following the removal of structures, the riverbank would be reshaped to 5 to 1 and 4 to 1 slopes transitioning to about 2 to 1 and slightly steeper to match existing grades. The eastern extent of this location is largely behind a small peninsula and is known to be an area of river deposition, while the western extent protrudes into the river and would be subject to more river currents than the eastern extent and require coarser material.

1.4.5.1 Truck Dock

This approximately 3,700 SF flat, asphalt- and concrete-covered area provided truck access to the loading bays on the east end of the Dock Warehouse (**Figure 2E; Appendix A, Photograph 1**). The dock is supported by approximately 320 pilings constructed from wood and pipe along approximately 350 feet of the riverbank. The dock is protected by a 100-foot-long marginal pile bulkhead at the water's edge.

Elevated conveyors formerly conveyed materials between buildings. The product conveyor housings in the vicinity of the Dock Warehouse would be removed, starting from the building and removing the structure to a support at an inland location that allows for the remaining portions of the housing to be retained.

Following removal, approximately 1,140 SF of overwater area would be uncovered at this location.

1.4.5.2 Dock Warehouse

Situated between the Truck Dock and the PECO Dock on the riverbank (**Figures 2E**), the Dock Warehouse is a 23,500 SF, three-story (lower/loading dock, first, and second floors) concrete and wooden structure (**Appendix A, Photograph 3**). The Dock Warehouse extends along approximately 400 lineal feet of riverbank and is supported by approximately 1,020 pilings with concrete pier foundations along the upper riverbank and upland side.

Originally constructed in 1934 at the site of a previous dock, the building was used to house paper shipped through the Mill. The concrete and wooden building was covered with white sheet metal siding in 1980. Following demolition, approximately 7,041 SF of overwater shading would be removed.

1.4.5.3 PECO Dock

The PECO Dock is located west of the Dock Warehouse and was constructed in 1983 (**Figures 2E**). This 305-foot-long marginal dock was built largely overwater to support a 9-ton crane (manufactured by PECO) and used to offload wood chips from river barges. The dock is approximately 13,200 SF in area and supported by approximately 170 carbon steel H-pilings (**Appendix A, Photograph 5**). Approximately 450 dilapidated wood pilings from a previous structure are also beneath the dock would be removed. An additional 200 to 300 wood and steel pipe pilings along the riverbank between and around the PECO Dock and Dock Warehouse would also be removed.

1.4.6 Aboveground Oil Storage Tank

A decommissioned 40,000-gallon steel aboveground oil storage tank located approximately 100 feet east of the Truck Dock and 150 feet north of the shoreline would be deconstructed and removed down to slab level (**Figure 2E; Appendix A, Photograph 9**). The tank was decommissioned and cleaned in 2015. The tank and its associated pipes and utilities would be removed, while the slab and earthen containment berm would be retained.

1.4.7 South Wood Chip Storage Area and Wood Chip Conveyor Housings

There are two distinct previously used wood chip storage areas, the South Wood Chip Storage Area and the North Wood Chip Storage Area. The South Wood Chip Storage Area was previously used to store wood chips for pulping at the Mill (**Figure 2E**). Currently, most of the wood chips have been removed with only minor amounts remaining. The removal resulted in a depression that would be backfilled to design grades with clean structural materials. Work activities include demolition of the overhead conveyor housing, removal of remaining chips, and filling the resulting depression to design grade (see **Figure 5**). Elevated conveyors formerly conveyed wood chips from the PECO Dock to the South Wood Chip Storage area (**Appendix A, Photograph 2**). The conveyor housings would be removed and the foundations for the supports would remain.

The North Wood Chip Storage Area was also previously used to store wood chips for pulping at the Mill. This area is located outside of the shoreline zone but would be part of the overall grading and reclamation plan that will include the entire wood chip storage area (i.e., north and south). As this

area will no longer be considered a location at the mill with industrial activity, this area will be designed to allow drainage to naturally flow back to Camas Slough. **Figure 5** indicates the preliminary grading plan for this area.

1.4.8 Miscellaneous Debris Removal

Unspecified debris that currently exists in very scattered locations along the riverbank or in-water in the Project vicinity and within lease areas would be removed by the demolition contractor. Examples of miscellaneous debris include cable, chain, floating deck walkways, log booms, unidentified metal scrap, and broken pilings. Debris would be loaded to barges or to an upland location and taken off-site to approved disposal locations. Activities would be limited to extracting or cutting off connections and lifting materials on to barges for disposal. No ground disturbance is planned to accomplish miscellaneous debris removal.

1.5 Project Schedule

Removal of the in-water and overwater structures would occur in a manner that is not disruptive to ongoing operations at the Mill. Work would be time to occur during regulatory in-water work windows for the Camas Slough and Columbia River in the project reach to protect sensitive species. Agencies at the state and federal level set the timing for in-water work, these include the WDNR, WDFW, U.S. Fish and Wildlife Service (USFWS), and National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NOAA Fisheries).

In-water work windows are established to provide protection to biologically sensitive periods. Project-specific allowances are necessary to reduce repeated reentry while accomplishing the removal of structures and to allow safe operations of vessels.

Work timing with specific activities allowed during each work window would be protective of fish, habitat, and water quality, while allowing the project to remove the various in-water and shoreline structures effectively, safely, and within a shorter time span.

The project has reviewed published agency requirements, site habitats, river hydrographs, available information on species likely to be present, and has summarized the information. The Project's *Draft Biological Assessment* (Tetra Tech 2023) evaluated potential effects of Project activities on threatened and endangered species. Based on this research and analysis, the in-water work windows shown in **Table 6** have been proposed for agency consideration. The timing has been developed to reflect the Columbia River and Camas Slough annual river stage hydrograph and planned so that work along the riverbank is completed in the dry to the greatest extent possible.

Implementation of the proposed work windows would allow certain work activities to occur year round, thereby reducing the overall duration of the project compared to the many seasons that would be required if work were limited to a standard single 120-day in-water work window. The proposed timing approach would also reduce repeated reentry impacts, while protecting biological resources during sensitive seasonal time periods.

An in-water work window that would allow dredging to begin in August is proposed. This is early enough in the work season to allow these removal activities to be completed after the bulk of the peak juvenile salmonid outmigration in the spring/summer and the peak run timing for Pacific eulachon in the late winter/early spring. An early start timeframe for these structure removals below the OWHM will not result in adverse effects to any fish or other aquatic species, or to other river-dwelling species.

With the proposed construction work windows available, work would span approximately three years, with the actual schedule dependent on the in-water work windows. Ultimately, the demolition schedule will also be influenced by weather, river stage, and equipment and contractor availability. Work would likely not be continuous for the 36 months, but work would occur intermittently during those years to take advantage of river stage. At the time of this document development, demolition is expected to begin in late 2023/early 2024, following receipt of all project permits and approvals.

Proposed In-Water Work Windows	Allowed Activity during the Work Window						
Year-round, provided wo	Year-round, provided work does not violate water quality standards						
	Extract pilings using vibratory equipment or direct pulling, except for concrete piles.						
	Structure demolition conducted overwater or below the OHWM, but outside the wetted perimeter of the river (in-the-dry).						
	Excavation/dredging for riverbank reshaping, but outside the wetted perimeter of the river (in-the-dry).						
	Fill placement for riverbank/riverbed shaping, but outside the wetted perimeter of the river (in-the-dry).						
	Fill placed at upland locations (e.g., North and South Wood Chip Area)						
	Above OHWM miscellaneous debris removal activities						
August 1 to February 28							
	Extraction of concrete piles at the Dock Warehouse piers						
	Riverbed dredging						
	Below OHWM miscellaneous debris removal activities						
	Riverbank fill placement in the wet						
	Berger Crane foundation demolition						
November 1 to February	28						
	Riverbed filling—new riverbed at Berger Crane foundation						

Table 6. Proposed Open Work Windows

Abbreviations:

OWHM = ordinary high-water mark

1.6 Regulatory Overview

The Project would require approvals from the City of Camas, Clark County, Washington Department of Ecology (Ecology), WDNR, and WDFW, as well as permits and approvals through the USACE and Ecology to comply with Sections 404 and 401 of the CWA and Section 408 of the Rivers and Harbors Act (**Table 7**).

A review under SEPA led by the City of Camas would be performed. Following receipt of all permits and approvals, in-water and overwater work would be performed during the work timelines outlined in the applicable permits.

Permit or Approval	Agency	Attendant Approvals	Application
SEPA Review and Determination	City of Camas	SEPA review and threshold determination	SEPA Checklist and supporting documentation
Shoreline Substantial Development Permit/Conditional Use	City of Camas	Requires SEPA determination be completed prior to issue	City Application and supporting documentation
FEMA Floodplain Review and Zero Rise evaluation	City of Camas and Clark County	SEPA determination	Floodplain Report and Zero-rise Certification
Historic and Archaeological Review	City of Camas and DAHP	SEPA determination	Inventory of Historic Properties and Archaeologic Resources Report
Grading Review	City of Camas	SEPA determination	Grading plans
Materials Reuse Approvals	Clark County Public Health and Ecology	Suitability determination	Data Report and determinations
Construction Stormwater General Permit	Ecology	SEPA determination	Notice of Intent and public notices
Approval under Existing Industrial Discharge Permit for construction stormwater discharges	Ecology	SEPA determination	Letter to Ecology addressing conditions provided in Condition S7 of the permit
Clean Water Act Section 401 Water Quality Certification	Ecology	CWA Section 404, ESA concurrence, requires anti-degradation review and review of suitability of materials for reuse	Joint Aquatic Resources Permit Application (JARPA); Suitability determination from DMMP, Pre- application meeting request form.
Clean Water Act Section 404 Permit (Individual)	USACE	Requires review and concurrence by USFWS and NOAA Fisheries under ESA. Requires Section 106 consultation with Tribes and DAHP.	JARPA along with Historic and Cultural Resources documentation, Biological Assessment, impacts assessment.
		Requires NEPA compliance by federal agency.	
		Requires suitability determination for in- water disposals	
River and Harbors Act, Section 408 for use of Civil Works Projects	USACE	None	USACE provided letter to GP in 2020 indicating no Civil Works are within the project footprint and no further action needed for compliance with this requirement.
Hydraulic Project Approval (HPA)	WDFW	Requires SEPA determination prior to issue.	Application submitted through Aquatic Protection Permitting System (APPS) including supporting reports and JARPA

Table 7. Regulatory Requirements

Abbreviations:

CWA = Clean Water Act

DAHP = Washington Department of Historic Preservation DMMP = Dredged Material Management Plan Ecology = Washington State Department of Ecology ESA = Endangered Species Act

FEMA = Federal Emergency Management Agency

NEPA = National Environmental Policy Act

NOAA Fisheries = National Oceanic and Atmospheric Administration, National Marine Fisheries Service SEPA = Washington State Environmental Policy Act USACE = U.S. Army Corps of Engineers USFWS = U.S. Fish and Wildlife Service WDFW = Washington State Department of Fish and Wildlife

1.6.1 Shoreline Management Act

The Shoreline Management Act (RCW 90.58) requires jurisdictions with shorelines to develop and implement Shoreline Master Programs. Such programs have been developed by both the City of Camas (2021) and Clark County (2016). Both approved Shoreline Master Programs address the primary policy areas of the Shoreline Management Act:

- Manage shoreline use for water-dependent users.
- Incorporate environmental protection.
- Preserve and enhance public access and recreational opportunities.

In the project study area, regulated shoreline areas consist of the Columbia River mainstem and the Camas Slough as Waters of Statewide significance. Proposed Project activities would occur within the Aquatic and High Intensity Shoreline Areas **(Figure 4**). As stated, the structures to be removed are located entirely, or in part, below the OHWM of the Columbia River.

Under the Shoreline Management Act (RCW 90.58.030), "Development" does not include dismantling or removing structures; therefore, the removal of the structures themselves is not regulated under the Shoreline Management Act (City of Camas 2021). However, other Project activities are regulated under the Shoreline Management plan, including:

- Sediment dredging,
- Filling to restore topography at the South Wood Chip yard.
- Filling to create final riverbank and riverbed to restore natural contours following removals, and
- Filling at Berger Crane Foundation to create shallow water habitat.

Under the Camas Shoreline Master Program, new dredging shall be permitted only where it is demonstrated by a qualified professional that the proposed water-dependent or water-related uses will not result in significant or ongoing adverse impacts to water quality, fish and wildlife habitat conservation areas and other critical areas, flood holding capacity, natural drainage and water circulation patterns, significant plant communities, prime agricultural land, and public access to shorelines. When such impacts are unavoidable, they shall be minimized and mitigated such that they result in no net loss of functions. Dredging is included in the definition of "Development" under the Shoreline Management Act and dredging is allowed where it will not result in significant adverse impacts.

According to the Camas Shoreline Master Program and the City planners, backfilling activities for structural shoreline bank stabilization in the High Intensity shoreline are permitted subject to a shoreline Conditional Use approval by the City of Camas. If the backfilling is bioengineered or non-structural the use is permitted outright. To be eligible for a Conditional Use approval, the applicant must demonstrate consistency with WAC 173-27-160.

The Camas Shoreline Master Program as well as the CMC contain regulations, provisions, as well as general application requirements for a conditional use approval and shoreline application. This includes the requirements outlined in CMC Section 18.55.110, as well as Appendix B Section VI.B, VII.B,

Section IX of the Camas Shoreline Master Program. Furthermore, both WAC 173-27-160 and Appendix B Section IX of the Camas Shoreline Master Program provide review criteria for conditional use approvals under the Shoreline Protection Act. "Conditional use" means a use, development, or substantial development which is classified as a conditional use. or is not classified within the applicable master program (WAC 173-27-030(4)).

In authorizing conditional use, the applicant must demonstrate that the proposal's proposed use:

- Is consistent with the Program, and the policies of the Act (RCW 90.58.020);
- Will not interfere with normal public use of public shorelines;
- The proposed use of the Site and the design of the development will be compatible with the surrounding authorized uses, the Program, and the comprehensive plan;
- Will cause no significant adverse effects on the shoreline environment or other uses; and
- That the public interest would suffer no substantial detrimental effect.

The Camas Shoreline Master Program and Clark County Shoreline Master Program include requirements to protect critical areas and their buffers that are within the shoreline area. Critical areas protected under the Shoreline Master Programs include wetlands, aquifer recharge areas, frequently flooded areas or flood hazard areas, geologic hazard areas, and fish and wildlife habitat conservation areas (CMC 16.51.070; CCC 40.460.530(B)).

The City of Camas defines fish and wildlife habitat conservation areas (CMC 16.61.010) to include the following areas:

- Locations where state or federally designated endangered, threatened, and sensitive species have a primary association;
- Mapped locations of state priority habitats and species (PHS), as identified by WDFW (2020a)¹;
- Habitats of local importance;
- Naturally occurring ponds under 20 acres that provide fish or wildlife habitat;
- Waters of the state;
- Bodies of water planted with game fish by government or tribal entity; and
- State Natural Area Preserves and Natural Resource Conservation Areas, as defined and managed by WDNR.

Clark County (CCC 40.440.010C) defines fish and wildlife habitat areas as:

- Riparian priority habitat as defined by WDFW (2020a);
- Other PHS as defined by WDFW (2020a); and
- Locally important habitats and species as designated by Clark County.

¹ The PHS database was queried again in 2022 by Tetra Tech, and no additional species were found in the area beyond those found in the 2020 query conducted by Wood. The 2020 PHS query conducted by Wood can be found in Appendix F.

Erosion and sediment BMPs will be implemented to meet the clearing and grading standards (CMC Chapter 15.50.090). The preliminary grading plan (**Figure 5**) will be updated as necessary and submitted to the City of Camas for a clearing and grading permit as required for CMC Chapter 15.50.080.

1.6.2 Clean Water Act

The CWA (33 United States Code [U.S.C.] §1251 et seq.) along with the implementation rules, including the Navigable Waters Protection Rule (85 *Federal Register* [FR] 22250), establishes the structure for regulating discharges of pollutants into waters of the U.S. and regulating quality standards for surface waters.

Section 404 of the CWA establishes a program to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands, and requires a permit before dredged or fill material may be discharged into waters of the U.S. The USACE and the U.S. Environmental Protection Agency jointly implement and enforce the CWA Section 404 program. The USACE Seattle District administers individual and general permit decision, conducts or verifies jurisdictional determination, and enforces Section 404 permit provisions for projects in the area. The Columbia River and Camas Slough are considered jurisdictional waters of the U.S. because they are traditional navigable waters (85 FR 22250). The USACE's jurisdictional boundary for fresh waters under the CWA is the OHWM along with the upland boundary of any adjacent wetlands.

Wetlands are present below the OHWM in the study area and impacts to the wetlands by Project activities would be regulated by the USACE. As part of the Section 404 permitting process, the USACE consults with the USFWS and NOAA Fisheries to evaluate impacts on fish and wildlife protected under the ESA. To facilitate the USACE consultation process, a *Biological Assessment* (Tetra Tech 2023) has been prepared to document the biological resources and evaluate potential effects to species listed on the ESA that may be present in the Project area.

Further, federal agencies are mandated to consider the effects of their undertakings on historic properties under Section 106 of the National Historic Preservation Act of 1966 [16 U.S.C. §470(f)]. Thus, as part of the Section 404 review, the USACE consults with the Washington State Department of Archaeology and Historic Preservation. The Project has developed an *Inventory of Historic Properties and Historic Context* (Wood 2023a), which summarizes the presence of historic structures and provides evaluation regarding eligibility for listing as an Historic Resource. The Project's *Archaeological Resources Survey and Literature Review Report* (Wood 2023b) provides information on resources and an analysis of potential effects. The City also reviews historic and archaeologic resources and requires submission of reports to tribes in the area.

Delegation of CWA Section 401 and its implementing rules authorizes Washington State to certify that a discharge would not violate state water quality standards prior to the issuance of a Section 404 CWA permit. For the Project area, Ecology is the designated state water pollution control agency for issuing a Section 401 Water Quality Certification. Ecology requires a SEPA determination to be completed for the project prior to evaluating and approval of a 401 Certification.

1.6.3 Rivers and Harbors Act

The Rivers and Harbors Act of 1899 (33 U.S.C. §401 et seq.) regulates all work affecting the condition of navigable waters. Section 10 of the Rivers and Harbors Act requires authorization from the USACE for the construction of any structure in or over any navigable waters of the U.S., the excavation and dredging or deposition of material, or any obstruction or alteration to a navigable water. Under the Rivers and Harbors Act, the jurisdictional boundary for fresh navigable waters is the OHWM (33 CFR 329.11). The Columbia River is considered a navigable water subject to Section 10 (USACE 2008).

1.6.4 Hydraulic Projects in State Waters

Hydraulic projects in or near state waters are required to obtain a Hydraulic Project Approval (HPA) from the WDFW (RCW 77.55). A hydraulic project is considered to be construction or other work activities conducted in or near state waters that would use, divert, obstruct, or change the natural flow or bed of any waters of the state, as well as structures that cross over waters. The Columbia River and Camas Slough are considered Waters of the State with the jurisdictional boundary waterward of the OHWM (RCW 77.55.011).

1.6.5 Activities on State-Owned Aquatic Lands

State-owned aquatic lands are defined as all tidelands, shorelands (i.e., shorelines), harbor areas, the beds of navigable waters, and waterways owned by the state and administered by the WDNR. This Project includes activities on state aquatic lands leased by GP under a 2016 State Aquatic Lands Lease and also bedlands within various Aquatic Land Easements issued by WDNR to GP.

The lease terms require coordination and approvals by WDNR prior to undertaking the Project. Coordination with WDNR to meet the terms of the lease has been initiated with the objective for the Project to identify and meet various lease terms for work occurring within the footprint. WDNR coordination will continue throughout the Project.

1.6.6 State Environmental Policy Act

SEPA (RCW 3.21C) establishes a process to identify and analyze environmental impacts associated with governmental decisions, including issuing permits for private projects. City, county, and state permits and approvals for this Project require that a SEPA review and threshold determination be made prior to issuance of a permit or approval.

The City of Camas is the lead SEPA agency for the Project. A pre-application meeting was initially held with the City in March 2020 and again in December 2022.

1.7 Qualifications of Study Authors

As required in CMC 16.51.140, CMC 16.53.030, and CMC 16.61.020, this *Shoreline Report, including Critical Areas Review, Ordinary High Water Determination, and Impact Assessment* was prepared by qualified biologists. This effort was accomplished by Wood's biologists, Dr. Kristie Dunkin (Project Manager and Biologist) and Ms. Theresa Price (Biologist). Dr. Dunkin earned a Ph.D. in Soil Science from the University of California at Berkeley and has 20 years of experience in habitat restoration, wetland identification and delineation, impact mitigation, compliance with SEPA and the National Environmental Policy Act (NEPA), and regulatory evaluations. Dr. Dunkin is trained in ordinary highwater mark delineation and wetland rating by Ecology. Dr. Dunkin instructed the Certification course in Wetland Identification and Delineation at the University of Washington for eight years.

Ms. Theresa Price is a botanist and environmental planner at Wood. Ms. Price earned an M.S. in Applied Biological Sciences from Arizona State University at Tempe and has 13 years of experience in botanical inventory, habitat assessment, identification and delineation of wetlands and jurisdictional Waters of the U.S., NEPA/SEPA compliance documentation, and regulatory due diligence reviews. Ms. Price is trained in ordinary high-water delineation, wetland rating, and hydric soils field indicators by Ecology and has attended wetland identification and delineation courses that meet the guidelines of USACE wetland delineation requirements.

On behalf of GP, Tetra Tech has reviewed all of the data collection and other information in this report and updated portions of it to match the proposed project activities to date. Review was completed by Mr. Steve Negri, Senior Biologist and Project Manager. Mr. Negri has more than 24 years of experience developing, managing, and conducting remote field-oriented and wildlife research projects, and evaluating potential effects of various resource management activities on wildlife and vegetation. He has authored numerous Biological Assessments / Biological Evaluations, and has technical experience with ESA Section 7, permitting, and compliance monitoring. Mr. Negri has an extensive portfolio of projects conducted to support project permitting in compliance with federal and Washington state laws and regulations.

2.0 METHODS

This section describes the methods used to prepare this *Shoreline and Critical Areas Review and Impact Assessment*. **Appendix B** provides detailed methods for wetland identification and delineation used for the project.

2.1 Review of Available Published Information

Available site information was reviewed to identify documented wetlands, streams, or other site characteristics (e.g., vegetation patterns, topography, soils, or aquatic areas) that would indicate the presence of critical areas and shoreline areas within the study area. Applicable literature was queried to identify the wildlife and habitat conservation areas that occur in the study area and include the following:

- Critical Areas Maps (City of Camas 2019a; Clark County 2019);
- National Wetland Inventory (NWI) (USFWS 2019a);
- Soil Survey of Clark County, Washington (Natural Resources Conservation Service [NRCS] 2018);
- Camas, WA-OR 7.5-minute topographic quadrangle (USGS 2017);
- Federal Emergency Management Agency (FEMA) flood hazard areas—City of Camas (FEMA 2019);
- Publicly available aerial imagery of the vicinity (Google Maps 2022);
- USFWS Information for Planning and Consultation (IPaC; USFWS 2020, 2022);
- WDFW Priority Habitats and Species Maps (WDFW 2020a, 2022);
- SalmonScape (WDFW 2020b);
- City of Camas Shoreline Master Program (2015, 2021); and
- Clark County Shoreline Master Program (2016).

2.2 Field Investigation

Field work was performed by Wood on July 16 and 17, 2019, January 7, 2020, and on July 22, 2020. During the July 2019 investigation, the study area was evaluated to characterize the shoreline environment and fish and wildlife habitat, as well as document the presence and extent of wetlands, and determine the OHWM location. The same area was revised on January 7, 2020. A subsequent field investigation was performed on July 22, 2020, to include shoreline areas of Lady Island and Camas Slough that were not previously reviewed.

Wetlands along the riverbanks of Camas Slough on the main Mill parcel in the vicinity of overwater structures to be removed (based on the Project design at the time of survey) were delineated. To complete the wetland identification and delineation, biologists implemented the methods outlined in the USACE's *Wetland Delineation Manual* (USACE 1987) and in the *Regional Supplement for Western Mountains, Valleys and Coast Region* (USACE 2010). A description of the wetland investigation

methodology, including wetland indicators for vegetation, hydric soils, and wetland hydrology parameters, is provided in **Appendix B**. Wetland data observations were recorded on Wetland Field Determination Data Sheets, which are provided in **Appendix C**.

2.3 Wetland Classification and Ratings

Wetland vegetation community classification follows that developed by Cowardin et al. (1979), and hydrogeomorphic (HGM) classification follows Brinson (1993). The *Washington State Wetlands Rating System for Western Washington* (Hruby 2014) was used to rate wetlands. This methodology identifies and quantifies the potential of various wetland functions. The categorization is based on the physical characteristics of water quality, hydrologic, and habitat functions in the wetland and buffers. Within this system, wetlands are given a score based on the functions provided by the wetland and are classified as Category I through Category IV. Functional assessment rating forms and supporting figures are provided in **Appendix D**.

The City of Camas (CMC 16.53.040) determines wetland buffer widths based on the wetland rating scores (including habitat score) using the Washington State Wetlands Rating System along with proposed type and intensity of adjacent land uses. The Wetland Rating forms are presented in **Appendix D**.

2.4 Ordinary High-Water Mark Determination Methods

The OHWM is defined by RCW 90.508.030(2):

GP"... on all lakes, streams, and tidal waters, is that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation, as that conditions exists on June 1, 1971, as it may naturally change thereafter, or as it may change thereafter in accordance with permits issued by a local government or the department: Provided that in any area where the ordinary high water mark cannot be found; the ordinary high water mark adjoining salt water shall be the line of mean higher high tide; and the ordinary high water mark adjoining fresh water shall be the line of mean high water."

Methodology implemented followed the guidance and process described in *Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson et al. 2016) published by Ecology. Note that while the Columbia River is tidal in the Project reach, the river waters are freshwater and not saline. The additional definitions provided for OHWM determination in WAC 173-22-030(5)(a) for low-energy and high-energy tidal environments apply only to marine and estuarine environments with saline waters and do not apply to the study area.

Stream OHWM indicators were used for field inspections as there was minimal tidal influence and contiguous wetlands for much of the reach. Per Ecology methods, the OHWM was determined by a field evaluation of the biological response to the long-term and frequent presence of water on soil and vegetation. The evaluation included observations of the presence of indicators, such as scour lines,

debris and wrack lines, soil characteristics, topographic breaks, and shifts in vegetation community composition.

Prior to the field investigation, information from a tidal station was used to establish local tidal prism characteristics and bookmark possible OHWM elevations. The nearest NOAA tidal station is located in Washougal, Washington (Station 9440047; NOAA 2019) approximately 1 mile upriver from the eastern end of the study area, and on the same bank. At the station, the mean tidal range is 1.19 feet. The mean higher high water elevation was +25.39 feet, while the mean lower low water level was +21.55 feet (both relative to the North American Vertical Datum of 1988 [NAVD88]). These elevations were used for reference.

During the field investigation, biologists walked the accessible portions of the riverbank on the main Mill parcel looking for indicators and working in transects perpendicular from water's edge up the riverbank. A survey of flagged locations was completed by others.

In addition to the biological field observations, the OHWM in the Project area had been mapped and surveyed as part of GP's 2014 lease agreement with WDNR. That mapping was also used for reference in determining the location of the OHWM.

Riverbank conditions and OHWM downriver from the main Mill parcel were observed from the water to provide existing conditions information. The OHWM was not mapped in these locations as all planned removals are within the channel, and no work would occur on the riverbank or upland of the OHWM.

2.5 Evaluation of Fish and Wildlife Habitat Conservation Areas—Habitat Assessment

Wood performed a habitat assessment for the study area by reviewing existing information pertinent to the study area and walking the project area to observe habitat conditions in the project area. Information from USFWS (2020) and NOAA Fisheries (2020) were obtained for species that fall under the jurisdiction of the federal ESA. Information was also obtained from WDFW for state-listed species and habitats (WDFW 2020a). Information on species listed under Section 7 of the ESA that are potentially present in the action area was obtained from the USFWS IPaC online tool (USFWS 2020, 2022) and from NOAA Fisheries (2020).

The WDFW PHS website and *SalmonScape* interactive mapper were also searched for priority habitats and state protected and sensitive species potentially occurring in the project action area (WDFW 2020a,b)². **Appendix E** provides IPaC and WDFW lists. The WDNR online Natural Heritage Program database (WDNR 2019a,b) was also queried for records of state-listed plants or high-quality ecosystems in the study area.

² The PHS database was queried again in 2022 by Tetra Tech, and no additional species were found in the area beyond those found in the 2020 query conducted by Wood. The 2020 PHS query conducted by Wood can be found in **Appendix E**.

2.6 Impacts Assessment

An impacts assessment was performed to determine permanent and temporary, direct and indirect effects of the project on sensitive receptors. Recent topographic survey information, field survey information on existing conditions, as well as engineering plans were used to determine areas of effects through geographic information system (GIS) analysis. An impacts assessment was performed based on the delineated wetland boundaries, OHWM location, the 200-foot Shoreline Area per the City of Camas Shoreline Management Plan, and information from preliminary-level engineering plans for the project.

The following potential impacts were evaluated:

- Permanent and temporary construction-related impacts including noise and ground disturbance,
- Alteration of the terrestrial and aquatic environments, and
- Potential water-quality effects.

Changes in shading and extent of area removed from the channel were also evaluated.

Quantities of fill and dredging were determined by an engineering analysis. Area calculations were performed by overlaying GIS datasets and calculating intersections of Project activities with sensitive areas. Evaluations of indirect effects were made based on descriptions of the proposed activities planned for removing structures throughout the Project area.

A 30-foot disturbance radius around in-water structures was assumed in assessing water quality impacts.

3.0 **RESULTS**

This section presents the results of the literature review and field survey and describes aquatic and shoreline resources within the study area.

3.1 Geology and Topography

Surficial geology in the study area is complex and includes areas of artificial fill, Quaternary Columbia River floodplain alluvium, and outcrops of basaltic andesite bedrock. The study area is located in the northeastern-most extent of the Portland Basin, lying just west of Washington's South Cascades province, where the Columbia River has cut through mountains forming the Columbia River Gorge. The Portland Basin, a northwest/southeast-trending forearc depression, is filled with a wide variety of deposits, including flood basalts, continental and locally derived sediment, catastrophic flood (e.g., Missoula Flood) deposits, and locally derived volcanic materials (Evarts et al. 2009). The basin is divided at its northern extent by the Columbia River. Local volcanic activity at the basin's margins has resulted in volcanic cones, vents, and flows, including Prune Hill, a volcanic cone that rises from the riverbank of the study area. In general, basaltic andesite bedrock is found at the surface, to no deeper than about 30 feet below surface, throughout the study area. Importantly, some of the features scheduled to be demolished are embedded in this bedrock.

Both the main mill parcel and Lady Island survey area are within the boundaries of two mapped surface geologic units. Holocene and Pleistocene-aged quaternary alluvium is mapped on a major portion of the area and is characterized by unconsolidated or semi-consolidated alluvial clay, silt, sand, gravel, and (or) cobble deposits. In swales and other depressions, it locally includes peat, muck, and diatomite. Along the River, this unit includes beach deposits, and also includes areas of modified land and artificial fill. The main Mill parcel and most of Lady Island are mapped as quaternary alluvium.

Tertiary volcanic rocks of the Elkhorn Mountain unit outcrop in several relatively smaller locations on the main Mill Parcel and on Lady Island. The Oligocene-aged rock resulted from a sequence of lava flows and flow breccia, and are composed of dark gray to brown, porphyritic to seriate to aphyric tholeiitic basaltic andesite and basalt, with individual flows generally about 5 to 8 meters thick. This unit of volcanic bedrock occurs on the eastern portion of the south shoreline of Lady Island. The unit forms riverside cliffs, along with the nearby large protruding rocks within the main stem of the Columbia River called "Ione Reef." This unit underlies the Quaternary alluvium and fill materials forming a near-surface bedrock layer across the entire Project area.

Structures to be removed on the main Mill parcel are built on or into an artificially formed riverbank created from fill materials, with the terrace elevation of approximately +35 to +38 feet (relative to NAVD88). The remaining portions of the study area have topography drawn by river channel dynamics. Depending on the river level, most pilings and dolphins are present in water depths not usually greater than 30 feet, and often between 10 and 15 feet deep.

3.2 Floodplains

Proposed removals would occur entirely within the Columbia River and Camas Slough's regulatory floodway (Zone AE), with the 100-year floodplain (areas with a 1 percent annual chance of flooding) water surface elevation of between 34 feet (NAVD88; western study area extent) and 36 feet (FEMA 2019). An analysis of effects of the Project on the floodway and floodplain was performed and presented in *No-rise Report for Removal of Structures along Camas Slough* (Wood 2023c) and determined that the proposed demolition of piles and other structures and associated changes to ground surface along Camas Slough will not increase the 100-year regulatory flood elevations on Camas Slough, and thus on the Washougal River or Columbia River.

3.3 Vegetation

Most of the study area includes aquatic bed with waters deep enough to lack a vegetation community. On the main Mill parcel, vegetation is generally sparse to absent in the study area, which includes the structures to be removed. Wherever plant communities were present on the main Mill parcel they generally comprised predominantly weedy and invasive species.

Along the Columbia River, black cottonwood (*Populus trichocarpa*) and Oregon ash (*Fraxinus latifolia*) are the tree species where present. Common forest understory plants where present include vine maple (*Acer circinatum*), hawthorn (*Crataegus douglasii*), wild rose (*Rosa gymnocarpa*), blackberry (*Rubus ursinus*), thimbleberry (*Rubus parviflorus*), salmonberry (*Rubus spectabilis*) and snowberry (*Symphoricarpos albus*) (Franklin and Dyrness 1988). Disturbed areas support invasive species, such as Himalayan blackberry (*Rubus armeniacus*).

Vegetation growing along riverbanks adjacent to in-water removals are summarized in the riverbank descriptions given below. **Table 8** summarizes the invasive and weedy species commonly encountered in the study area.

Common Name	Scientific Name	Noxious Weed Class
Indigo bush	Amorpha fruticosa	В
Canada thistle	Cirsium arvense	С
Field bindweed	Convolvulus arvense	С
Teasel	Dipsacus fullonum	С
English ivy	Hedera helix	С
Himalayan blackberry	Rubus armeniacus	С
Reed canarygrass	Phalaris arundinacea	С
Tansy ragwort	Tanacetum vulgare	С
Common St. Johnswort	Hypericum perforatum	С
Hairy cat's ear	Hypochaeris radicata	С

Table 8	Common Invasive	Species	Present in	Study	Area
	Common magne	Species	11030III III	Judy	A Cu

Note:

Noxious Weed Class as defined in RCW 17.10.140.

3.4 Soils

Soil in the study areas and along the riverbanks was mapped by the Natural Resources Conservation Service (NRCS). Soils maps were accessed from the NRCS Web Soil Survey (2018). Soils and sediments in riverbeds are not mapped by NRCS.

Soils on the riverbank within the main Mill parcel are mapped as Fill Land, representing developed areas with nonnative materials. Other riverbanks in the study area were mapped as either Newburg silt loam or Sauvie silt loam series. All the soils on the main Mill parcel in the study area comprise fill historically placed to create a level terrace at river's edge.

In the study area, the north side of the Columbia Riverbank and the north side of Lady Island riverbank were mapped as Newburg silt loam series, while the western extent of Lady Island and the area in the vicinity of the Riverbank Pumphouse were mapped as Sauvie silt loam series.

Newberg silt loam series soils are somewhat excessively drained and located on floodplains with slopes of 3 to 8 percent. They are formed in loamy and sandy alluvium derived from mixed sedimentary and basalt volcanic rocks. The soils are subject to frequent to occasional flooding from December through March.

Deep, poorly drained Sauvie silt loam series soils are also mapped on floodplains. This soil is saturated to the surface in most years from December to March and subject to overflow tidal flooding. Sauvie soils form in mixed alluvium with volcanic ash on flat to 3 percent slopes. When artificially drained and protected from flooding, both soils are used for agriculture. Mapping of Sauvie series soils on Lady Island by the NRCS largely coincides with provisional identification of wetland areas by the City of Camas.

Ecology has assigned soils on the main Mill parcel as Site No. 15156 for potential presence of hazardous substances regulated under Washington State's Model Toxics Control Act. The presence of contaminants on the parcel has not been evaluated at this time, and no other contaminated or potentially contaminated sites are listed in the Project's action area.

3.5 Climate and Precipitation

Climate and precipitation data were collected from a National Weather Service station at the Vancouver Pearson Field Airport, located approximately 12 miles west of the study area. The study area is characterized by 36.60 inches of annual precipitation, average annual mean air temperature of 54.1 degrees Fahrenheit (°F), and average summer air temperature of 66.5°F (NRCS 2019). As with most of western Washington, the highest monthly precipitation generally occurs sometime between October 1 and March 31, with much less precipitation between April and September.

Table 9 summarizes the monthly precipitation data recorded during the 3 months preceding the 2019 field survey. Historical data from 1981 to 2019 were reviewed for historical monthly averages and "normal" rainfall. *Normal* rainfall is classified as rainfall totals that fall between the 30th and 70th percentile values. Each of the 3 months prior to field studies was assigned a condition value based on whether the measured precipitation during that month was considered dry, normal, or wet. The months were then assigned a weight based on that month's temporal proximity to the site visit. June

and April were drier than normal, whereas May had normal monthly precipitation. Results of the analysis showed that the observed precipitation in the 3 months preceding the site visit in July 2019 were considered to be drier than normal.

	Precipitation (Inches)							
	Historical	3 in 10 will) years have	Actual	Condition (Dry, Wet, Normal) ^{1/}	Condition Value ^{2/}	Month Weight Value ^{3/}	Product of Previous two Columns ^{4/}
Month	Monthly Average	Less Than	More Than	Monthly Total				
June	1.40	0.96	1.81	0.63	Dry	1	3	3
May	2.37	1.40	2.88	1.55	Normal	2	2	4
April	2.62	1.97	3.06	0.83	Dry	1	1	1
							TOTAL	8

Tahle 9	Monthly Preci	nitation Data 1	or Vancouver	Pearson Field Air	nort Washington	for April, lune 2019
	monting i i coi	pitation Data		i cai son i icia An	port, washington,	TOT APITI JUINE 2017

Notes:

1/ Conditions are considered "normal" if they fall within the range bounded by the 30th and 70th percentiles.

2/ Condition Values: 1 = Dry; 2 = Normal; 3 = Wet.

3/ Month weight values are ranked based on temporal proximity to date of field site visit, 3 being most recent month to the site visit.

4/ A product range of 6-9 = period is drier than normal; 10-14 = period is normal; 15-18 = period is wetter than normal.

Table 10 summarizes the rainfall over the 10 days prior to the 2019 site visit. A total of 0.38 inch of rainfall was recorded during the period, which all fell on 4 days. The remaining 6 days preceding the field work were dry.

Date (2019)	Daily Precipitation (Inches)
July 15	0.03
July 14	0.00
July 13	0.00
July 12	0.00
July 11	0.00
July 10	0.06
July 9	0.22
July 8	0.00
July 7	0.00
July 6	0.07
TOTAL	0.38

Table 10. Precipitation for 10 Days Preceding Field Work on July 16-17, 2019

Note: Precipitation data from Vancouver Pearson Field Airport, Washington.

Table 11 summarizes the monthly precipitation data recorded during the three months preceding the 2020 field survey. Historical data from 1981–2019 were reviewed for historical monthly averages and normal rainfall. June was wetter than normal, April was drier than normal, whereas May had normal monthly precipitation. Results of the analysis showed that the observed precipitation in the 3 months preceding the site visit is considered to be normal. No rainfall was recorded Pearson Field Airport over the 10 days prior to the 2020 site visit.

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	Precipitation (Inches)								
	3 in 1 Historical will		0 years have Actual		Condition		Month	Product of Previous	
Month, 2020	Monthly Average	Less Than	More Than	Monthly Total	(Dry, Wet, Normal) ^{1/}	Condition Value ^{2/}	Weight Value ^{3/}	two Columns4/	
June	1.40	0.96	1.81	3.40	Wet	3	3	9	
May	2.37	1.40	2.88	2.68	Normal	2	2	4	
April	2.62	1.97	3.06	0.91	Dry	1	1	1	
							TOTAL	14	

Table 11. Monthly Precipitation Data for Vancouver Pearson Field Airport, Washington, for April-June 2020

Notes:

1/ Conditions are considered "normal" if they fall within the range bounded by the 30th and 70th percentile values.

2/ Condition Values: 1 = Dry; 2 = Normal; 3 = Wet.

3/ Month weight values are ranked based on temporal proximity to date of field site visit, 3 being most recent month to the site visit. 4/ A product range of 6-9 = period is drier than normal; 10-14 = period is normal; 15-18 = period is wetter than normal.

3.6 Columbia River Including Camas Slough

The Columbia River and Camas Slough flow from east to west within the study area. The Columbia River is one of the largest rivers in North America, extending approximately 1,240 miles, draining approximately 258,000 square miles, and emptying into the Pacific Ocean (Kammerer 1990 as cited by Clark County 2011). The Project area is within the Lower Columbia River Reach and is approximately 120 river miles from the Pacific Ocean, and within Washington's Water Resources Inventory Area (WRIA) 28.

Prior to industrial development in the late 1800s, the Columbia River within the study area likely included extensive riparian habitats. Local industrial development along with upriver dam development, and general channelization along the Columbia River to provide river transport and hydroelectricity resulted in infrastructure that hardened riverbanks, created and stabilized navigational channels, and isolated floodplains behind levees. These river channel modifications have greatly altered the river's natural channel and associated riparian habitats. No river levees exist in the project area. Columbia River and Camas Slough are listed on Ecology's 303d Water Quality list of impaired waters for temperature in the study area.

Camas Slough is an approximately 2.4-mile-long river side channel. Camas Slough branches from the Columbia River mainstem at the tip of Lady Island, forming the northern shoreline of Lady Island and the southern shore of the City of Camas. The confluence with the Washougal River occurs at the far eastern (upriver) end of the Camas Slough and Camas Slough receives the entire Washougal River discharge.

In the Project vicinity, SR 14 crosses the Camas Slough twice on bridges, initially near the head of the slough onto Lady Island, then approximately through the middle of the Slough's length back to the north riverbank (**Figure 2A**).

Within the study area, the Columbia River and Camas Slough are tidal, with a mean daily tidal range of approximately 1.19 feet (NOAA 2019). Tidal influence extends upriver to the Bonneville Dam, located approximately 20 river miles upstream from the Project area. In general, tidal influence decreases as

the volume of water increases in this system, and thus, at high river stages, the tidal influence is largely masked. At low water levels, the semi-diurnal tidal fluctuation is readily observed.

The Lower Columbia River subbasin supports several species of anadromous salmonids, including Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), chum salmon (*O. keta*), pink salmon (*O. gorbuscha*), coastal cutthroat (*O. clarkii*), and steelhead (*O. mykiss*) (Lower Columbia Fish Recovery Board 2004; WDFW 2020a,b). These salmonid species spawn in freshwater tributaries upstream from the study area and no spawning habitat is present in the study area.

The study area serves as a migratory corridor for ESA-listed anadromous fish. Adults migrate through the study area primarily while traveling to upstream freshwater habitats. Juveniles fish move downstream, mainly with the Spring freshet, to reach rearing habitats in the estuary before migrating to the Pacific Ocean. Juveniles are known to utilize shallow nearshore habitats with shallow slopes.

Many non-salmonid sensitive fish species are present in the Lower Columbia River, and presumably the Project reach, including green sturgeon (*Acipenser medirostris*), river lamprey (*Lampetra ayresi*), and Pacific eulachon (*Thaleichthys pacificus*), as well as abundant numbers of perches, crappies, sculpin, and larval smelt (Lower Columbia Fish Recovery Board 2004).

3.7 Columbia River Hydrograph

A key timing consideration for in-water work is the Columbia River's annual hydrograph. The Columbia River, and thus the Project location, experiences an annual river hydrologic cycle driven by snowpack melt and precipitation patterns, with peak flows, or about 60 percent of the natural runoff, occurring May through June in most years (NRCS 2020; FWEE 2020). Low river stages occur in the late summer and early fall months (August through October), with the lowest river stage usually occurring in October. There is approximately an annual 15-foot change in water depths, with approximately a three-fold change of river discharge between low and high river stages.

Figure 6 provides an example Columbia River hydrograph showing the annual hydrologic cycle. This graphic is based on 3 years of data from a gauge located in the river's main stem at Vancouver, Washington, approximately 16 miles downriver of the Project area.





The confluence of the Washougal River and the Columbia River occurs at the east end of Camas Slough. Camas Slough receives all the Washougal River discharge, which regularly exceed 1,000 cubic feet per second from November to June, but typically falls below 100 cubic feet per second in late summer (Lower Columbia Fish Recovery Board 2010). When the Columbia River's stage is low, relatively little additional flow from the Columbia main stem flows into Camas Slough.

3.8 Riverbank Descriptions

The Project extends along the Camas Slough and Columbia River almost 3 miles. Riverbanks would not be directly disturbed in the vicinity of dolphin removals from the Camas Slough and the Columbia River channel; however, indirect effects are possible due to vessel operations. Riverbank characteristics within the study area were summarized into four types:

- Natural riverbank,
- Natural steep riverbank,
- Benched riverbank, and
- Highly altered riverbank.

Project activities occur only on highly altered riverbank in the Camas Slough on the main Mill parcel. The following provides a short description of the riverbank types.
3.8.1 Natural Riverbank

Natural riverbank sections occur along the Columbia River adjacent to undeveloped areas and along Lady Island. Areas of riverbank consisting of native soils and sediments and relatively undisturbed by development are common on Lady Island and along the Columbia River. In these locations, the upper riverbank, above OHWM, is forested with Oregon ash, Douglas-fir (*Pseudotsuga menziesii*), western red cedar (*Thuja plicata*), willow (*Salix* sp.), and black cottonwoods, along with some native understory trees and shrubs. Below OHWM, an area of shrubs extends usually to a topographic break, where a shelf gradually slopes to the waterline forming the lower bank.

Where present, the shallow lower slope allows for a continuous transition from deep to shallow waters at nearshore areas and is comprised of sand, silt, and fine gravel or, if sedge communities are present, shallow organic deposition layers may be present. At very low river stages, beach-like conditions occur along the lower bank of this type of riverbank. Where sedge communities are present at the toe of the bank, they are most typically monotypic dense communities of water sedge (*Carex aquatilis* var. *aquatilis*). Vegetated lower bank conditions support various habitat functions, including fish rearing, aquatic invertebrate production, wildlife access, organic matter production, and sediment trapping.

3.8.2 Natural Steep Riverbank

Some short sections along the riverbank are lined by natural basaltic andesite rock outcrops or have steep banks cut in cohesive native sediments. These are generally very steep to nearly vertical slopes supporting minimal vegetation. The steep outcrops may extend below the waterline in some locations. These outcrops are generally located in the western extent of the project study area along the Columbia River. One rock outcrop forms the westernmost tip of Lady Island at the mouth of the Camas Slough.

3.8.3 Artificially Benched Riverbank

Riverbank locations that are somewhat altered by artificially created terraces or man-made benches are common in the study area where residential properties are near mooring dolphins to be removed. These riverbanks have short, nearly vertical reinforced sections, between more level terraces. In most cases, the benched riverbanks either support maintained residential vegetation of grasses and shrubs or, in some cases, are occupied by invasive species. These areas have few trees.

3.8.4 Highly Altered Riverbank

Along the main Mill parcel, riverbanks consist of fill, are generally steep, and are armored with boulder-sized riprap. Highly altered riverbank includes the areas on the main Mill parcel where structures are present, and no riverbank is visible.

Vegetated with nonnative plants, few native plant species are present. When present, vegetation is dominated by nonnative Himalayan blackberry with indigo bush starting near OHWM and transitioning to native and weedy herbaceous vegetation at the lower shore in some locations. Few

trees are present, but where present include black cottonwood and Oregon ash. In some locations, the lower bank and shore consists of armor rocks with minimal to no vegetation or fine sediment.

3.9 Ordinary High-Water Mark Determination

A OHWM determination was conducted along the of the main Mill parcel riverbank in Camas Slough and on the riverbank of Lady Island. On Lady Island, the OHWM line in the vicinity of existing pipeline landings was mapped to determine its location.

During fieldwork in July 2019, and in 2020, the waterline was observed at high and low tide by walking the shoreline. River water levels were observed to reflect the approximate 1.1-foot tidal range, as the river levels were low (approximately at +2.0 feet CRD). Therefore, the riverbank was dry and able to be examined for indicators.

Because almost all the riverbank on the main Mill parcel is armored with large-boulder riprap, direct observations of soil characteristics were limited in many areas. However, for accessible areas of the riverbank, observations included strong indicators of wracked woody and trash debris, sediment lines, and clear changes in vegetation community along the riverbank.

A clear shift from shrub-dominated and/or emergent vegetation below OHWM to black cottonwood and/or Oregon ash trees above OHWM occurs along the riverbank wherever natural vegetation is present. The OHWM is at the lower limit of the tree line and upper limit of the shrub community. The line of vegetation shift was clearly visible when looking toward the shoreline from the river, as well as when evaluating vegetation communities along transects perpendicular to the waterline.

Sediment lines on riprap were present, but visible in only in a few locations. However, in many locations wrack lines comprised of large and small woody debris, trash, and other materials was present in piles. Sediment lines and stains on dolphins and other structures were present, where the OHWM was strongly indicated by changes in color and lack of sediment deposition.

Observations of OHWM indicators could not be evaluated for significant portions of inaccessible riverbank, including the areas occupied by the PECO Dock, Dock Warehouse, and Truck Dock, where the waterline is underneath the structures and no safe access was possible. In addition, some portions of the shoreline were not accessible due to excessively steep banks, such as the area adjacent to the Berger Crane foundation and Tug Dock.

The project is focused on removals of existing structures that straddle the OHWM, therefore the delineated OHWM elevation was evaluated to determine an average elevation that could be applied to the riverbank where structures are currently present. An elevation of +16.5 feet CRD was determined and the OHWM at that elevation was extended to cover the areas of each of the riverbank structures. This elevation was used for the purposes of calculating areas of impacts above and below OHWM, as well as determining the location of the Shoreline Area. This elevation was used to estimate the extent of increased riverbank once the riverbank is reshaped to shallower slopes following the Project.

3.10 Wetlands

The NWI has mapped the lower Columbia River and Camas Slough as a tidal riverine system, including unconsolidated shore areas (R1USQ), unconsolidated bottom (R1UBV) in the deeper channel areas, and riverine emergent persistent vegetation with seasonally flooded characteristics (REM1R) on limited portions of the riverbank (USFWS 2019a).

Mooring dolphins and other pilings to be removed are generally within areas mapped as unconsolidated shore, although a few deep-water dolphins in the Camas Slough are within the deeper unconsolidated bottom system.

Similar wetland mapping was provisionally shown on the City and County Critical Areas maps (City of Camas 2019a; Clark County 2019). On these maps, they areas are shown as estimated areas of narrow fringe wetlands along the riverbank in approximately the same locations as shown on the NWI.

Wetlands were identified and delineated along the portion of the main Mill parcel that was safely accessible. As stated, inaccessible riverbank areas included very steep slopes and areas beneath structures. Wetlands are not present at the south riverbank of Lady Island on the Columbia River.

Wetlands 1 through 7 were identified and delineated. These systems are similar to one another and occur along the base riverbank (**Table 12**). **Appendix D** provides the completed Wetland Field Data Sheets along with supporting figures for each wetland.

None of the wetland areas were inundated during the low-flow conditions present in July during the field investigation. However, these wetland areas are seasonally inundated for long durations from November to June in most years, with the timing, duration, and depths dependent on that year's weather patterns.

All delineated wetlands were categorized as tidal riverine emergent wetlands under the Cowardin et al. (1979) classification, and as Tidal Riverine by the Hydrogeomorphic Classification system. Riverine wetlands extend waterward from land to the point where deep water prevents persistent rooted vegetation due to light limitations, usually at about 6 feet of water depth. From this point waterward, the aquatic system transitions from tidal riverine emergent to unconsolidated aquatic bed systems.

Wetland plant communities were characterized mainly with emergent sedge species (principally *Carex aquatilis*) at the lower shoreline, transitioning up-bank to the invasive shrub species indigo bush (*Amorpha fruticosa*). Indigo bush, which is a facultative wetland plant, was common at elevations above wetland boundaries throughout main Mill parcel and Lady Island riverbank, where the plant appears able to grow well from the spaces between riprap. These riprap areas were determined to not have wetland soils due to the preponderance of rock and were not considered to be wetland areas.

Long stretches of unvegetated gravel bar and rocky armored shore separate the wetlands from each other. While these locations met the definition for wetland hydrologic conditions, they were determined to not have hydric soils and not support hydrophytic vegetation, or in a few locations had hydrophytic vegetation (usually dominated by invasive indigo bush) but were either naturally or artificially rock armored and lacking in hydric soils and were thus determined to not meet the definition of wetland.

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Wetland ID	Hydrogeomorphic Class	Cowardin Classification	Wetland Rating	Buffer
1	Tidal Riverine	Riverine Emergent Persistent vegetation, seasonally flooded (REM1R)	Category II	180 feet
2	Tidal Riverine	Riverine Emergent Persistent vegetation, seasonally flooded (REM1R)	Category II	180 feet
3	Tidal Riverine	Riverine Forested, seasonally inundated (RFO)	Category II	180 feet
4	Tidal Riverine	Riverine Emergent Persistent vegetation, seasonally flooded (REM1R)	Category II	180 feet
5	Tidal Riverine	Riverine Emergent Persistent vegetation, seasonally flooded (REM1R)	Category II	180 feet
6	Tidal Riverine	Riverine Emergent Persistent vegetation, seasonally flooded (REM1R)	Category II	180 feet
7	Tidal Riverine	Riverine Emergent Persistent vegetation, seasonally flooded (REM1R)	Category II	180 feet

Table 12. Wetland Classification Summary

3.10.1 Wetland 1

Wetland 1 is located immediately east (upriver) of the Riverbank Pumphouse on Camas Slough and extends along the riverbank approximately 400 feet starting from the pumphouse (**Appendix D; Wetland 1 Figures**).

In this location, the riverbank consists of rocky fill. The riverbank does not have a continuous face of boulder-sized riprap. Native deciduous trees (Oregon ash and cottonwood) grow at the top of the rocky riverbank and shade the wetland. The wetland was vegetated mainly with water sedge. The wetland/upland boundary was identified based on the change from hydric soil to rock-dominated fill riverbank as well as an increase in steepness. Note that a hydrophytic plant overstory community (Oregon ash and black cottonwood) occurs on the upland side of the boundary, with an understory of Himalayan blackberry and other upland weeds.

Wetland hydrologic conditions were supported primarily by river flows and overbank flow. Soils were saturated throughout the wetland area during the field investigation. This wetland continues upriver along the shoreline beyond the study area limits.

3.10.2 Wetland 2

Wetland 2 is located downriver from the Riverbank Pumphouse on the Camas Slough (**Appendix D**, **Wetland 2 Figures**). In this location, the riverbank consists of fill and is faced with riprap. The narrow wetland was located at the base of the riprap bank and was heavily grazed, although it appears to be vegetated with sedge. Indigo bush was present in the wetland. The wetland/upland boundary was identified based on a change from hydric soil to rock-dominated riverbank and the increase in slope.

Wetland hydrologic conditions were provided by river flows and overbank flow. During the July investigation, soils were saturated to the surface throughout the wetland area.

3.10.3 Wetland 3

Wetland 3 formed in a 30-foot by 30-foot depression on the riverbank, where the steep riprapped slope appears to have slumped (**Appendix D, Wetland 3 Figures**). This small area is vegetated with a few deciduous trees in the overstory, including Oregon ash and black cottonwood with abundant reed canarygrass (*Phalaris arundinacea*) and hedgenettle (*Stachys chamissonis*). The area is surrounded by large boulders with Himalyan blackberry growing between them.

Soil in the depression was hydric with indicators present. The wetland boundary was delineated based on soils and the transition to rock armoring. Soil was saturated to the surface at the time of the investigation. Hydrology is possibly supported by groundwater discharge from the riverbank in this location. Because of the slightly higher elevation, this location is inundated by river water when river water levels are moderate.

3.10.4 Wetland 4

Wetland 4 (**Appendix D, Wetland 4 Figures**) is a small, area is directly adjacent to the easternmost extent of the Truck Dock at the structure's bulkhead. Vegetation in the wetlands was heavily grazed and consisted primarily of sedges, with indigo bush present at the boundary. Landward of the wetland boundary, the riverbank is very steep, covered with riprap and allows for limited vegetation growth, although a few indigo bushes were present along with a few Himalayan blackberry between rocks. The wetland boundary was determined based on the transition from hydric soil to riprap rock-faced embankment.

3.10.5 Wetlands 5 and 6

Wetlands 5 and 6 are located along the riverbank upriver from the Truck Dock (**Appendix D, Wetland 5 & 6 Figures**). Wetland 5's western extent lies on the upriver side of a small peninsula extending from the riverbank. The wetland continues upriver to a small rocky point. Wetland 6 starts upriver of this rocky point and extends upriver to a small second rocky point. Both are benched topographic areas.

Both wetland areas showed evidence of heavy grazing during the investigation, reducing the ability to identify vegetation to species. The wetalnds appear to be primarily vegetated with sedges as the dominant taxon along with other obligate and facultative wetland herbaceous vegetation.

Similar to the other wetlands in this area, the wetland boundary was determined by a transition from hydric soil to rock armored riverbank with support from the increase in slope. Indigo bush is abundant along much of the rocky area, especially in the lower elevations of the riprap.

Soil consisted of fill materials, river sediments, and rock. Field observations of soils confirmed profiles containing various fill materials without any consistency across the area, including areas of rock, wood, metal pieces, and areas of fine soil/sediment materials. Soil in areas where sedge was vigorously growing showed clear evidence of increased surface organic matter accumulation relative to soil outside sedge areas. In general, in areas without sedges and dominated by indigo bush, soils lacked an organic layer at the surface. Hydric indicators present included redox features, sulfur odors,

and gleyed subsurface horizons. The wetland boundary was determined based on the transition from hydric soil to riprap riverbank with the support of increased slopes.

3.10.6 Wetland 7

Wetland 7 is located on Lady Island, along the riverbank upriver (and across) from the Truck Dock and extends along the riverbank in this location (**Appendix D, Wetland 7 Figures**).

Evidence of heavy grazing by geese and deer was observed during the investigation, reducing the ability to identify vegetation to species. Vegetation appeared to be mainly water sedge and reed canarygrass, with limited other obligate and facultative wetland herbaceous vegetation. Indigo bush is abundant along most of the shoreline above the wetland edge, with scattered individuals present within the wetland as well. Native shrubs and trees (Oregon ash and black cottonwood) grow above the wetland boundary at elevations above the OHWM. Soils were also much rockier in this area than other portions.

Wetland hydrologic conditions are due to river flows and overbank flow. Soils were saturated throughout the wetland area during the field investigation, with the lower portions of the wetland inundated by river water.

Soil in the wetland area consisted of river sediments. Hydric indicators present included redox features, sulfur odors, and depleted subsurface horizons. The wetland boundary was determined by a transition from hydric soil to soil lacking hydric indicators, with support from increasing elevation and steeper topography. This wetland continues along the shoreline upriver beyond the study area limit.

3.11 Shoreline Area and Wetland Buffer Area

The *Shoreline Area* is defined as the area 200 feet landward of the OHWM. The OHWM and corresponding Shoreline Area on the main Mill parcel are described and shown in the *No-rise Report for Removal of Structures along Camas Slough* (Wood 2023c).

As stated previously, both the City of Camas (CMC 16.53.040) and Clark County (CCC 40.450.030) determine wetland buffer widths based on wetland rating scores (including habitat score) and the proposed land uses of the project site. Wetland rating categories for the purposes of determining buffers utilize the Ecology wetland rating system scores. The Wetland Rating forms are presented in **Appendix D.** The wetland ratings results are summarized in **Table 13**.

Following the definitions of the Land Use Intensity Matrix (CMC 16.53.040-4), land-use intensity is ranked as high in the study area due to industrial activities. All wetland areas were rated as Category II, with a habitat score of 6 points and a high-intensity land use; therefore, the standard buffer width of 180 feet is applied (CMC Table 16.53.040-1). Because of the location of the wetlands, the wetland buffer areas for all wetlands are almost completely within the 200-foot Shoreline Area.

Table 13. Wetland Rating Summary

Function		Wetland 1 Riverine	Wetland 2 Riverine	Wetland 3 Riverine	Wetland 4 Riverine	Wetlands 5 & 6 Riverine	Wetland 7 Riverine
Improving Water Quality	Site potential	М	М	М	М	М	М
Functions	Landscape potential	Н	Н	Н	Н	Н	Н
	Value	Н	Н	Н	Н	Н	Н
	Subtotal	8	8	8	8	8	8
Hydrologic Function	Site potential	L	L	М	L	L	L
	Landscape potential	М	М	М	М	М	М
	Value	Н	Н	Н	Н	Н	Н
	Subtotal	6	6	7	6	6	6
Habitat Function	Site potential	М	М	М	М	М	L
	Landscape potential	L	L	L	L	L	М
	Value	Н	Н	Н	Н	Н	Н
	Subtotal	6	6	6	6	6	6
Total Score		20	20	21	20	20	20
Wetland Category		Category II	Category II				

Abbreviations:

H = High function (score of 3), M = Medium function (score of 2), L = Low function (score of 1). Wetland ratings were conducted according to the Washington State Wetlands Rating System for Western Washington (Hruby 2014).

3.12 Wildlife and Habitat Conservation Areas

3.12.1 Riparian Habitats and Surface Waters

The City of Camas defines riparian habitats and surface waters as naturally occurring ponds under 20 acres that provide fish or wildlife habitat, waters of the state, and water bodies planted with game fish by government or tribal entities (CMC 16.61.010). Riparian habitats and surface waters were identified within the study area. Riparian habitats include the undeveloped portions of Lady Island and areas along natural riverbanks.

Many species of birds, including waterfowl, utilize the Columbia River. The river provides riparian habitats for migration and wintering Pacific flyway waterfowl. While no recent broad-scale surveys of species in the riparian habitats in the project area have been made, a study at the Steigerwald Wildlife Refuge, located approximately 5 miles upriver from the study area, indicated that the river and riparian area provides habitat for approximately 200 species of birds and 30 species of mammals, fish, reptiles, and amphibians (USFWS 2019b). Wildlife species generally include cottontail rabbit, nutria, mink, beaver, garter snake, painted turtle, and Pacific tree frog. Observations during the field survey included white tailed deer and Canada geese grazing along the riverbanks.

Bird species in the study area observed during the field efforts included American robin (*Turdus migratorius*), mallard (*Anas platyrhynchos*), American black swift (*Cypseloides niger*) least sandpiper (*Calidris minutilla*), Canada goose (*Brant canadensis*), red-tailed hawk, (*Buteo jamaicensis*), great blue heron (*Ardea herodias*), bald eagle (*Haliaeetus leucocephalus*), barn swallow (*Hirundo rustica*), blue jay (*Cyanocitta cristata*), American crow (*Corvus brachyrhynchos*), Brandt's cormorant (*Phalacrocorax penicillatus*), and Western osprey (*Pandion haliaetus*).

3.12.2 State and Federal Threatened and Endangered Species

A *Draft Biological Assessment* (Tetra Tech 2023) has been prepared to evaluate information on 16 ESAlisted species with the potential to occur in the study area. Summary information is provided here.

Six ESA-listed fish species and critical habitat occur in the Project vicinity:

- Chinook salmon, Lower Columbia River evolutionarily significant unit (ESU),
- Steelhead Lower Colorado distinct population segment (DPS),
- Chum salmon Columbia River ESU,
- Coho salmon Lower Columbia River ESU,
- Pacific eulachon Southern DPS (Thaleichthys pacificus), and
- Bull trout (Salvelinus confluentus).

Salmon, steelhead, and Pacific eulachon migrate as adults through the area to upriver spawning locations. Bull trout sea-run populations could migrate through the area. For ESA-listed fish species, specific spawning requirements are not met in the Project area (Tetra Tech 2023). Schools of juveniles would utilize the study area during out migrations for feeding and are anticipated to be abundant in the spring, where shallow and nearshore areas may provide high prey productivity.

Ten additional ESA-listed species identified by USFWS (2020) for the Project vicinity are known to not occur in the study area due to lack of suitable habitat: gray wolf (*Canis lupus*), yellow-billed cuckoo (*Coccyzus americanus*), streaked horned lark (*Eremophila alpestris strigata*), northern spotted owl (*Strix occidentalis caurina*), golden paintbrush (*Castilleja levisecta*), Willamette daisy (*Erigeron decumbens*), water howellia (*Howellia aquatilis*), Bradshaw's desert-parsley (*Lomatium bradshawii*), Kincaid's lupine (*Lupinus sulphureus* spp. *kincaidii*), and Nelson's checker-mallow (*Sidalcea nelsoniana*) (Tetra Tech 2023).

Appendix F provides the USFWS and NOAA Fisheries list of species of concern for the study area.

3.12.3 State priority habitats and species

The WDFW PHS database identified five items in the study area:

- <u>Coho Salmon, Lower Columbia River ESU</u>: Coho spawn in freshwater streams and migrate to sea to reach maturity. Coho salmon spawn in numerous small streams. Lower Columbia River stocks are much lower than historical levels currently. Coho pass through the fish ladders of Lower Columbia River dams between August and November, with peak run during September. WDFW *SalmonScape* documented occurrence of coho in the study area. Similar to salmonids discussed in the above section, coho salmon may pass through or occur within the study area during adult migration and juvenile feeding and migration.
- <u>Dolly Varden trout (Salvelinus malma)</u>: PHS and SalmonScape documented Dolly Varden/bull trout occurring in the study area. Dolly Varden are similar and often confused with bull trout and are classified as a char. Similar to salmonids discussed in the above section, Dolly Varden are anadromous and spawn in habitats similar to those of bull trout. Dolly Varden may pass through or occur within the study area during adult migration.
- <u>Purple martin (Progne subis)</u>: WDNR identified a purple martin breeding colony on Lady Island. Purple martin nest in cavities and prefer open to semi-open areas near water, with tree snags or other potential nest cavity sites. These migratory birds congregate to roost in groups of up to thousands of individuals during the summer. A large colony is known along the Washougal Dike, approximately 2.4 miles east of the study area.
- <u>Biodiversity Area and Corridor (Terrestrial Habitat)</u>: WDNR identified the riparian zone on Lady Island as Columbia River cottonwood habitat. Biodiversity areas and corridors are areas of habitat that are relatively important to various species of native fish and wildlife.
- <u>Caves or Cave-rich Areas</u>: WDNR identified areas on Lady Island as cave or cave-rich areas, as these areas may provide habitat for sensitive species.

4.0 IMPACTS ASSESSMENT

The Project would have long-term benefits that result in improved functions in the Shoreline Area. However, impacts would occur during the removal of structures. The Columbia River, including Camas Slough and associated wetlands, would be temporarily impacted during the following removal activities:

- Removal of dolphins and piles;
- Dredging to allow barge access to Dock Warehouse piers for removal;
- Excavation/fill to reshape the riverbank to shallower contours; and
- Placement of fill to create bottom contours that match the natural riverbed covering the retained conrete Berger Crane foundation and restoring the dredge prisms.

Potential effects of the proposed Project on the Shoreline Area and critical areas resources would potentially include both direct and indirect, permanent, and short-term temporary effects. No permanent impacts to wetlands, buffers, or fish and wildlife habitat conservation areas are anticipated. Wetlands 1, 2, 3, 4, 5, 6, and 7 in the study area would be avoided by the proposed Project.

Vegetation disturbance would be minimal as there is limited vegetation associated with any of the structures. No trees are present in the Project area, and no trees would be disturbed by the Project.

Removal activities would result in short-term temporary increases in noise, human disturbance, and sediment disturbance. Construction BMPs, including temporal restrictions and stormwater management, would be implemented to prevent or minimize the effects of these short-term disturbances. BMPs for the Project are presented in **Appendix F.**

Additional details on potential impacts on wetlands, surface waters, buffers, Shoreline Area, and fish and wildlife habitat conservation areas are described in the following sections.

The activities required to complete the project would result in direct temporary impacts below the OHWM of the Columbia River and Camas Slough. The activities required to complete the project would result in direct, permanent impacts from placement of fill below the OHWM along the riverbank and on the riverbed (**Figure 3 and 4**).

4.1 Direct Impacts to Wetlands

No direct impacts to wetlands are anticipated.

4.2 Wetland Buffer Impacts

No impacts to wetlands buffers are anticipated.

4.3 Direct Impacts to Columbia River Including Camas Slough

Permanent impacts would result in the Columbia River and Camas Slough from dredging and placement of fill (**Table 14**). Placement of fill permanently below the OHWM is considered a

permanent impact even if the fill is placed for beneficial reasons. Locations of in-water impacts are shown on **Figures 2A through 2E**.

4.3.1 Dredging

Dredging would occur to provide access to the Dock Warehouse piers. However, removal of the overwater structures and supporting pilings and dolphins is expected to provide long-term benefits to aquatic habitats.

4.3.2 Riverbed and Riverbank Shaping

Excavation and fill placement would be needed to reshape an approximately 1,000-foot portion of the Camas Slough riverbank to new shallower slopes ranging from 4-to-1 to 5-to-1. At the completion of riverbank reshaping, the OHWM elevation will move horizontally toward the upland, such that new land area will be within the wetted area of the river because the reshaped riverbank would be topographically flatter than the existing steep riverbank. Amounts and areas of fill and excavation are provided in **Table 14**.

Fill would be placed below OHWM at the Berger Crane foundation to provide restored riverbed contours and cover the foundation remnant. The fill would be placed to create a new riverbed slope that re-creates the natural nearshore bed contours. Berger Crane foundation has an existing riverbed footprint of 300 SF, of which approximately 100 SF will be retained below the new sediment line at the end of the project. Area of disturbance here reflects the extent of the fill prism to create new riverbed topography covering the remnant 100 SF.

Dredge, Excavate, and Fill Activities	Waterbody Name	Impact Location	Duration of Impact	Amount of Material to be Placed in or Removed from Waterbody (cubic yards)	Area of Waterbody Directly Affected (sq. ft.)
Fill – at Berger Crane Foundation, new riverbed nearshore contours	Columbia River (Camas Slough)	Below OHWM	Permanent	+3,500	19,018 sq. ft
<i>Fill and Excavation</i> – at riverbank structures (Wood Chip area, Truck Dock, Dock Warehouse, PECO Dock), reshape riverbank	Columbia River (Camas Slough)	Below OHWM	Permanent	+2,500 / -5,170	67,356 sq. ft.
<i>Dredge</i> – at Dock Warehouse Piers, deepening for access	Columbia River (Camas Slough)	Below OHWM	Temporary, short-term, <90 days	-10,500	59,153 sq. ft.
Total Project; net amount of materi	-9,670 cubic yards				

Table 14.	Dredging, Fill, and Excavation Areas in the Columbia River and	d Camas	Slough

Notes:

Sums of individual values may not match totals presented due to rounding of significant figures.

Abbreviations:

sq = square ft = feet OHWM = ordinary high water mark

4.4 Shoreline Area (Buffer) Impacts

Project removals would occur within the Shoreline Area and would result in temporary impacts from the following activities:

- Demolition and excavation of the Dock Warehouse, Truck Dock, and PECO Dock; and
- Backfilling the South Wood Chip Storage Area to design grades.

Removal of structures (demolition) is not considered to be "development" under the Shoreline Management Act. Other activities regulated under the Shoreline Management plan would result in direct temporary impacts on Shoreline Area and results are presented in **Table 15**.

Following removal of the Dock Warehouse, Truck Dock, and PECO Dock, the riverbank will be reshaped and graded to slopes that match existing grades on either end.

Table 1516. Shoreline Area (Buffer) Impact Quantities and Areas

Excavate/Fill Activities	Associated waterbody	Location ^{1/}	Duration	Amount of materials to be placed or removed (Cubic Yard)	Area of disturbance (Sq. Ft.)	
<i>Excavate & Fill -</i> South Wood Chip yard, Truck Dock, Dock Warehouse, PECO Dock; reshape slopes to 5:1 and 4:1	Columbia River (Camas Slough)	Above OHWM; Main Mill Parcel	Permanent	+18,300 / -17,100	168,312 sq. ft.	
Total Project; Net Amount of material to be placed or removed; above OHWM: +1,200 cubic yards						

All Shoreline Areas are High Intensity classification.

Abbreviations:

sq = square ft = feet OHWM = ordinary high water mark

4.5 Fish and Wildlife Habitat Conservation Areas

Long-term effects of the Project are anticipated to be beneficial. The Project would include the permanent removal of structures that currently create artificial shading of the river, provide artificial perches for avian predators, and provide in-water refugia for aquatic predator species. The removal of these prey refugia would improve the habitat conditions for desirable native species, including salmonids and their forage and prey species. Overall, the removal of these artificial structures and encumbrances along the riverbank would result in a net increase in available potential fish and wildlife habitat.

The Project would result in the removal of approximately 18,000 SF (0.4 acre) of shade-producing structures from riverbank overwater areas. In addition, approximately 3,000 SF (0.1 acre) of riverbed structures, including dolphins and piles, that also generate shade within the riverbed would be removed.

Project activities including vegetation disturbance, excavation, and dredging within Camas Slough, the Columbia River, and the shoreline buffers may result short-term temporary effects on fish and wildlife habitat areas. Most of these would be indirect effects from noise and temporary water quality effects.

Operation of construction equipment may result in temporary disturbance of wildlife species behavior and may temporarily reduce wildlife habitat available for use in foraging, nesting, and migrating. Many species would temporarily avoid the immediate demolition area. Disturbance of species and habitat would be short term, occurring over days for the duration of demolition activities, and temporary as these effects would not extend beyond the demolition activities.

Short-term effects of demolition, excavation, dredging, and fill placement include temporary reduction in water quality parameters such as increased turbidity, which may result in temporary disturbance to aquatic species. When functional vegetated wetland areas are filled, immediate biological effects result from the loss of all sediment dwellers, including plants, invertebrates, and other fauna. However, placement of clean sediments within these areas post-dredging/excavation to match existing contours would allow for vegetation to re-establish.

4.6 Indirect Impacts

Elements of the Project that may cause indirect impacts include the following:

- Temporary increase in turbidity and/or pollutants due to sediment disturbance, inadvertent introduction of debris and/or contaminants into the action area (e.g., petroleum products from equipment);
- Temporary disturbance to prey/food sources down or upriver from in-water work activities; and
- Temporary disturbance to migration of adults and outmigration of juveniles using Camas Slough as a thoroughfare to reach the Washougal River.

Short-term impacts of excavation, demolition, dredging, and fill placement include temporary reduction in water quality parameters, such as increased turbidity.

4.7 Channel Hydraulics

Placement of fill within Camas Slough below the OHWM to restore riverbed contours may result in long-term changes that facilitate altered hydraulic flows. The altered flow regime could result in new current patterns to emerge or alter sediment deposition and resultant riverbank vegetation development.

Placement of fill within Camas Slough below the OHWM along the riverbank and at the Berger Crane may change the functional characteristics of the area. For example, the fill could facilitate hydraulic flows that are more closely related to natural flow and create a nearshore shallow area that may become vegetated over the long-term, increasing roughness and deposition. This placement of fill would restore nearshore shallow riverbed contours and might also result in long-term indirect effects to salmonids by facilitating altered hydraulic flows that could result in new current patterns, altered sediment deposition, and establishment of riverbank vegetation and habitat for fauna and prey/food sources, resulting in a net increase in available potential habitat for vegetation and prey/food sources.

Access to areas below the OHWM in Camas Slough and Columbia River would be by barge, so equipment would conduct removal activities and place fill directly in the impact location.

Removal of pilings and structures may result in increased turbidity from disturbance of sediment and could result in increased sediment load from runoff that may enter the Columbia River or Camas Slough. Increased turbidity may result in prey/food sources avoiding area, which would indirectly affect salmonids by relocating their food source or screening food sources.

Sedimentation and turbidity can alter the riparian vegetative structure and primary food production, and could alter the prey/food source population for salmonids. For this project, sedimentation and turbidity impacts would be short term, occurring primarily during the construction phase. Following construction, the aquatic habitat would likely re-equilibrate within hours to conditions suitable for primary food production. Therefore, these potential impacts on water quality are considered temporary, transient indirect effects on salmonids and their habitat.

4.8 Water Quality

Removal of dolphins and pilings would result in temporary disturbance and water quality impacts such as increased sediment, as described above, but would also result in permanent habitat improvement. The action of removing treated wood pilings and dolphins may result in a temporary release of contaminants through disturbance of contaminated sediment and exposure of previously buried treated wood, which can act as fresh creosote upon exposure to oxygen in the water (Seattle Public Utilities 2015). Potential effects on aquatic habitats as a result of disturbance of contaminated sediments are expected to be insignificant based on the age of most of the pilings and would not be discernible on the individual level. Removal of treated pilings and dolphins would remove these sources of contamination. Over the long term, the concentration of contaminants in the sediment would decrease, water quality would improve, and the pathway of exposure for fish through contamination of prey and forage would be reduced. Removal of dolphins and pilings is expected to benefit aquatic habitats in the long term.

4.9 Human Disturbance

In-water disturbance due to human presence and vessels operations during demolition may disturb salmonids and cause them to avoid the Project area. Much of the work is proposed to occur during the approved in-water work window during low-flow conditions. However, salmonids have the potential to occur year-round in the action area and may be migrating through the area during the construction time frame. Therefore, there is potential to encounter and possibly injure individual salmonids during demolition of structures, and removal of debris. These could result in temporary direct impacts on salmonids during construction activities. This risk would be mitigated by performing the in-water work during open work windows when fish are less likely to be present.

4.10 Cumulative Effects

No future state, local, or private activities that are reasonably certain to occur within the action area were identified that would require a cumulative effects analysis. Following removal of the obsolete infrastructure, GP intends to continue to operate the mill located on the site.

5.0 MITIGATION SEQUENCING

The Project would reduce the number of riverbed obstructions, reshape a portion of the riverbank to more shallow slopes, reduce the area of over water shading, and remove piles containing creosote. Also, an area of shallow riverbed will be recreated to match original slopes. However, in accomplishing all of this, several areas will experience direct temporary impacts. Also as mentioned, indirect effects that may result in temporary water quality reduction and an increase in noise are possible.

Regulations protecting aquatic systems require that proposals evaluate approaches to avoid or, if avoidance is not possible, reduce the negative effects of a proposed action. The Project reviewed proposed actions and avoided unnecessary impacts.

5.1 Avoidance

Due to the location of some of the structures to be removed, there are no practicable alternatives that would completely avoid temporary impacts on wetlands or shorelines within the Project footprint.

5.2 Minimization and Best Management Practices

The amount and location of removal activities have been minimized to the extent possible while ensuring the Project implementation and safety objectives are achieved. The Project would be accomplished in a manner that is sensitive and protective of the environment. BMPs will be implemented throughout the Project by first identifying potential detrimental effects and implementing methods that eliminate or reduce the potential effect. These BMPs have been identified for dredging, dredged materials management, vessel operations, piling and dolphin removals, and structure demolition along the riverbank, including construction stormwater management. A list of BMPs, minimization measures, and stormwater management actions designed to avoid, minimize, and mitigate Project impacts to be implemented is provided in **Appendix F**.

5.3 Rectifying Impacts

Riverbed and riverbank reshaping provide new areas of shallow nearshore habitat. The downstream migration of salmon smolts to the ocean is considered a highly vulnerable phase in the Pacific salmon life cycle, accounting for a high proportion of mortality over a short window of time (Notch et al. 2020). Studies conducted upriver from the project in McNary Reservoir and the Hanford Reach found that subyearling Chinook salmon favored water less than 2 meters deep (about 6 feet) with low lateral bed slopes and water velocities less than 0.4 meters per second (Vendetti et al. 1997; Tiffan et al. 2002). These shallow shoreline habitats with low velocities and slopes likely provide refuge from predatory fish that may be too large to enter very shallow water. Subyearling Chinook salmon prefer sandy or small gravel/cobble substrate and avoid complex habitats such as bedrock cliffs and riprap (Key et al.1996; Garland and Tiffan 2002).

Placement of fill within Camas Slough below the OHWM to restore riverbed contours may result in long-term indirect positive effects to salmonids when it results in new riverbank vegetation

development and restored shallow habitat. Increased productive areas for fauna and prey/food sources provides a net increase in available potential habitat salmon.

6.0 SHORELINE CONDITIONAL USE EVALUATION

Should a Conditional Use Permit be required for Project activities where fill placement along the riverbank is considered structural, the Project must demonstrate consistency with the requirements of WAC 173-27-160.

In authorizing Conditional Use Permits, the applicant must demonstrate that the proposal:

- Is consistent with Washington State's Shoreline policy (RCW 58.030) and the master program;
- Will not interfere with the normal public use of public shorelines;
- Use of the site and design of the project is compatible with other authorized uses within the area, with uses planned for the area under the comprehensive plan, and shoreline master program,
- Will cause no significant adverse effect to the shoreline environment in which it is to be located; and
- That public interest suffers no substantial detrimental effect.

The following provides an evaluation of the Project for the above listed conditions.

6.1 Consistent with Washington State's Shoreline Policy and the City Master Program

The Project supports the principal goals of the State and City of Camas Shoreline Master Programs by managing shorelines use to support the natural character of the shoreline through removal of numerous man-made structures. The removal of these structures supports the natural resources and ecological functions of the shoreline, and also allows for continued use by water-dependent users by removing in-water and shoreline obstacles.

The Project meets the goal of maintaining long-term benefit over short-term benefit by removing artificial structures and supporting the return to natural conditions of the shoreline environment, including on public lands leased by WDNR. By removal of artificial structures, the Project will incorporate environmental protection of resources, such as wetlands, fish and wildlife habitat, and riverine watercourses.

The Project is in compliance with the City of Camas' Comprehensive Plan, which identifies requirements for removals of disused structures, and with the policies of the City's Shoreline Management Plan, which implements protections to the shoreline environment.

6.2 Will not interfere with the normal public use of public shorelines

The Project area is zoned for heavy industry, and normal public use of the shorelines is limited to inwater recreation, such as fishing. There are currently no public access points to the Columbia River from either the main Mill parcel or Lady Island. The Project will not create or remove a public access point. The Project will not alter or interfere with normal public use of the shoreline in the Project area.

6.3 Use of the site and design of the project is compatible with other authorized uses within the area, with uses planned for the area under the comprehensive plan, and shoreline master program

The Project is in a major industrial location with an operational paper mill. The Project would be implemented without disruption to mill operations.

Waterfront operations at the Mill have already ceased and no uses are currently planned. The Project does not propose new uses or redevelopment of any new structures. The Project removes the capability for industrial waterfront operations to resume in the future.

If any other plans are made in the future, those proposals would be subject to review and approvals under federal, state, and local regulations at that time.

6.4 Will cause no significant adverse effect to the shoreline environment in which it is to be located

The Project will cause no significant adverse effect as the Project will provide a benefit to the shoreline environment by removing river obstructions, removing creosote pilings, removing debris, reducing the amount of overwater shading, reducing avian predator perches and in-water predator refugia, and providing new shallow nearshore habitat. While some sediment disturbance is likely during structure removals and reestablishing topography, the effects would be temporary and transient and BMPs would be implemented to mitigate potential effects.

6.5 That public interest suffers no substantial detrimental effect

The welfare of the public is protected by implementation of the Project because the results are beneficial and are distributed to everyone. When obsolete and unused major infrastructure is removed from the river and its shoreline, long-term benefits accrue to the river ecosystem. Removal of infrastructure that is no longer used increases safety for the public accessing the waterway.

7.0 CONCLUSIONS

The proposed Project is located within the OHWM of the Columbia River and Camas Slough.

All Project areas are within the City of Camas and Clark County Shoreline Management Areas. The entire study area is within the floodway (in-water structures) or floodplain (overwater structures) of the Columbia River and Camas Slough.

The results of the OHWM determination indicated that the biological OHWM elevation along the shoreline was indicated by a shift in plant community, soil characteristics, and presence of wrack. An average elevation was estimated for OHWM for all areas covered by structures to be removed. The elevation was determined to be +16.5 feet (CRD).

Wetland conditions were observed within the proposed Project area. Seven wetlands were delineated within the study area. All wetland areas were classified as Class II, tidal riverine wetlands. Per CMC Table 16.53.040-1, given these wetlands were rated as Category II with habitat scores of 6 points and a high-intensity land use, the standard buffer width is 180 feet. Because of the location of the wetlands, the wetland buffer areas for all wetlands are entirely within the 200-foot Shoreline Area. No activities and no impacts are anticipated to occur within Wetlands 1, 2, 3, 4, 5, 6, or 7.

Structure removals, excavation/dredging, and vegetation disturbance activities would temporarily impact the Shoreline Area; however, most of this impacted area is currently covered by structures. Dredging and filling activities would occur below the OHWM within the Camas Slough for the demolition and removal of structures, as well as dolphins and piles; and below the OHWM of the Columbia River mainstem for the removal of dolphins and piles. Mitigation sequencing was followed to minimize the effects of the Project.

At the Berger Crane foundation location, clean materials will be used to cover the retained lower columns, creating river bottom contours that match the natural nearshore shallow riverbed in this previously dredged location. Following the removal of structures, the riverbank on the main Mill parcel will be reshaped to shallower slopes (5 to 1 and 4 to 1) replacing the covered steep riverbank.

Work would occur during Agency-approved construction work windows.

It is anticipated that the Project will require approvals from the City of Camas, Clark County, Ecology, WDNR, and WDFW, as well as permits and approvals to comply with the CWA Sections 404 and 401 and the Section 10 of the Rivers and Harbors Act through USACE and Ecology.

To be eligible for a Conditional Use approval for structural shoreline bank stabilization, the applicant must demonstrate consistency with WAC 173-27-160.

8.0 LIMITATIONS

Wetland and stream delineations and determinations are based upon protocols defined in manuals and publications produced by federal, state, and local agencies. The wetland methodology used in this report is consistent with methods described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (USACE 2010) and the *Corps of Engineers Wetland Delineation Manual* (USACE 1987).

The wetland boundaries, classification, ratings, and jurisdictional assessments described herein are the professional opinion of Wood and Tetra Tech staff based on the circumstances and site conditions at the time of this study. These professional opinions have been developed in a manner consistent with the care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in our signed proposal.

These findings are considered preliminary until local, state, or federal jurisdictions make verification of jurisdiction and confirm the wetland determination, boundary locations, and classifications. No guarantees are given that determinations or functional assessments, or ratings will concur with those performed by regulatory agencies or other qualified professionals.

This report is provided for the use of GP and regulatory authorities with jurisdiction over the ecosystems, species, and geographic area covered herein. It is not intended for use by other parties for any other purpose.

9.0 **REFERENCES**

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FIGURES



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	Camas Slough Wastewater T.	reatment Plant	SR-14
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 Structure To Be Removed '' City Boundary Dolphin To Be Removed County Boundary Stream/River Tax Lot 	Tetra Tech	TETRA TECH	CAMA STR







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	340,088 SF (7.81 ACRE) CUT = 32,676 CY FILL = 20,788 CY	ENOUSE, AND PIERS.
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APPENDIX A: SITE AND STRUCTURES PHOTOGRAPHS
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Photograph 1. Truck Dock which is supported by approximately 220 pilings constructed from wood and pipe.



Photograph 2. Conveyer housing in the vicinity of the Truck Dock, PECO Dock, and Dock Warehouse



Photograph 3. Dock Warehouse situated between the Truck Dock and PECO Dock and supported by approximately 800 piles, with foundations on the riverbank side.



Photograph 4. Three piers extend from the Dock Warehouse that are supported by 54 concrete piles along with 21 carbon steel pipe piles. Three guidance dolphins are arranged at the end of the piers.



Photograph 5. The PECO Dock, supported by approximately 400 wood piles.



Photograph 6. Concrete footing from the Berger Crane gantry.







Photograph 9. Aboveground storage tank, a 40,000-gallon steel oil tank that has been previously cleaned and disconnected.

APPENDIX B: WETLAND FIELD INVESTIGATION METHODOLOGY

WETLAND INVESTIGATION METHODS

Wetland invetigation methods follow requirements of the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (1987) along with the Regional Supplement to the manual for western mountains, valleys, and coastal regions (2010). Also, the City of Camas Shoreline Code was reviewed and requirements followed.

Prior to the field investigation, available site information was reviewed to identify documented wetlands, streams, or other site characteristics (e.g., vegetation patterns, topography, soils, or aquatic areas) that would indicate the presence of critical areas and shoreline areas within the study area.

Wetlands were identified and compared with wetlands mapped by the National Wetlands Inventory (NWI; USFWS 2019), and City of Camas and Clark County databases (City of Camas 2019a; Clark County 2019). Characteristics of wetlands in the study area, if any, were recorded.

Wetlands were rated following the Washington State Department of Ecology Wetland Rating System (Hruby 2014).

Wetlands in the study area were identified and delineated based on the parameters described in **Table B-1**.

Wetland Plant Community

Wetland plant communities were identified following standard procedures. Individual plant species were identified and the relative percent cover for each species was evaluated. The indicator status, prevalence test, and 50/20 Rule were used to determine the presence of wetland vegetation. An area was considered to have wetland vegetation if more than 50 percent of the dominant species had an indicator status of FAC, FACW, or OBL. Definitions of indicator status are presented in **Table B-2**. Scientific nomenclature of all plant species follows that of the PLANTS database (NRCS 2019).

Hydric Soil

Hydric soils are defined as being saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile. Hydric soils exhibit certain characteristics that can be observed in the field (see **Table B-1**).

Soil samples were obtained in representative areas by digging a pit to a depth of at least 18 inches. Soil samples were then examined for hydric indicators. Organic content was estimated visually and texturally. Sulfidic material was determined by the presence of sulfide gases (rotten-egg odor), and soil colors were evaluated against a Munsell soil color chart (Munsell Color 2018).

Wetland Hydrologic Conditions

While wetlands are defined in part by the presence of water, water does not need to be present throughout the entire year for an area to be considered a wetland. Wetland hydrologic conditions are present when an area is either permanently or temporarily inundated, or when the soil is saturated for a significant period (usually a week or more) during the growing season under normal conditions (USACE 1987).

In-Water and Overwater Structures Removal Project

Parameter	Definition and Indicators
Wetland vegetation	 Dominant vegetation consists of wetland-adapted plant species, based on one or more of the following indicators: Dominance Test: more than 50 percent of dominant vegetation is of facultative, facultative wetland, or obligate status as determined from the National List of Plant Species Occurring in Wetlands, or Prevalence Index: Prevalence index is 3.0 or less. The prevalence index is a weighted average that takes into account plant abundance and indicator status; or Plant morphological conditions are evident, or More than 50 percent of the total coverage of bryophytes consists of wetland-associated species.
Hydric soils	 A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding that persist long enough during the growing season to develop anaerobic conditions in the upper part. Hydric soils generally exhibit one or more of the following characteristics: Histosol (highly organic soil); Histic epipedon (organic soil surface layer); Sulfidic material (rotten-egg odor); and Soil iron and manganese reduction, translocation, and accumulation.
Wetland hydrologic conditions	 Wetland hydrologic conditions are indicated by one or more of the following: Surface inundation visible on ground or aerial imagery; Standing water or saturated soils in a soil pit at or above a depth of 12 inches for fine-textured soil; Oxidized rhizospheres along living roots; Presence of reduced iron; Dry-season water table between 12 and 24 inches, or shallow aquitard; Iron deposits; Surface soil cracks; Water marks on vegetation; Drift lines; Waterborne sediment deposits; Water-stained or surface-scoured leaves; Algal mats; Sparsely vegetated concave surface; Geomorphic position; FAC-neutral test; Salt crust; Hydrogen sulfide odor; Aquatic invertebrates; Raised ant mounds; Wetland drainage patterns; and Stunted or stressed plants

Table B-1. Wetland Indicators

Table B-2. Definitions of Indicator Status

Indicator Symbol	Definition
OBL	Obligate. Species that usually occur in wetlands (estimated probability >99%) under natural conditions.
FACW	<i>Facultative wetland.</i> Species that usually occur in wetlands (estimated probability 67 to 99%), but occasionally are found in uplands.
FAC	Facultative. Species that are equally likely to occur in wetlands or uplands (estimated probability 34 to 66%).
FACU	<i>Facultative upland</i> . Species that usually occur in uplands (estimated probability 67 to 99%), but occasionally are found in wetlands.
UPL	Upland. Species that usually occur in uplands under normal conditions (estimated probability >99%).
NL	<i>Not Listed.</i> Species was not included in evaluation and does not have an indicator status. More often occurs with plant species that would be categorized as UPL if they had been included in the evaluation.
NI	No indicator. Species for which insufficient information was available to determine an indicator status.
Source: Melvin et al. (20	16)

Primary indicators of wetland hydrology generally include areas of ponding or soil saturation, and evidence of previous water inundation or saturation (i.e., watermarks, drift lines, sediment deposits, and oxidized root channels). Secondary indicators include, but are not limited to, wetland drainage patterns, geomorphic position, and raised ant mounds (see **Table B-1**). Where positive indicators were observed, wetland hydrology was assumed to occur during the growing season long enough to result in wetland conditions.

Growing Season

Vegetation and hydrologic indicators are dependent upon conditions during the growing season. The growing season, as defined by the Regional Supplement (USACE 2010), is when non-evergreen plants show biological activity (plant growth) and/or soil temperature at 12 inches below ground surface is 41 degrees Fahrenheit or higher (USACE 2010). The field investigation occurred in July during the growing season for this location.

WETLAND IDENTIFICATION AND DELINEATION REFERENCES

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APPENDIX C: WETLAND FIELD DATA SHEETS

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

Project Site:	<u>GP Cam</u>	nas Mil	<u>l</u>			С	ity/County:	Cam	nas/Cla	ark_	Sampling D	ate:	7/22	2/20	
Applicant/Owner:	<u>Georgia</u>	-Pacifi	c Consumer Ope	erations	LLC Camas					State: <u>WA</u>	Sampling P	oint:	WL	7	
Investigator(s):	Theresa	Price,	Cheyenne Ginth	ner				S	ection,	Township, Rang	ge: <u>S11, T1</u>	N, R3E			
Landform (hillslope, te	errace, etc	.):	<u>Riverbank</u>			Local reli	ef (concave	e, conve	ex, nor	ne): <u>none</u>		Slope	e (%):	<u>1%</u>	
Subregion (LRR):	LRR A			Lat	: <u>45.579623</u>			Long:	<u>-122</u>	409093		Datum:			
Soil Map Unit Name:	NbB - I	Newbe	erg Silt Loam, 3-8	3% slop	es					NWI clas	sification:	PEM1R			
Are climatic / hydrolog	gic conditio	ons on	the site typical for	or this t	ime of year?	Yes	\boxtimes	No		(If no, explain i	n Remarks.)				
Are Vegetation	, Soil	□,	or Hydrology	□,	significantly d	isturbed?	Are "No	rmal Ci	rcums	tances" present?)	Yes	\boxtimes	No	
Are Vegetation	, Soil	□,	or Hydrology	□,	naturally prob	lematic?	(If need	ed, exp	lain ar	iy answers in Re	marks.)				

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

Hydrophytic Vegetation Present?	Yes	\boxtimes	No						
Hydric Soil Present?	Yes	\boxtimes	No		Is the Sampled Area within a Wetland?	Yes	\boxtimes	No	
Wetland Hydrology Present?	Yes	\boxtimes	No						
Bomarka: Diverbank at water's adap (Compo Slough)	wotland	ovton	dod in	to rive	r (permanent flow) and included esturated area further up be	nk at ti	no of	oito vii	ait

Remarks: Riverbank at water's edge (Camas Slough), wetland extended into river (permanent flow) and included saturated area further up bank at time of site visit.

VEGETATION – Use scientific names of plants						
<u>Tree Stratum</u> (Plot size: <u>10 x 10</u>)	Absolute <u>% Cover</u>	Dominant Species?	Indicator <u>Status</u>	Dominance Test Worksheet:		
1. <u>N/A</u>				Number of Dominant Species	2	(Δ)
2				That Are OBL, FACW, or FAC:	<u> </u>	(,,)
3				Total Number of Dominant	2	(B)
4				Species Across All Strata:	_	
50% =, 20% =	<u>0</u>	= Total Cover	-	Percent of Dominant Species	100%	(A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>5 x 5</u>)				That Are OBL, FACW, OF FAC.		
1. <u>Amorpha fruiticosa</u>	<u>10</u>	<u>ves</u>	FACW	Prevalence Index worksheet:		
2				<u>Total % Cover of:</u>	Multiply by:	
3				OBL species	x1 =	
4				FACW species	x2 =	
5				FAC species	x3 =	
50% = <u>5</u> , 20% = <u>2</u>	<u>10</u>	= Total Cover	r	FACU species	x4 =	
<u>Herb Stratum (</u> Plot size: <u>3 x 3</u>)				UPL species	x5 =	
1. <u>Phalaris arundinacea</u>	<u>90</u>	yes	FACW	Column Totals: (A)		(B)
2. Polygonum lapathifolium	<u>1</u>	no	FACW	Prevalence Index = B/A =		
3. <u>Equisetum L.</u>	<u>1</u>	no	FACW	Hydrophytic Vegetation Indicators:		
4				1 – Rapid Test for Hydrophytic Vegetati	on	
5				☑ 2 - Dominance Test is >50%		
6				\Box 3 - Prevalence Index is $\leq 3.0^1$		
7				4 - Morphological Adaptations ¹ (Provide	supporting	
8				data in Remarks or on a separate sh	eet)	
9				5 - Wetland Non-Vascular Plants ¹		
10				Problematic Hydrophytic Vegetation ¹ (E	xplain)	
11.					. ,	
50% = <u>45,</u> 20% = <u>18</u>	92	= Total Cover	r	¹ Indicators of hydric soil and wetland hydrolog	gy must	
Woody Vine Stratum (Plot size: <u>5 x 5)</u>				be present, unless disturbed of problematic.		
1. <i>N/A</i>						
2.				Hydrophytic		
50% = . 20% =	0	= Total Cover	- <u></u>	Vegetation Yes 🖂	No	
% Baro Ground in Horb Stratum 5	-			Present?		
		vinundated 11	-30 \\			
Remarks: Common spikerush in lower eleval	ion - currenti	y munualeu 11	.50 AIVI.			

Project Site: <u>GP Camas Mill</u>

SOIL

SOIL	SOIL Sampling Point: <u>WL 7</u>															
Profile	e Descriptior	n: (Describe t	o the depth	needed to d	ocumer	nt the indica	tor or conf	firm the abse	ence	of indica	tors.)					
De	pth	Matrix				Redox Fe	atures									
(inche	s) Col	lor (moist)	%	Color (mo	oist)	%	Type ¹	Loc ²	_	Texture	e			Remarks	6	
<u>0</u> -	<u>.7 1</u>	0 YR 3/1	<u>25</u>	<u>10 YR 4</u>	/3	<u>10</u>	<u>C</u>	M		Clay-Lo	<u>am</u>	Roots				
<u>0</u> -	<u>.7 1</u>	<u>0 YR 2/1</u>	<u>65</u>							<u>Clay-lo</u>	<u>am</u>					
<u>7-</u>	<u>18 1</u>	<u>0 YR 3/1</u>	<u>65</u>	<u>10 YR 4</u>	<u>/3</u>	<u>30</u>	<u>C</u>	M		<u>Clay-lo</u>	<u>am</u>	Roots				
7-	<u>18 1</u>	<u>0 YR 2/1</u>	<u>5</u>							<u>Clay-lo</u>	<u>am</u>					
											_					
											_					
											_					
											_					
¹ Type:	C= Concenti	ration, D=Depl	etion, RM=I	Reduced Matr	ix, CS=0	Covered or C	oated San	d Grains.	² Loc	cation: PL	=Pore	Lining, M	I=Matrix			
Hydric	c Soil Indicat	ors: (Applica	ble to all L	RRs, unless	otherwis	se noted.)				Ind	icator	s for Prol	olematic I	Hydric S	ioils³:	
	Histosol (A1)				Sandy	Redox (S5)					2 c	m Muck ((A10)			
	Histic Epiped	on (A2)			Strippe	ed Matrix (S6	6)				Re	d Parent	Material (TF2)		
	Black Histic (/	A3)			Loamy	/ Mucky Mine	eral (F1) (e :	xcept MLRA	1)		Ve	ry Shallov	v Dark Su	rface (T	=12)	
\boxtimes	Hydrogen Su	lfide (A4)			Loamy	/ Gleyed Mat	rix (F2)				Ot	her (Expla	ain in Rem	narks)		
	Depleted Belo	ow Dark Surfa	ce (A11)	\boxtimes	Deplet	ed Matrix (F	3)									
	Thick Dark Su	urface (A12)			Redox	Dark Surfac	e (F6)									
	Sandy Mucky	Mineral (S1)			Deplet	ed Dark Sur	face (F7)			³ Ind	licators	s of hydro	phytic veg	getation a	and +	
	Sandy Gleye	d Matrix (S4)			Redox	Depression	s (F8)			1 1	unless	disturbed	l or proble	matic.	ι,	
Restri	ctive Layer (if present):														
Type:																
Depth	(inches):							Hydric Soi	ls Pr	esent?			Yes	\boxtimes	No	
Rema	rks: River	bank deposite	d sediments	s. Very fine gr	it.											

HYDROLOGY

Wetl	and Hydrology Indicate	ors:											
Prim	ary Indicators (minimum	of one re	equired	; check	all that	apply)	Secondary Indicators (2 or more required)						
\boxtimes	Surface Water (A1)					Water-Stained Leaves (B9)	C	Water-Stained Leaves (B9)					
\boxtimes	High Water Table (A2))				(except MLRA 1, 2, 4A, and 4B)		(MLRA 1, 2, 4A, and 4B)					
\boxtimes	Saturation (A3)					Salt Crust (B11)		Drainage Patterns (B10)					
	Water Marks (B1)					Aquatic Invertebrates (B13)		Dry-Season Water Table (C2)					
	Sediment Deposits (B	2)			\boxtimes	Hydrogen Sulfide Odor (C1)		Saturation Visible on Aerial Imagery (C9)					
	Drift Deposits (B3)					Oxidized Rhizospheres along Living Roots (C3)	5) 🗵	Geomorphic Position (D2)					
	Algal Mat or Crust (B4)				Presence of Reduced Iron (C4)		Shallow Aquitard (D3)					
	Iron Deposits (B5)					Recent Iron Reduction in Tilled Soils (C6)		FAC-Neutral Test (D5)					
	Surface Soil Cracks (E	36)				Stunted or Stresses Plants (D1) (LRR A)		Raised Ant Mounds (D6) (LRR A)					
	Inundation Visible on A	Aerial Ima	agery (E	37)		Other (Explain in Remarks)		Frost-Heave Hummocks (D7)					
	Sparsely Vegetated C	oncave S	Surface	(B8)									
Field	Observations:												
Surfa	ace Water Present?	Yes	\boxtimes	No		Depth (inches):							
Wate	er Table Present?	Yes	\boxtimes	No		Depth (inches): <u>6</u>							
Satu (inclu	ration Present? ides capillary fringe)	Yes	\boxtimes	No		Depth (inches): <u>1</u> Wet	tland H	Hydrology Present? Yes 🛛 No 🗌					
Desc	ribe Recorded Data (str	eam gau	ge, moi	nitoring	well, a	erial photos, previous inspections), if available:							
Rem	arks: Wetland fringe	e along C	amas S	Slough.	Embay	ment on shore (semi protected from flows)							

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

Project/Site: Camas Mill – Along Camas Slough, Columbia River City/County:	: <u>Camas</u> Sampling Date: <u>July 16, 2019</u>
Applicant/Owner: <u>Georgia Pacific, Inc.</u>	State: <u>WA</u> Sampling Point: <u>DP1</u>
Investigator(s): Kristie Dunkin & Gregory McCormick Section, Township, Range:	: Section 47, Township 1N, Range 3E, Washington Meridian
Landform (hillslope, terrace, etc.): Riverbank Local relief (concave	e, convex, none): Concave to flat Slope (%): $0 - 15\%$
Subregion (LRR): <u>A2 – Willamette and Puget Sound Valleys</u> Lat: <u>45.5801</u>	Long: <u>-122.4036</u> Datum: <u>NAD 83</u>
Soil Map Unit Name: Sauvie Silt Loam, Sandy Substratum, 0 to 3 percent slopes/Wa	ter/Fill land NWI classification: <u>None</u>
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X	No(If no, explain in Remarks.)
Are Vegetation Soil or Hydrology significantly disturbed?	Are "Normal Circumstances" present? Yes <u>X</u> No
Are Vegetation Soil or Hydrology naturally problematic?	(If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No		
Hydric Soil Present?	Yes X	No	Is the Sampled Area	
Wetland Hydrology Present?	Yes X	No	within a Wetland?	Yes <u>X</u> No

Remarks: Wetland is a sedge wetland at the base of a steep bank. Invasive false indigo shrubs are present. Upland deciduous forested vegetation overhangs wetland. A few Oregon Ash present in wetland and data plot taken beneath one of these; however this is the exception and the wetland is classified as emergent. Adjacent upland is has a stripe of Cottonwood trees and weedy species before becoming asphalt.

VEGETATION – Use scientific names of plants.

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30 ft</u>)	% Cover	Species?	Status	Number of Dominant Species
1. Fraxinus latifolia	100	Yes	FacW	That Are OBL, FACW, or FAC:3(A)
2. Populus balsamifera ssp. trichocarpa (rooted outside)	30			Total Number of Dominant
3				Species Across All Strata: 3 (B)
4.				· · · · · · · · · · · · · · · · · · ·
	130	= Total Cov	er	Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: <u>10 ft</u>)				Prevelence Index workshoet
1. <u>Amorpha fruticosa</u>	30	Yes	FacW	T the construction of the
2				I otal % Cover of: Multiply by:
3.				OBL species <u>1</u> x 1 = <u>1</u>
4				FACW species2 x 2 =4
5	·	·		FAC species x 3 =
0	30	- Total Cov	or	FACU species x 4 =
Herb Stratum (Plot size: 5 ft)		- 10141 000	CI	UPL species x 5 =
1. Carex aquatilis	50	Yes	Obl	Column Totals: <u>3</u> (A) <u>5</u> (B)
2.				Dravelance index = $D/A = -5/2 = 4.00$
3		· · ·		Prevalence index = $B/A = \frac{5/3 = 1.66}{2}$
4				Hydrophytic Vegetation Indicators:
5				1 - Rapid Test for Hydrophytic Vegetation
5			,	X 2 - Dominance Test is >50%
7				X 3 - Prevalence Index is ≤3.0 ¹
· · · · · · · · · · · · · · · · · · ·				4 - Morphological Adaptations ¹ (Provide supporting
8:		······································		data in Remarks or on a separate sheet)
9	. <u> </u>			5 - Wetland Non-Vascular Plants ¹
10			,	Problematic Hydrophytic Vegetation ¹ (Explain)
11	<u> </u>			¹ Indicators of hydric soil and wetland hydrology must
	50	= Total Cove	er	be present, unless disturbed or problematic.
1. <u>none present</u>				Hydrophytic
2		<u> </u>		Vegetation
% Baro Ground in Horb Stratum 10	0	= Total Cov	/er	Present? Yes <u>X</u> NO
Pomerke: Vegeteted wetland area lageted riverbank of Co	maa Sloval	n Indian hua	h on invo	aive encoire is present. Above wetland, riverbank is

Remarks: Vegetated wetland area located riverbank of Camas Slough. Indigo bush, an invasive species is present. Above wetland, riverbank is steeply sloped and formed of rock/fill with blackberry and cottonwood trees. Other species present, but not within data plot, include sneeze weed and a patch of redosier dogwood.

SOIL								Sampling	g Point: <u>DP1</u>		
Profile Des	cription: (Describe	to the dep	th needed to docu	ment the	indicator	or confirm	the absence	of indicator	rs.)		
Depth	Matrix		Redo	x Feature	es						
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks		
0 - 8"	2.5Y 6/1 & 4/1	80	10 YR 5/3	10	С	PL, M	SiL	Silt Loar	m		
			10 YR 8/1	10	С	PL, M	SiL				
<u> </u>	2.5Y 5/3	100					SiL	Silt Loar	n		
		·									
		·									
		·									
<u> </u>		·									
¹ Type: C=C	concentration, D=Dep	letion, RM	Reduced Matrix, C	S=Covere	d or Coate	ed Sand Gr	ains. ² Loo	cation: PL=P	Pore Lining, M=N	<u>/atrix.</u>	
Hydric Soil	Indicators: (Applic	able to all	LRRS, unless othe	rwise no	ted.)		Indicato	ors for Probl	ematic Hydric	Solls":	
Histoso	I (A1)		Sandy Redox (S5)			2 cr	n Muck (A10)		
Histic E	pipedon (A2)		Stripped Matrix	: (S6)			Red Parent Material (1F2)				
Black H	listic (A3)		Loamy Mucky I	Mineral (F	1) (except	: MLRA 1)	Very Shallow Dark Surface (TF12)				
Hydrog	en Sulfide (A4)		Loamy Gleyed	Matrix (F	2)		Other (Explain in Remarks)				
Deplete	d Below Dark Surfac	e (A11)	X Depleted Matri	x (F3)							
Thick D	ark Surface (A12)		Redox Dark Su	Irface (F6)		³ Indicato	ors of hydrop	hytic vegetation	and	
Sandy I	Mucky Mineral (S1)		Depleted Dark	Surface (F7)		wetla	nd hydrolog	/ must be prese	nt,	
Sandy (Gleyed Matrix (S4)		Redox Depress	sions (F8)	,		unles	s disturbed o	or problematic.		
Restrictive	Layer (if present):			. ,							
Type: R	ock						Hydric Soil	Present?	Yes X	No	
Depth (in	iches): 12"										
Remarks: Soil is formed from a mixture of fill and sediments deposited by river action. Redox features are clear and abundant with several colors of concentrations. Indictor F3, Depleted Matrix is met. Soil texture contains a large fraction of silt, but fine and very fine sand are a noticeable (less than 50%) contribution. Organic matter not over abundant at data plot however, where sedges are very abundant a 1 to 5 inch organic layer above the mineral layer is present. This organic layer appears to be washed away wherever indigo bush has taken hold and shades out sedge. Rocky											
substratum	present below 12 incl	nes.									

HYDROLOGY

Wetland Hydrology Indicators:									
Primary Indicators (minimum of one required; check	Secondary Indicators (2 or more required)								
X Surface Water (A1)	_ Water-Stained Leaves (B9) (except	Water-Stained Leaves (B9) (MLRA 1, 2,							
High Water Table (A2)	MLRA 1, 2, 4A, and 4B)	4A, and 4B)							
X Saturation (A3)	_ Salt Crust (B11)	Drainage Patterns (B10)							
Water Marks (B1)	_ Aquatic Invertebrates (B13)	Dry-Season Water Table (C2)							
X Sediment Deposits (B2)	_ Hydrogen Sulfide Odor (C1)	Saturation Visible on Aerial Imagery (C9)							
X Drift Deposits (B3)	_ Oxidized Rhizospheres along Living Roo	ots (C3) Geomorphic Position (D2)							
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	Shallow Aquitard (D3)							
Iron Deposits (B5)	_ Iron Deposits (B5) Recent Iron Reduction in Tilled Soils (C6)								
Surface Soil Cracks (B6)) Raised Ant Mounds (D6) (LRR A)								
X Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	Frost-Heave Hummocks (D7)							
Sparsely Vegetated Concave Surface (B8)									
Field Observations:									
Surface Water Present? Yes X No	Depth (inches): <u>River</u>								
Water Table Present? Yes X No	Depth (inches): <u>12 inches</u>								
Saturation Present? Yes X No (includes capillary fringe)	Depth (inches): <u>At surface</u> Wetl	and Hydrology Present? Yes <u>X</u> No							
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Aerial photographs do not show sedge wetland due to overhanging upland trees in this reach of the slough. Surface water of slough less than 2 feet from data plot center.									
Remarks:									
Wetland 1 is a narrow, riverine, sedge dominated wetland on the Camas Slough. Sedges are present except in locations where false indigo bush has taken hold. Camas Slough is a large side-slough channel formed by Lady Island on the Columbia River. In this reach, water elevations are primarily controlled by upriver releases at the Bonneville dam, especially during the summer. Diurnal tidal range is approximately 1 foot.									

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

Project/Site: <u>Camas Mill – Along Camas Slough, Columbia River</u> City/County: <u>Camas</u> Sampling Date: <u>July 16, 2019</u>								
Applicant/Owner: <u>Georgia-Pacific Consumer Operations, LLC</u> State: <u>WA</u> Sampling Point: <u>DP2</u>								
nvestigator(s): Kristie Dunkin & Gregory McCormick Section, Township, Range: Section 47, Township 1N, Range 3E, Washington Meridian								
Landform (hillslope, terrace, etc.): <u>Riverbank</u> Local relief (concave, convex, none): <u>Concave to flat</u> Slope (%): <u>0 – 15%</u>								
Subregion (LRR): <u>A2 – Willamette and Puget Sound Valleys</u> Lat: <u>45.5810</u> Long: <u>-122.4047</u> Datum: <u>WGS 84</u>								
Soil Map Unit Name: <u>Sauvie Silt Loam, Sandy Substratum, 0 to 3 percent slopes/Water/Fill land</u> NWI classification: None								
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No	(If no, explain in Remarks.)							
Are Vegetation, Soil, or Hydrology significantly disturbed? Are "I	Normal Circumstances" present? Yes X No							
Are Vegetation, Soil, or Hydrology naturally problematic? (If new	eded, explain any answers in Remarks.)							

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> Yes <u>X</u> Yes <u>X</u>	No No No	Is the Sampled Area within a Wetland?	Yes <u>X</u>	<u> </u>	No	
Remarks: Riverine wetland vegetated with sedge and indigo bush on Camas Slough.							

VEGETATION – Use scientific names of plants.

	Absolute	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>30 ft</u>)	% Cover	Species?	Status	Number of Dominant Species
1. None				That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: <u>2</u> (B)
4				Demont of Dominant Species
		= Total Co	ver	That Are OBL, FACW, or FAC: 100 (A/B)
Sapling/Shrub Stratum (Plot size: 10 ft.)				Prevalence Index worksheet:
1. <u>Amorpha fruticosa</u>	10	Yes	FacW	Total % Cover of: Multiply by:
2	<u> </u>			
3				
4				FACW species $1 \times 2 = 2$
5.				FAC species x 3 =
	10	= Total C	over	FACU species x 4 =
Herb Stratum (Plot size: <u>5 ft.</u>)				UPL species x 5 =
1. <u>Helenium autumnale</u>	5		FacW	Column Totals: <u>2</u> (A) <u>3</u> (B)
2. <u>Carex aquatilis</u>	60	Yes	Obl	Prevalence Index = $B/A = -3/2 = 1.5$
3. <u>Carex sp.</u>	20			Hydrophytic Vegetation Indicators:
4.				X 1 - Ranid Test for Hydrophytic Vegetation
5				X_{-} 2 - Dominance Test is >50%
6				X 2 Dominance results > 50 / 0
7	·			$\underline{\times}$ 3 - Prevalence index is $\leq 3.0^{\circ}$
8				4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet)
0				5 - Wetland Non-Vascular Plants ¹
10				Problematic Hydrophytic Vegetation ¹ (Explain)
10				¹ Indicators of hydric soil and wetland hydrology must
11	05	- Tatal C		be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)	65	$_=$ Total Co	over	
1				Hudron hutin
2				Vegetation
L		- Total Cov		Present? Yes X No
% Bare Ground in Herb Stratum25		- 10tai C01		
Remarks: Vegetated wetland area on riverbank of Camas	Slough. Ind	digo bush, a	n invasive	species is present. Above wetland, bank is armored with

large rock and supports limited weedy vegetation. Few trees grow between the old armoring. Sedge wetland vegetation currently dense in patches only. One 4- to 6-inch high finely leafed sedge not in bloom and unable to ID. Browse by deer and geese common based on conditions of vegetation.

Exhibit 5 SHOR23-01

SOIL								Sampling Point: <u>DP 2</u>			
Profile Des	cription: (Describe t	o the depth ne	eded to docur	ment the i	ndicator	or confirm t	he absence	of indicators.)			
Depth	Matrix		Redo	x Feature	<u>s</u>		-	- .			
(inches)	Color (moist)	<u> % </u>	olor (moist)	%	lype'	Loc ²	lexture	Remarks			
0 to 3"	<u>10 Y 4/1</u>	<u>90 10 Y</u>	′R 4/3	10	<u> </u>	PI, M	SiL				
3 to 10"	10 YR 4/3	<u>75</u> <u>10</u> `	YR 5/1 & 6/1	25	D	PI, M	SiL				
10"+				<u> </u>				Too rocky to dig			
						<u> </u>					
¹ Type: C=C	oncentration, D=Depl	etion, RM=Redu	uced Matrix, CS	S=Covered	d or Coate	d Sand Grair	ns. ² Lo	cation: PL=Pore Lining, M=Matrix.			
Hydric Soil	Indicators: (Applica	ble to all LRRs	s, unless othe	rwise not	ed.)		Indicato	ors for Problematic Hydric Soils ³ :			
Histoso	l (A1)	— 5	Sandy Redox (S5)			2 cr	m Muck (A10)			
HISTIC E	pipedon (A2)	— `	Stripped Mucky	(SD) Minoral (Er	1) (oxcont			y Shallow Dark Surface (TE12)			
Hydroge	Suc (A3)	'	_oamy Gleved	Matrix (F2		WILKA I)	Ver	er (Explain in Remarks)			
Nenlete	d Below Dark Surface	(A11) [Depleted Matrix	(F3))		Oui				
Thick D	ark Surface (A12)	<u> </u>	Redox Dark S	urface (F6)		³ Indicato	ors of hydrophytic vegetation and			
Sandy M	Mucky Mineral (S1)		Depleted Dark	Surface (F	, 7)		wetland hydrology must be present,				
Sandy (Gleyed Matrix (S4)	I	Redox Depress	sions (F8)			unless disturbed or problematic.				
Restrictive	Layer (if present):										
Type: <u>R</u>	locks										
Depth (in	ches): <u>10 inches</u>						Hydric Soil	Present? Yes <u>X</u> No			
Remarks: S data plot apj to no organi	oils show clear patter pears to be largely fro c buildup in the soils e	n of reduction/o m river depositi except at locatio	xidation of iron on, other portio ns where sedg	and other ons of wetl les are der	minerals. and appea nse. Rocks	Soil is fine n ar to have so s at 10 inche	naterials (sil il derived or s prevent de	ts) with less than 50% fine sands. Soil a influenced by adjacent upland fill. Little seper exploration.			
IYDROLO	GY										
Wetland Hy	drology Indicators:										
Primary Indi	cators (minimum of or	ne required; che	eck all that appl	y)			Seco	ndary Indicators (2 or more required)			
X Surface	e Water (A1)		Water-Sta	ined Leav	es (B9) (e	xcept	Water-Stained Leaves (B9) (MLRA 1, 2				
High Wa	ater Table (A2)		MLRA	1, 2, 4A, a	and 4B)			4A, and 4B)			
X Saturat	ion (A3)		Salt Crust (B11)					Drainage Patterns (B10)			
X Water M	/larks (B1)		Aquatic Invertebrates (B13)					Dry-Season Water Table (C2)			
X Sedime	ediment Deposits (B2) Hydrogen Sulfide Odor (C1)						s	Saturation Visible on Aerial Imagery (C9)			
Drift De	posits (B3)	osits (B3) Oxidized Rhizospheres along Living Roo						Geomorphic Position (D2)			
Algal M	_ Algal Mat or Crust (B4) Presence of Reduced Iron (C4)						s	Shallow Aquitard (D3)			
Iron De	posits (B5)		Recent Iro	on Reducti	on in Tilleo	d Soils (C6)	F	AC-Neutral Test (D5)			
Surface	Soil Cracks (B6)		Stunted or	r Stressed	Plants (D	1) (LRR A)	F	Raised Ant Mounds (D6) (LRR A)			
Inundat	ion Visible on Aerial Ir	nagery (B7)	Other (Exp	olain in Re	marks)		F	rost-Heave Hummocks (D7)			
Sparsel	y Vegetated Concave	Surface (B8)									

Field Observations:							
Surface Water Present?	Yes X	No	Depth (inches):	River			
Water Table Present?	Yes X	No	Depth (inches):	10 inches			
Saturation Present? (includes capillary fringe)	Yes <u>X</u>	No	Depth (inches):	At Surface	Wetland Hydrology Present?	Yes X	No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Aerial photos where river is at low elevation show bench clearly.

Remarks: Wetland 2 is a narrow riverbank sedge wetland on mainland side of Camas Slough. Sedges grow in patches between indigo bush. River surface approximately 2 feet from data plot center on day and time of investigation. Narrow bench is backed by steep armored shoreline comprised of boulders and fill materials. Area is wetland.

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

Project/Site: Camas Mill – Along Camas Slough, Columbia River City/Co	unty: <u>Camas</u> Sampling Date: <u>July 16, 2019</u>						
Applicant/Owner: <u>Georgia Pacific, Inc.</u>	State: WA Sampling Point: DP3						
Investigator(s): Kristie Dunkin & Gregory McCormick Section, Township, Re	ange: <u>Section 47, Township 1N, Range 3E, Washington Meridian</u>						
Landform (hillslope, terrace, etc.): <u>Riverbank</u> Local relief (concave, convex, none): <u>Concave to flat</u> Slope (%): <u>0 – 30%</u>							
Subregion (LRR): A2 – Willamette and Puget Sound Valleys Lat: 45.5813 Long: -122.4062 Datum: WGS 84							
Soil Map Unit Name: <u>Sauvie Silt Loam, Sandy Substratum, 0 to 3 percent slopes/Water/Fill land</u> NWI classification: None							
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	X No (If no, explain in Remarks.)						
Are Vegetation, Soil, or Hydrology significantly disturbed	I? Are "Normal Circumstances" present? Yes X No						
Are Vegetation, Soil, or Hydrology naturally problematic	? (If needed, explain any answers in Remarks.)						

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

Hydrophytic Vegetation Present?	Yes X	No					
Hydric Soil Present?	Yes <u>X</u>	No	Is the Sampled Area				
Wetland Hydrology Present?	Yes <u>X</u>	No	within a Wetland?	Yes <u>X</u>	No		
Remarks: Wetland is small area in a bowl-shaped depression along embankment approximately 10 feet above the Slough's water level on day of							

Remarks: Wetland is small area in a bowl-shaped depression along embankment approximately 10 feet above the Slough's water level on day of investigation.

VEGETATION – Use scientific names of plants.

	Absolute	Dominant Indicato	r Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>30 ft</u>)	% Cover	Species? Status	 Number of Dominant Species
1. Populus balsamifera ssp. trichocarpa (outside wetland) 25	Yes FacW	That Are OBL, FACW, or FAC: (A)
2. Fraxinus latifolia (rooted outside wetland)	10	FacW	- Total Number of Dominant
3			_ Species Across All Strata: 2 (B)
4.			
	35	= Total Cover	Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 10 ft.)			Preve land a land a sector (A/B)
1. <u>Rubus armeniacus</u>	10	FacU	Prevalence index worksneet:
2. Symphoricarpos albus	5	FacU	Total % Cover of: Multiply by:
3			OBL species x 1 =
4			FACW species x 2 =4
5		· ·	FAC species x 3 =
J	15	- Total Cavar	FACU species x 4 =
Herb Stratum (Plot size: 5 ft)	15	= Total Cover	UPL species x 5 =
1 Phalaris arundinacea	90	Yes FacW	Column Totals: <u>2</u> (A) <u>4</u> (B)
2 Stachys coolevae	10	EacW	
2. <u>Stachys cooleyae</u>	10	1 acw	Prevalence Index = $B/A = 4/2=2$
3			Hydrophytic Vegetation Indicators:
4			1 - Rapid Test for Hydrophytic Vegetation
5		<u> </u>	<u>X</u> 2 - Dominance Test is >50%
6			_ X 3 - Prevalence Index is $\leq 3.0^1$
7			_ 4 - Morphological Adaptations ¹ (Provide supporting
8			data in Remarks or on a separate sheet)
9			_ 5 - Wetland Non-Vascular Plants ¹
10			Problematic Hydrophytic Vegetation ¹ (Explain)
11			¹ Indicators of hydric soil and wetland hydrology must
	100	= Total Cover	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)			
1. None			– Hydrophytic
2			Vegetation
	0	= Total Cover	Present? Yes X No
% Bare Ground in Herb Stratum0			
Pomarke: Polustring omergent wetland approximately 6 to	8 foot high	or than river on a bo	ach an riverbank. Drift debris from provious flooding is

Remarks: Palustrine emergent wetland approximately 6 to 8 feet higher than river on a bench on riverbank. Drift debris from previous flooding is present. Stacys not blooming, so this was best guess based on vegetative character. This small depression demonstrated obvious difference within wetland in comparison to surrounding upland weedy species.

SOIL

Sampling Point: DP 3

Profile Desc	ription: (Describe t	o the de	pth needed to docu	ment the	indicator o	or confirm	the absence	of indicators.)			
Depth	Matrix		Redox Features								
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks			
0 to 18"	10 Y 4/1	60	5Y 4/1	40	D/C	PI, M	Silt	Dry in July			
						·					
					·						
¹ Type: C=Co	oncentration, D=Depl	etion, RM	I=Reduced Matrix, C	S=Covere	d or Coated	d Sand Gra	ins. ² Loc	ation: PL=Pore Lining, M=Matrix.			
Hydric Soil I	ndicators: (Applica	ble to al	I LRRs, unless othe	rwise not	ted.)		Indicato	rs for Problematic Hydric Soils ³ :			
<u> </u>	(A1)		Sandy Redox (S5)			2 cm	n Muck (A10)			
Histic Ep	ipedon (A2)		Stripped Matrix	(S6)			Red	Parent Material (TF2)			
Black His	stic (A3)		Loamy Mucky	Mineral (F	1) (except	MLRA 1)	Very	Very Shallow Dark Surface (TF12)			
Hydroge	n Sulfide (A4)		Loamy Gleyed	Matrix (F2	2)		Othe	er (Explain in Remarks)			
Depleted	Below Dark Surface	(A11)	Depleted Matri	x (F3)							
Thick Da	rk Surface (A12)		Redox Dark Su	Irface (F6))		³ Indicato	rs of hydrophytic vegetation and			
Sandy M	ucky Mineral (S1)		Depleted Dark	Surface ((F7)		wetland hydrology must be present,				
Sandy G	leyed Matrix (S4)		X Redox Depres	sions (F8)		unles	s disturbed or problematic.			
Restrictive L	.ayer (if present):										
Type:	None										
Depth (inc	hes):						Hydric Soil	Present? Yes X No			
Remarks:											

Soils show deposition layers of fine material to at least 18 inches deep. Soil has clear pattern of reduction/oxidation of iron and other minerals. Soil is dry in this bench location in July, however the area would flood at high river levels. as well as collect overland flows and precipitation. Possible groundwater discharge on this slope location may occur seasonally as well.

HYDROLOGY

Wetland Hydrology Indicators:						
Primary Indicators (minimum of one required; ch	Secondary Indicators (2 or more required)					
Surface Water (A1)	X Water-Stained Leaves (B9) (except	X Water-Stained Leaves (B9) (MLRA 1, 2,				
High Water Table (A2)	MLRA 1, 2, 4A, and 4B)	4A, and 4B)				
Saturation (A3)	Salt Crust (B11)	Drainage Patterns (B10)				
Water Marks (B1)	Aquatic Invertebrates (B13)	Dry-Season Water Table (C2)				
X Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Saturation Visible on Aerial Imagery (C9)				
X Drift Deposits (B3)	Oxidized Rhizospheres along Living Re	oots (C3) <u>X</u> Geomorphic Position (D2)				
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	Shallow Aquitard (D3)				
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soils (0	C6) FAC-Neutral Test (D5)				
Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A)		A) Raised Ant Mounds (D6) (LRR A)				
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks)		Frost-Heave Hummocks (D7)				
Sparsely Vegetated Concave Surface (B8)						
Field Observations:						
Surface Water Present? Yes No _	X Depth (inches):					
Water Table Present? Yes No _	X Depth (inches):					
Saturation Present? Yes <u>No</u> (includes capillary fringe)	X Depth (inches): <12 inches We	tland Hydrology Present? Yes <u>X</u> No				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: None						
Remarks: Wetland 3 is a small bowl-shaped dep Slough. The area appears to hold water for a du by reed canarygrass with cottonwood trees. The blackberry and other weedy plant species. Evide Area is wetland.	pression on a bench approximately 10 feet a aration long enough in early growing season area is backed by steep rock armored slope ence of wetland hydraulic conditions include	bove the current summertime water level of the Camas to support wetland conditions. Vegetation is dominated comprised of fill materials and supporting Himalayan d deposits, waterstained leaves and geomorphic position.				

Wetland 4

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

Project/Site: Camas Mill – Along Camas Slough, Columbia River City/County	: <u>Camas</u> Sampling Date: <u>July 17, 2019</u>
Applicant/Owner: Georgia Pacific, Inc.	State: <u>WA</u> Sampling Point: <u>DP5</u>
Investigator(s): Kristie Dunkin & Gregory McCormick Section, Township, Range	: Section 11, Township 1N, Range 3E, Washington Meridian
Landform (hillslope, terrace, etc.): Riverbank Local relief (concav	e, convex, none): <u>Concave to flat</u> Slope (%): <u>0 – 15%</u>
Subregion (LRR): <u>A2 – Willamette and Puget Sound Valleys</u> Lat: <u>45.5814</u> Long: <u>-</u>	122.4105 Datum: WGS 84
Soil Map Unit Name: Sauvie Silt Loam, Sandy Substratum, 0 to 3 percent slopes/Wa	ater/Fill land NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes \underline{X}	No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed?	Are "Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology naturally problematic?	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling	point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes <u>X</u> Yes <u>X</u> Yes <u>X</u>	No No No		Is the Sampled Area within a Wetland?	Yes	x	No
Remarks: Small wetland in sheltered cove adjacent to major riverfront infrastructure. Heavily browsed by geese and deer. At time of investigation							

vegetation much reduced, but area would be well vegetated area without grazing pressure.

VEGETATION – Use scientific names of plants.

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:) 1.)	<u>% Cover</u>	Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
23.				Total Number of Dominant Species Across All Strata: 2 (B)
4.				
		= Total Co	ver	Percent of Dominant Species That Are OBL, FACW, or FAC:100(A/B)
Sapling/Shrub Stratum (Plot size:)				Prevalence Index worksheet:
1. <u>Amorpha fruticosa</u>	10	Yes	FacW	Total % Cover of:Multiply by:
2				OBL species x 1 =
3		. <u> </u>	·	FACW species <u>2</u> x 2 = <u>4</u>
4				FAC species x 3 =
5		<u> </u>		FACU species x 4 =
Horb Stratum (Distaiza:	10	= Total C	Cover	UPL species x 5 =
<u>Held Stratum</u> (Flot Size)	15	Vaa		Column Totals: (A) (B)
Phalans arundinacea	 	res		
2. <u>Polygonum lapatnitolium</u>			Factor	Prevalence Index = $B/A = 4/2 = 2.0$
3. <u>Carex sp.</u>				Hydrophytic Vegetation Indicators:
4		. <u> </u>	·	1 - Rapid Test for Hydrophytic Vegetation
5		;	·	<u>X</u> 2 - Dominance Test is >50%
6		. <u> </u>		<u>X</u> 3 - Prevalence Index is $\leq 3.0^1$
7				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
0				5 - Wetland Non-Vascular Plants ¹
3 10			·	Problematic Hydrophytic Vegetation ¹ (Explain)
10		·	·	¹ Indicators of hydric soil and wetland hydrology must
· · · · · · · · · · · · · · · · · · ·		- Total Co		be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)	20		l	
1. None				Hydrophytic
2.				Vegetation
		= Total Cov	/er	Present? Yes X No
% Bare Ground in Herb Stratum 70				
Remarks: Heavily browsed small wetland at the head of the	ie cove adja	cent to True	ck Dock. Se	edges browsed to small stumps with no significant leaf

area cover and unable to identify, look similar to Aquatilis in leaf type. Other plant stubble also present. No evidence of browse on Indigo bush.

Exhibit 5 SHOR23-01

Frome Desc	ription: (Describe	to the depth ne	eded to docur	nent the ind	licator	or confirm t	ne absence	e of indicators.)
Depth	Matrix		Redo	x Features				
(inches)	Color (moist)	<u>%</u> 0	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0 to 18"	10 YR 3/1	95 10	YR 6/8	5	С	PL	Silt	Silt and organic debris through
				<u> </u>				
		<u> </u>			<u> </u>	<u> </u>	21	
lype: C=Co	ncentration, D=Dep	bletion, RM=Rec	uced Matrix, CS	S=Covered o	or Coate	d Sand Grail	<u>IS. ²LO</u>	cation: PL=Pore Lining, M=Matrix.
Histosol			Sandy Redox (S5)	.,		2 0	m Muck (A10)
Histic Fr	(AT) bipedon (A2)	—	Stripped Matrix	(S6)			Z Ci Red	d Parent Material (TF2)
Black Hi	stic (A3)		Loamy Mucky N	(ee) Mineral (F1) ((except	MLRA 1)	Ver	y Shallow Dark Surface (TF12)
Hydroge	n Sulfide (A4)	_	Loamy Gleyed I	Matrix (F2)			Oth	er (Explain in Remarks)
Depleted	d Below Dark Surfac	e (A11) <u>X</u>	Depleted Matrix	x (F3)				
Thick Da	ark Surface (A12)	_	Redox Dark Su	rface (F6)			³ Indicate	ors of hydrophytic vegetation and
Sandy N	lucky Mineral (S1)	—	Depleted Dark	Surface (F7)			wetla	and hydrology must be present,
Conduc			Redox Depress	SIONS (F8)			unies	ss disturbed or problematic.
Sandy G	aver (if present):		•	(
Sandy G Restrictive I	_ayer (if present):							
Sandy G Restrictive L Type: Depth (ind Remarks: So exture mainl	Ager (if present): None None Shes): pil formed from depo y fine material, but l	osition of silts ar arger pieces of	d other fine org	anic material listributed un	ls that li evenly t	kely settle ou	Hydric Soi It from river Soil color an	I Present? Yes X No water in this sheltered cove locatic d redox indicate hydric soil.
Sandy G Restrictive I Type: Depth (ind Remarks: So exture mainl	ayer (if present): None ches): pil formed from depo y fine material, but l	osition of silts ar arger pieces of	d other fine organic debris d	anic material listributed un	ls that li levenly t	kely settle ou throughout. S	Hydric Soi It from river Soil color an	I Present? Yes X No water in this sheltered cove locatic d redox indicate hydric soil.
Sandy G Restrictive I Type: Depth (ind Remarks: So exture maini	Aver (if present):	osition of silts ar arger pieces of	d other fine orga organic debris d	anic material listributed un	Is that li evenly t	kely settle ou throughout. S	Hydric Soi It from river Soil color an	I Present? Yes X No water in this sheltered cove locatic d redox indicate hydric soil.
Sandy G Restrictive I Type: Depth (inc Remarks: So exture main YDROLO	Aver (if present): None Sches): Sches): Sches): Schester (if present): Schester (if present	osition of silts an arger pieces of	d other fine orgo organic debris d	anic material listributed un	ls that li evenly f	kely settle ou throughout. S	Hydric Soi It from river Soil color an	I Present? Yes X No water in this sheltered cove locatic d redox indicate hydric soil.
Sandy G Restrictive I Type: Depth (inc Remarks: So exture main YDROLO Wetland Hyc Primary Indic	GY GY GY Indication (G+)	osition of silts ar arger pieces of one required; ch	d other fine org organic debris d eck all that appl	anic material listributed un	Is that li evenly f	kely settle ou throughout. S	Hydric Soi at from river Soil color an Soil <u>Seco</u>	I Present? Yes X No water in this sheltered cove location diredox indicate hydric soil.
Sandy G Restrictive I Type: Depth (inc Remarks: So exture main YDROLO YDROLO Vetland Hyo Primary Indic X Surface	GY G	psition of silts ar arger pieces of one required; ch	d other fine org organic debris d <u>eck all that appl</u>	anic material listributed un y) ined Leaves	ls that li evenly t (B9) (e	kely settle ou throughout. \$ xcept	Hydric Soi It from river Soil color an Soil <u>Seco</u>	I Present? Yes X No water in this sheltered cove locatic d redox indicate hydric soil.
Sandy G Restrictive I Type: Depth (inc Remarks: So exture main YDROLO Wetland Hyc Primary Indic X Surface High Wa	GY Chology Indicators: Cho	osition of silts an arger pieces of one required; ch	d other fine organic debris d eck all that appl Water-Stai MLRA	anic material listributed un y) ined Leaves 1, 2, 4A, and	ls that li evenly t (B9) (e: d 4B)	kely settle ou throughout. S xcept	Hydric Soi It from river Soil color an Seco V	I Present? Yes X No water in this sheltered cove locatic d redox indicate hydric soil.
Sandy G Restrictive I Type: Depth (inc Remarks: So exture mainle YDROLO Wetland Hyc Primary Indic X Surface High Wa X Saturation Mater Mater Materials	GY GY Water (A1) ter Table (A2) ion (A3)	psition of silts ar arger pieces of one required; ch	d other fine orgo organic debris d eck all that appl Water-Stai MLRA Salt Crust	anic material listributed un y) ined Leaves 1, 2, 4A, and (B11)	ls that li evenly t (B9) (e2 d 4B)	kely settle ou throughout. S xcept	Hydric Soi It from river Soil color an Seco V [I Present? Yes X No water in this sheltered cove locatic d redox indicate hydric soil.
Sandy G Restrictive I Type: Depth (inc Remarks: So exture main YDROLO YDROLO YDROLO Primary Indic X Surface High Wa X Saturati Water M	GY drology Indicators: ators (minimum of content): drology Indicators: ators (minimum of content): Water (A1) ther Table (A2) ion (A3) arks (B1) at Danasite (B2)	osition of silts ar arger pieces of one required; ch	d other fine org organic debris d eck all that appl Water-Stai Water-Stai Salt Crust Salt Crust	anic material listributed un y) ined Leaves 1, 2, 4A, anc (B11) vertebrates ((B9) (e2 d 4B)	kely settle ou throughout. S xcept	Hydric Soi It from river Soil color an <u>Seco</u> V [[I Present? Yes X No water in this sheltered cove location diredox indicate hydric soil.
Sandy G Restrictive I Type: Depth (inc Remarks: So exture main YDROLO	GY difference of the second s	psition of silts ar arger pieces of one required; ch	d other fine org organic debris d eck all that appl Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen	anic material listributed un y) ined Leaves 1, 2, 4A, and (B11) vertebrates (Sulfide Odor	(B9) (e2 (B9) (e2 d 4B) (C1)	kely settle ou throughout. S xcept	Hydric Soi It from river Soil color an <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>C</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>Seco</u> <u>S</u> <u>Seco</u> <u>S</u> <u>Seco</u> <u>S</u> <u>Seco</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u> <u>S</u>	I Present? Yes X No water in this sheltered cove locatic d redox indicate hydric soil. <u>Indary Indicators (2 or more require</u> Vater-Stained Leaves (B9) (MLRA 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery Seconstribus Position (D2)
Sandy G Restrictive I Type: Depth (inc Remarks: So exture main YDROLO	GY GY Water (A1) ter Table (A2) ion (A3) arks (B1) ht Deposits (B2) posits (B3) ark (B4) dron (A4) dron (A3) dron (A3) d	psition of silts an arger pieces of one required; ch	d other fine orga organic debris d eck all that appl Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence	anic material listributed un- ined Leaves 1, 2, 4A, and (B11) vertebrates (Sulfide Odor Rhizospheres of Reduced I	(B9) (ex (B9) (ex d 4B) B13) r (C1) s along [Iron (C4	kely settle ou throughout. S xcept Living Roots	Hydric Soi It from river Soil color an <u>Seco</u> <u>Seco</u> <u>Seco</u> (C3) <u>C</u>	I Present? Yes X No water in this sheltered cove locatic diredox indicate hydric soil. Indary Indicators (2 or more require Vater-Stained Leaves (B9) (MLRA 4A, and 4B) Drainage Patterns (B10) Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery Seomorphic Position (D2) Shallow Aquitard (D3)
Sandy G Restrictive I Type: Depth (inc Remarks: So exture main YDROLO	GY G	psition of silts ar arger pieces of one required; ch	d other fine orgo organic debris d eck all that appl Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro	anic material listributed un ined Leaves 1, 2, 4A, and (B11) vertebrates (I Sulfide Odor Rhizospheres of Reduced I in Reduction	(B9) (ex (B9) (ex d 4B) (C1) s along l Iron (C4 in Tiller	kely settle ou throughout. S xcept Living Roots	Hydric Soi It from river Soil color an <u>Seco</u> <u>Seco</u> <u>Seco</u> (C3) <u>C</u> Seco C3 C3 C3 C3 C3 C3 C3 C3 C3 C3	I Present? Yes X No water in this sheltered cove locatic d redox indicate hydric soil.
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Remarks: Small, narrow, wetland area that receives heavy browsing located at head of shallow, narrow cove. Vegetation reduced so much that sedges are just short stems of 1 to 2 inches. Indigo bush growing within wetland and among riprap on bank above wetland. Wetlands clearly flooded at higher river levels with watermarks visible on adjacent infrastructure and on boulders.

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

Project/Site: <u>Camas Mill – Along Camas Slough, Columbia River</u> City/County: <u>0</u>	Camas Sampling Date: July 17, 2019
Applicant/Owner: Georgia Pacific, Inc.	State: <u>WA</u> Sampling Point: <u>DP5</u>
Investigator(s): Kristie Dunkin & Gregory McCormick Section, Township, Range:	Section 11, Township 1N, Range 3E, Washington Meridian
Landform (hillslope, terrace, etc.): <u>Riverbank</u> Local relief (concave,	convex, none): Concave to flat Slope (%): $0 - 15\%$
Subregion (LRR): <u>A2 – Willamette and Puget Sound Valleys</u> Lat: <u>45.5812</u> Long: <u>-122</u>	2.4104 Datum: WGS 84
Soil Map Unit Name: Sauvie Silt Loam, Sandy Substratum, 0 to 3 percent slopes/Wate	r/Fill land NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X	No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed?	Are "Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology naturally problematic?	(If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No		
Hydric Soil Present?	Yes X	No	Is the Sampled Area	
Wetland Hydrology Present?	Yes <u>X</u>	No	within a Wetland?	Yes <u>X</u> No
Development Matter of File a 40, to 00 fe	• A · · · · · · · · · · · · · · · · · ·			Manatakan kalendar ana sa f alematant

Remarks: Wetland 5 is a 10- to 20-foot-wide, riverbank wetland along a broad cove of the Camas Slough. Vegetation includes areas of abundant obligate herbaceous species, as well as patches of dense sedges. Invasive indigo bush is present. Area heavily grazed by geese with abundant droppings present.

VEGETATION – Use scientific names of plants.

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species
1				That Are OBL, FACW, or FAC: <u>5</u> (A)
2				Total Number of Dominant
3.				Species Across All Strata: 5 (B)
Δ				
T		- Total Ca		Percent of Dominant Species
Sapling/Shrub Stratum (Plot size:			ver	That Are OBL, FACW, or FAC:100 (A/B)
1 Amorpha fruticosa	10	Ves	Fac/W	Prevalence Index worksheet:
			1 4011	Total % Cover of: Multiply by:
2				OBL species 2 x 1 = 2
3				FACW species $3 \times 2 = 6$
4				FAC species $x_3 =$
5				
	10	_ = Total C	over	FACU species X 4
Herb Stratum (Plot size:)				UPL species x 5 =
1. Carex aquatilis	100	Yes	Obl	Column Totals: <u>5</u> (A) <u>8</u> (B)
2. Polygonum lapathifolium	20	Yes	FacW	Prevalence Index = $B/A = 8/5 = 1.6$
3. Mentha arvensis	20	Yes	FacW	Hydrophytic Vegetation Indicators:
4. <u>Veronica americana</u>	40	Yes	Obl	1 - Rapid Test for Hydrophytic Vegetation
5. <u>Stachys Cooleyae</u>	20	Yes	FacW	X 2 - Dominance Test is >50%
6				X 3 - Prevalence Index is $\leq 3.0^{1}$
7.				4 - Morphological Adaptations ¹ (Provide
8				supporting
0				data in Remarks or on a separate sheet)
9				5 - Wetland Non-Vascular Plants ¹
10				Problematic Hydrophytic Vegetation ¹ (Explain)
11				¹ Indicators of hydric soil and wetland hydrology must
Marshalling Othersteiner (Dictoring)	200	= Total C	Cover	be present, unless disturbed or problematic.
<u>woody vine Stratum</u> (Piot size:)				
1. None				Hydrophytic
2				Vegetation
	= Total Cover		/er	Present? Yes X No
% Bare Ground in Herb Stratum 0				
Remarks: Heavily browsed, emergent wetland with line of	shrubs and	trees occur	ring at wetl	and boundary. Near current river waterline, abundant

Remarks: Heavily browsed, emergent wetland with line of shrubs and trees occurring at wetland boundary. Near current river waterline, abundant obligate herbaceous species with minimal shrubs are present. Other species in wetland include a single line of willow, ash, and black cottonwood at wetland boundary, where landscape transitions to hardened steep slopes made of fill materials. Indigo bush occurs in small patches throughout with larger shrubs growing at rocks where area because upland. Also present but not in data plot, small juncus (not id'd), one or two *Carex* sp., and small-flowered forget-me-not (but not blooming).

Sampling Point:

Profile Des	cription: (Describe	to the depth	needed to docur	nent the i	ndicator	or confirm	n the absence	e of indicators.)
Depth	Matrix		Redo	x Features	s 1	1 2	- (
(inches)	Color (moist)		Color (moist)	%	lype'	Loc	lexture	Remarks
0 - 1"	10 YR 2/1	100					OM/Silt	Silt and organics
<u>1 — 10"</u>	7.5 YR 2.5/1	50	7.5 YR 4/6	50	C	PI	SiL	Silt with sand
10 – 18"	10 YR 3/2	60	7.5 YR 4/6	40	С	PI	SiL	Silt with sand
				·				
		·		·				
		·						
¹ Type: C=C	Concentration, D=Dep	letion, RM=R	educed Matrix, CS	S=Covered	d or Coate	d Sand G	rains. ² Lo	ocation: PL=Pore Lining, M=Matrix.
Hydric Soll	Indicators: (Applic	able to all LF	Rs, unless other	rwise not	ea.)		Indicat	Much (A40)
HISTOSO	I (A1)		Sandy Redox (Strippod Matrix	55) (S6)			2 c Po	m Muck (A10) d Parent Material (TE2)
Black H	listic (A3)		Loamy Mucky M	(30) /lineral (F1	1) (excent) Ve	ry Shallow Dark Surface (TE12)
Hydrog	en Sulfide (A4)		Loamy Gleved	Matrix (F2))		, <u> </u>	ner (Explain in Remarks)
Deplete	d Below Dark Surface	e (A11) 🚺	C Depleted Matrix	(F3)	,			
Thick D	ark Surface (A12)		Redox Dark Su	rface (F6)			³ Indicat	ors of hydrophytic vegetation and
Sandy I	Mucky Mineral (S1)		_ Depleted Dark	Surface (F	7)		wetla	and hydrology must be present,
Sandy (Gleyed Matrix (S4)		_ Redox Depress	ions (F8)			unle	ss disturbed or problematic.
Restrictive	Layer (if present):							
Type:	None							
Depth (ir	iches):						Hydric Soi	il Present? Yes <u>X</u> No
HYDROLC)GY							
Wotland Hy	drology Indicators:							
Drimony Indi	cators (minimum of o	no roquirod:	shock all that appl	~			Soco	andary Indicators (2 or more required)
		ne required, o	Watar Sta	y) inod Loov	oo (P0) (o	voont	<u></u>	Water Steined Leeves (P0) (MLPA 1 2
	ater Table (A2)				es (D9) (e)	kcept	\	A = A = A = A = A = A = A = A = A = A =
X Saturat	ion (A3)		Salt Crust	(R11)	anu 40)		r	HA, allu HD) Drainage Patterns (B10)
Water M	/arks (B1)		Aquatic In	vertebrate	s (B13)		· '	Dry-Season Water Table (C2)
X Sedime	ent Deposits (B2)		Hvdrogen	Sulfide Od	dor (C1)			Saturation Visible on Aerial Imagery (C9)
X Drift De	eposits (B3)		Oxidized F	Rhizosphe	res along l	Livina Ro	ots (C3)	Geomorphic Position (D2)
Algal M	at or Crust (B4)		Presence	of Reduce	ed Iron (C4	-) -)	· / <u> </u>	Shallow Aquitard (D3)
Iron De	posits (B5)		Recent Iro	n Reductio	on in Tilleo	d Soils (C	6) <u> </u>	FAC-Neutral Test (D5)
Surface	Soil Cracks (B6)		Stunted or	Stressed	Plants (D	1) (LRR A	N) I	Raised Ant Mounds (D6) (LRR A)
Inundat	ion Visible on Aerial I	magery (B7)	Other (Exp	olain in Re	marks)		I	Frost-Heave Hummocks (D7)
Sparsel	y Vegetated Concave	e Surface (B8)					
Field Obser	rvations:							
Surface Wa	ter Present? Y	es <u>X</u> N	lo Depth (i	nches):	River	_		
Water Table	Present? Y	es <u>X</u> N	o Depth (ir	nches):	surface	_		
Saturation F	Present? Y	es <u>X</u> N	lo Depth (i	nches): <u>1</u>	0"	Wet	land Hydrolog	gy Present? Yes <u>X</u> No
(includes ca	pillary fringe)	daude moni	toring well aerial i	abotos pr	evious ins	nections)	if available.	
		gaage, mom	acial acial	-1000, pr		poolion3),		
Remarke: I	arge portion of world	nd area inund	ated by river at la	ast daily a	nd suppor	te obligati	e herbaccour	species other portions supporting shrubs
and trees wi	ith less frequent inunction of weital international intern	dation (Facw) curated at 10 i	. River approximation nches. Evidence	ately 4 feet of frequer	t lower and t inundation	d 10 feet on include	distant from da ed sediment de	ata plot location at time of sampling. Soil in eposits and drift deposits.

SOIL

Wetland 6

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

Project/Site: Camas Mill – Along Camas Slough, Columbia River	City/County: <u>Camas</u>	Sampling Date: July 17, 2019					
Applicant/Owner: <u>Georgia Pacific, LLC.</u>	State: W	A Sampling Point: DP7					
Investigator(s): Kristie Dunkin & Gregory McCormick Section, To	ownship, Range: <u>Section 11</u>	, Township 1N, Range 3E, Willamette Meridian					
Landform (hillslope, terrace, etc.): <u>Riverbank</u> Loca	al relief (concave, convex, nc	ne): <u>Concave to flat</u> Slope (%): $0 - 15\%$					
Subregion (LRR): A2 – Willamette and Puget Sound Valleys Lat: 45.5815 Long: -122.4073 Datum: WGS 84							
Soil Map Unit Name: Sauvie Silt Loam, Sandy Substratum, 0 to 3 pe	rcent slopes/Water/Fill land	NWI classification: None					
Are climatic / hydrologic conditions on the site typical for this time of y	/ear? Yes <u>X</u> No	(If no, explain in Remarks.)					
Are Vegetation, Soil, or Hydrology significant	ly disturbed? Are "Nor	mal Circumstances" present? Yes <u>X</u> No					
Are Vegetation, Soil, or Hydrology naturally p	roblematic? (If neede	d, 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			
Hydric Soil Present?	Yes <u>X</u>	No	Is the Sampled Area		
Wetland Hydrology Present?	Yes <u>X</u>	No	within a Wetland?	Yes <u>X</u>	No
Pomarke: Wotland 6 is an omorgant	wotland on the	Camas Slough on the	mainland bank Wotland is	located on a low h	onch along the riverbank

Remarks: Wetland 6 is an emergent wetland on the Camas Slough on the mainland bank. Wetland is located on a low bench along the riverbank. Area has received heavy grazing based on vegetation conditions. Indigo bush, an invasive species, is present throughout and grows most abundantly at the margin of the bench within riprapped slope.

VEGETATION – Use scientific names of plants.

	Absolute	Dominant	Indicator	Dominance Test worksheet:	
Tree Stratum (Plot size:)	% Cover	Species?	Status	Number of Dominant Species	
1. None				That Are OBL, FACW, or FAC: (A)	
2.					
3				I otal Number of Dominant	
3	·			Species Across Air Strata. (B)	
4				Percent of Dominant Species	
	0	_ = Total C	over	That Are OBL, FACW, or FAC: (A/E	B)
Sapling/Shrub Stratum (Plot size:)				Prevalence Index worksheet:	
1. Amorpha fruticosa	30	Yes	FacW	Total % Cover of: Multiply by:	
2					
3.				OBL species 2 $x_1 = 2$	
4				FACW species <u>1</u> x 2 = <u>2</u>	
				FAC species x 3 =	
J				FACU species x 4 =	
Harb Stratum (Dist size)	30	= Total (Cover	UPL species x 5 =	
Herb Stratum (Plot size)				$\begin{array}{c} c = c \\ c = c \\ c \\ c \\ c \\ c \\ c \\ c \\$	
1. <u>Carex aquatilis</u>	50	Yes	Obl	$\frac{1}{2} = \frac{1}{2} = \frac{1}$	
2. <u>Eleocharis palustris</u>	30	Yes	Obl	Prevalence Index = $B/A = 4/3 = 1.3$	
3. Phalaris arundinacea	10		FacW	Hydrophytic Vegetation Indicators:	
4.				1 - Rapid Test for Hydrophytic Vegetation	
5				X_{-} 2 - Dominance Test is >50%	
6					
0	·			\underline{X} 3 - Prevalence index is $\leq 3.0^{\circ}$	
7				4 - Morphological Adaptations ¹ (Provide supportin	ng
8				data in Remarks or on a separate sneet)	
9				5 - Wetland Non-Vascular Plants	
10				Problematic Hydrophytic Vegetation ¹ (Explain)	
11.				¹ Indicators of hydric soil and wetland hydrology must	
	90	= Total (over	be present, unless disturbed or problematic.	
Woody Vine Stratum (Plot size:)	00		0000		
1 None				Liverandeutio	
2				Vegetation	
Z				Present? Yes X No	
% Bare Ground in Herb Stratum 60	0	= 1 otal Co	over		
Remarks: Vegetation is heavily grazed. Indigo bush grow	e abundantlı	v along may	raine of wot	 and with a few smaller shrubs scattered across wotland	d
Remaines. Vegetation is neavily grazed. Indigo bush grow	abunudnu	y alony mai	gins or wet	and with a rew sinaller sinups scattered doloss welland	J.

Where this shrub is present other native species appear to have been shaded out. Wetland community is present.

Exhibit 5 SHOR23-01

Wetland 6

	• • • • •		- ·		-			
Depth inches)	<u>Matrix</u> Color (moist)	%	<u>Redo</u> Color (moist)	<u>x Feature</u> %	es Type ¹	Loc ²	Texture	Remarks
0 – 5"	7.5 YR 3/1	40	7.5 YR 5/8	30	C C	PI	SiL	Silt with less than 50% sand
<u> </u>			7.5 VR //1	30		DI		
F 40"			7.5 11(4/1					
5 - 18			7.5 1K 5/8					
vpe: C=C	oncentration. D=Depl	etion. RM=F	Reduced Matrix. CS	S=Covere	d or Coate		ains. ² Loc	ation: PL=Pore Lining, M=Matrix.
ydric Soil	Indicators: (Application)	able to all L	RRs, unless othe	rwise not	ted.)		Indicato	rs for Problematic Hydric Soils ³ :
 Histosol Histic E_I Black Hi Hydroge Deplete Thick Data Sandy M 	(A1) pipedon (A2) istic (A3) en Sulfide (A4) d Below Dark Surface ark Surface (A12) Mucky Mineral (S1)	- - 	 Sandy Redox (Stripped Matrix Loamy Mucky M Loamy Gleyed X Depleted Matrix Redox Dark Su Depleted Dark Depleted Dark 	S5) (S6) Mineral (F Matrix (F2) ix (F3) Irface (F6) Surface (F8)	1) (except 2)) F7)	MLRA 1)	2 cm Red Very Othe ³ Indicato wetlat	n Muck (A10) Parent Material (TF2) v Shallow Dark Surface (TF12) er (Explain in Remarks) rs of hydrophytic vegetation and nd hydrology must be present, s disturbed or problematic
Sandy G	aver (if present):		Redox Depress	sions (Fo)			unies	s disturbed of problematic.
Type: Depth (in	None ches):						Hydric Soil	Present? Yes <u>X</u> No
Type: Depth (in emarks: So	None ches): oil is depositional silts	with minima	al organics matter	present. I	Layer belov	v 5 inches	Hydric Soil clearly gleied.	Present? Yes X No Hydric soil conditions met.
Type: Depth (in Remarks: So	None ches): bil is depositional silts GY	with minima	al organics matter (present. I	Layer belov	v 5 inches	Hydric Soil clearly gleied.	Present? Yes X No Hydric soil conditions met.
Type: Depth (in Remarks: So YDROLO Vetland Hy	None ches): bil is depositional silts GY drology Indicators:	with minima	al organics matter	present. I	Layer belov	v 5 inches	Hydric Soil clearly gleied.	Present? Yes X No Hydric soil conditions met.
Type: Depth (in emarks: So (DROLO (DROLO /etland Hy rimary India X Surface High W	None ches): bil is depositional silts GY drology Indicators: cators (minimum of or Water (A1) 'ater Table (A2)	with minima	 al organics matter (<u>check all that appl</u> Water-Sta MLRA	y) ined Leav	Layer belov ves (B9) (e: and 4B)	w 5 inches	Hydric Soil clearly gleied. Secon W	Present? Yes X No Hydric soil conditions met.
Type: Depth (in Remarks: So YDROLO Yetland Hy Yrimary Indio X Surface High W X Satura X Water	None ches): bil is depositional silts GY drology Indicators: cators (minimum of or Water (A1) ater Table (A2) tion (A3) Marks (B1)	with minima	al organics matter p <u>check all that appl</u> Water-Sta MLRA Salt Crust Aquatic In	y) (B11) vertebrate	Layer below /es (B9) (e: and 4B)	w 5 inches	Hydric Soil clearly gleied. Secon W D	Present? Yes X No Hydric soil conditions met. Hydric soil conditions met. Mary Indicators (2 or more required Vater-Stained Leaves (B9) (MLRA 4 4A, and 4B) rainage Patterns (B10) rv-Season Water Table (C2)
Type: Depth (in Remarks: So YDROLO Yetland Hy Yrimary Indio X Surface High W X Satura X Water X Sedime	None ches): bil is depositional silts GY drology Indicators: cators (minimum of or Water (A1) 'ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2)	with minima	check all that appl 	y) ined Leav 1, 2, 4A , i (B11) vertebrate Sulfide O	Layer below /es (B9) (e: and 4B) es (B13) bdor (C1)	v 5 inches	Hydric Soil clearly gleied. Secon W D D D D	Present? Yes X No Hydric soil conditions met. Adary Indicators (2 or more required Vater-Stained Leaves (B9) (MLRA * 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery
Type: Depth (in temarks: So /DROLO // Timary India X Surface High W X Satura X Satura X Satura X Satura X Satura X Satura	None ches): bil is depositional silts GY drology Indicators: cators (minimum of or Water (A1) fater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3)	with minima	al organics matter p <u>check all that appl</u> <u>Water-Sta</u> <u>MLRA</u> <u>Salt Crust</u> <u>A</u> quatic In <u>Hydrogen</u> <u>Oxidized F</u>	y) ined Leav (B11) vertebrate Sulfide O Rhizosphe	ves (B9) (e: and 4B) es (B13) edor (C1) eres along	w 5 inches	Hydric Soil clearly gleied. Secon	Present? Yes X No Hydric soil conditions met. Adary Indicators (2 or more required /ater-Stained Leaves (B9) (MLRA / 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery eomorphic Position (D2)
Type: Depth (in Remarks: So YDROLO Yetland Hy Yrimary India X Surface High W X Satura X High W X Satura X Vater X Sedime X Drift D Algal Ma Iron Dep Surface Inundati Sparselv	None ches): bil is depositional silts GY drology Indicators: cators (minimum of or Water (A1) ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial In y Vegetated Concave	magery (B7)	check all that appl 	y) ined Leav (B11) vertebrate Sulfide O Rhizosphe of Reduce of Reduce stressed plain in Re	Layer below ves (B9) (e: and 4B) es (B13) ed (C1) eres along ed Iron (C4) ion in Tilleo I Plants (D emarks)	x 5 inches	Hydric Soil clearly gleied.	Present? Yes X No Hydric soil conditions met. Adary Indicators (2 or more required Vater-Stained Leaves (B9) (MLRA Y 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D7)
Type: Depth (in Remarks: So YDROLO Yetland Hy Yrimary India X Surface High W X Satura X Vater X Satura X Vater X Satura Magal Ma Iron Dep Surface Inundati Sparsely ield Obser	None ches): bil is depositional silts GY drology Indicators: cators (minimum of or Water (A1) fater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) on Visible on Aerial In y Vegetated Concave vations:	with minima ne required; nagery (B7)	check all that appl 	y) ined Leav (B11) vertebrate Sulfide O Rhizosphe of Reduce on Reduct r Stressed plain in Re	Layer below ves (B9) (e: and 4B) es (B13) edor (C1) eres along ed Iron (C4 ion in Tilleo d Plants (D emarks)	x 5 inches	Hydric Soil clearly gleied.	Present? Yes X No Hydric soil conditions met. Adary Indicators (2 or more required (ater-Stained Leaves (B9) (MLRA 4 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D7)
Type: Depth (in Remarks: So YDROLO Vetland Hy Yrimary India X Surface High W X Satura X Satura X Satura X Satura X Satura X Satura Mater X Satura Mater X Satura Mater X Satura Mater X Satura Mater X Satura Mater X Satura Mater Ma	None ches): bil is depositional silts drology Indicators: cators (minimum of or Water (A1) ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) at or Crust (B4) bosits (B5) Soil Cracks (B6) on Visible on Aerial II y Vegetated Concave vations: er Present? Ye resent? Ye pillary (fringe)	with minima ne required; magery (B7) Surface (B es <u>X</u> N es <u>X</u> N es <u>X</u> N	check all that appl 	y) ined Leav (B11) vertebrate of Reduce of Reduce on Reduct r Stressed olain in Re aches): <u>_R</u> aches): <u>_8</u>	Layer below ves (B9) (e: and 4B) es (B13) ed (C1) eres along ed Iron (C4) ion in Tilled d Plants (D emarks) <u>River</u> <u>Surface</u> inches	x 5 inches	Hydric Soil clearly gleied.	Present? Yes X No Hydric soil conditions met. Adary Indicators (2 or more required vater-Stained Leaves (B9) (MLRA * 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D7) / Present? Yes X No
Type: Depth (in Remarks: So YDROLO Yetland Hy Yrimary India X Surface High W X Satura X Vater X Satura X Vater X Satura X Vater X Sedime X Drift D Algal Ma Iron Dep Algal Ma Iron Dep Surface Inundati Sparsely ield Obser Surface Wat Vater Table iaturation P ncludes caj bescribe Re	None ches): bil is depositional silts drology Indicators: cators (minimum of or Water (A1) ater Table (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) at or Crust (B4) bosits (B5) Soil Cracks (B6) on Visible on Aerial In y Vegetated Concave vations: er Present? Ye Present? Ye pillary fringe) corded Data (stream	magery (B7) es <u>X</u> N es <u>X</u> N gauge, mor	check all that appl 	y) ined Leav 1, 2, 4A, i (B11) vertebrate Sulfide O Rhizosphe of Reduce of Reduce on Reduct r Stressed plain in Re uches): <u>R</u> uches): <u>R</u> uches): <u>R</u>	Layer below /es (B9) (e: and 4B) es (B13) bdor (C1) eres along ed Iron (C4 ion in Tilleo d Plants (D emarks) <u>River</u> <u>Surface</u> inches revious ins	xcept	Hydric Soil clearly gleied.	Present? Yes X No Hydric soil conditions met. Adary Indicators (2 or more required Adary Indicators (2 or more required (Adary Indicators (1 or more required (Adary Indicat

Wetland 6

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

Project/Site: Camas Mill – Along Camas Slough, Columbia River	_ City/County: <u>Camas</u>	Sampling Date: July 17, 2019
Applicant/Owner: Georgia Pacific, LLC.	State: WA	Sampling Point: <u>DP7</u>
Investigator(s): Kristie Dunkin & Gregory McCormick Section, Tox	vnship, Range: <u>Section 11, Town</u>	<u>ship 1N, Range 3E, Willamette Meridian</u>
Landform (hillslope, terrace, etc.): <u>Riverbank</u> Local	relief (concave, convex, none): Co	oncave to flat Slope (%): $0 - 15\%$
Subregion (LRR): <u>A2 – Willamette and Puget Sound Valleys</u> Lat: <u>45.8</u>	<u>5812</u> Long: <u>-122.4009</u>	Datum: WGS 84
Soil Map Unit Name: Sauvie Silt Loam, Sandy Substratum, 0 to 3 percent	ent slopes/Water/Fill land NWI	classification: None
Are climatic / hydrologic conditions on the site typical for this time of ye	ar? Yes <u>X</u> No (If	f no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly	disturbed? Are "Normal Ci	rcumstances" present? Yes <u>X</u> No
Are Vegetation, Soil, or Hydrology naturally pro	oblematic? (If needed, expl	lain 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			
Hydric Soil Present?	Yes X	No	Is the Sampled Area		
Wetland Hydrology Present?	Yes <u>X</u>	No	within a Wetland?	Yes <u>X</u> No	
Bomarka: Watland 6 is a amorgant f	ringing wotland	on the Comes Slough	on the mainland henk Wat	and is leasted on a low banch	along the

Remarks: Wetland 6 is a emergent fringing wetland on the Camas Slough on the mainland bank. Wetland is located on a low bench along the riverbank. Area has received heavy grazing based on vegetation conditions. False indigo bush, an invasive species is present throughout and grows most abundantly at the margin of the bench with riprapped slope.

VEGETATION – Use scientific names of plants.

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size:)	<u>% Cover</u>	Species?	Status	Number of Dominant Species
1				Inat Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4				Percent of Dominant Species
		= Total Co	ver	That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum (Plot size:)				Prevalence Index worksheet:
1. Amorpha fruticosa	30	Yes	FacW	Total % Cover of: Multiply by:
2				
3				
4.				FACW species $1 \times 2 = 2$
5.				FAC species x 3 =
	10	= Total	Cover	FACU species x 4 =
Herb Stratum (Plot size:)			00101	UPL species x 5 =
1. <u>Carex aquatilis</u>	50	Yes	Obl	Column Totals: (A) (B)
2. <u>Eleocharis palustris</u>	30	Yes	Obl	Prevalence Index = $B/A = 4/3 = 1.3$
3. <u>Phalaris arundinacea</u>	10		FacW	Hydrophytic Vegetation Indicators:
4.				1 - Rapid Test for Hydrophytic Vegetation
5.				X 2 - Dominance Test is >50%
6.				X 3 - Prevalence Index is <3.0 ¹
7				4. Merphological Adoptetional (Provide supporting
8.				data in Remarks or on a separate sheet)
9.				5 - Wetland Non-Vascular Plants ¹
10				Problematic Hydrophytic Vegetation ¹ (Explain)
11				¹ Indicators of hydric soil and wetland hydrology must
···	00	- Total (over	be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size:)	90			
1.				Hydrophytic
2				Vegetation
		= Total Cov	/or	Present? Yes X No
% Bare Ground in Herb Stratum 60		- 10tai 001		
Remarks: Vegetation is beavily grazed. Ealse indigo bush	arowe abu	ndantly alor	a margine	of wetland with a few smaller shrubs of same scattered

Remarks: Vegetation is heavily grazed. False indigo bush grows abundantly along margins of wetland with a few smaller shrubs of same scattered across wetland. Where this shrub is present other native species have been shaded out.

Exhibit 5 SHOR23-01

Wetland 6

SOIL								Sampling Point:
Profile Des	cription: (Describe	to the dept	h needed to docu	ment the	indicator	or confirn	n the absence o	f indicators.)
Depth	Matrix		Rede	ox Feature	S		_	
(inches)	Color (moist)	%	<u>Color (moist)</u>	%	Type ¹	Loc ²	Texture	Remarks
0 - 5"	7.5 YR 3/1	40	7.5 YR 5/8	30	C	<u> </u>	SiL	Silt with less than 50% sand
			7.5 YR 4/1	30	D	PI		
<u> </u>	G1 N	80	7.5 YR 5/8	20	C	<u> </u>	SiL	
		· ·						
¹ Type: C=C	Concentration, D=Dep	letion, RM=	Reduced Matrix, C	S=Covere	d or Coate	d Sand G	rains. ² Loca	tion: PL=Pore Lining, M=Matrix.
Histoso Histic E Histic E Black H Hydrog Deplete Thick D Sandy f Sandy f	I (A1) ipipedon (A2) listic (A3) en Sulfide (A4) ed Below Dark Surface park Surface (A12) Mucky Mineral (S1) Gleyed Matrix (S4)	e (A11)	Sandy Redox (Stripped Matrix Loamy Mucky Loamy Gleyed X Depleted Matri Redox Dark St Depleted Dark Redox Depres	(S5) K (S6) Mineral (F Matrix (F2 rix (F3) urface (F6) Surface (F sions (F8)	1) (except 2)) =7)	MLRA 1)	2 cm Red F Very Other ³ Indicators wetlan unless	Muck (A10) Parent Material (TF2) Shallow Dark Surface (TF12) (Explain in Remarks) s of hydrophytic vegetation and d hydrology must be present, disturbed or problematic.
Restrictive	Layer (if present):							
Type: Depth (ir	<u>None</u> nches):						Hydric Soil F	Present? Yes <u>X</u> No
Remarks: S	oil is depositional silts	s with minim	nal organics matter	present.				
HYDROLC)GY							
Wetland Hy	drology Indicators:							
Primary Indi	icators <u>(</u> minimum of o	ne required	; check all that app	oly)			Second	lary Indicators (2 or more required)
X Surface	e Water (A1)		Water-Sta	ained Leav	ves (B9) (e	xcept	Wa	ater-Stained Leaves (B9) (MLRA 1, 2,
High W	/ater Table (A2)		MLRA	1, 2, 4A,	and 4B)			4A, and 4B)
X Satura	ation (A3)		Salt Crus	t (B11)			Dra	ainage Patterns (B10)
X Water	⁻ Marks (B1)		Aquatic Ir	nvertebrate	es (B13)		Dry	-Season Water Table (C2)
<u>X</u> Sedime	ent Deposits (B2) Deposits (B3)		Hydrogen Oxidized	n Sulfide O Rhizosphe	dor (C1) eres along	Living Roo	Sa ots (C3) Ge	turation Visible on Aerial Imagery (C9 omorphic Position (D2)

____ Shallow Aquitard (D3)

- ____ FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)

Surface Soil Cracks (B6	δ)	_ Stunted or Stressed Plants (D1)) (LRR A)	Raised Ant Mounds (D6) (LRR A)		
Inundation Visible on A	erial Imagery (B7)	_ Other (Explain in Remarks)		Frost-Heave Hummocks (D7)		
Sparsely Vegetated Co	ncave Surface (B8)					
Field Observations:						
Surface Water Present?	Yes <u>X</u> No	Depth (inches): <u>River</u>	_			
Water Table Present?	Yes <u>X</u> No	Depth (inches): <u>Surface</u>				
Saturation Present? (includes capillary fringe)	Yes <u>X</u> No	Depth (inches): <u>8 inches</u>	Wetland H	lydrology Present?	Yes X	No
Describe Recorded Data (st	tream gauge, monitoring	g well, aerial photos, previous insp	ections), if avai	ilable: None		
Remarks: Wetland 6 is a na	arrow, fringing emergen	t wetland on Camas Slough on the	e mainland side	e. It extends from the	e base of steer	slopes
formed by fill to the river. V	egetation includes eme	rgent and shrubs species.				
	•					
formed by fill to the river. Vi	egetation includes eme	rgent and shrubs species.				

Presence of Reduced Iron (C4)

____ Recent Iron Reduction in Tilled Soils (C6)

____ Algal Mat or Crust (B4)

___ Iron Deposits (B5)

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

Project/Site: <u>Camas Mill – Along Camas Slough, Columbia River</u> City/County: <u>Camas</u> Sampling Date: <u>July</u>	16, 2019
Applicant/Owner: Georgia Pacific, Inc. State: WA Sampling Point: UPL 1	
Investigator(s): Kristie Dunkin & Gregory McCormick Section, Township, Range: Section 47, Township 1N, Range 3E, Washingt	on Meridian
Landform (hillslope, terrace, etc.): <u>Riverbank</u> Local relief (concave, convex, none): <u>Concave to flat</u> Slope (%): <u>0 – 15%</u>
Subregion (LRR): A2 – Willamette and Puget Sound Valleys Lat: 45.5812 Long: -122.4009 Date	ım: <u>WGS 84</u>
Soil Map Unit Name: <u>Sauvie Silt Loam, Sandy Substratum, 0 to 3 percent slopes/Water/Fill land</u> NWI classification: None	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes	<u>X</u> No
Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No <u>X</u> No <u>X</u> No <u>X</u>	Is the Sampled Area within a Wetland?	Yes	No <u>X</u>
Remarks: Rocky bench. 10 to 15 feet	wide at curre	nt river levels.			

VEGETATION – Use scientific names of plants.

	Absolute	Dominant Ir	dicator	Dominance Test workshe	et:	
Tree Stratum (Plot size:)	<u>% Cover</u>	Species? S	<u>Status</u>	Number of Dominant Specie	es	(4)
1		<u> </u>		That Are OBL, FACVV, of FA	AC:	(A)
2		·		Total Number of Dominant		
3		<u> </u>		Species Across All Strata:		(B)
4				Percent of Dominant Specie	25	
		= Total Cove	r	That Are OBL, FACW, or FA	AC:	(A/B)
Sapling/Shrub Stratum (Plot size:)				Prevalence Index worksho	eet:	
1. <u>Amorpha fruticosa</u>	2		FacW	Total % Cover of:	Multiply by:	
2				OBL species	x 1 =	_
3				FACW species	x 2 =	_
4				FAC species	_ x 2	_
5				EACU species		_
		= Total Cove	r			_
Herb Stratum (Plot size:)					_ X 5	(D)
1. Chamerion angustifolium	2		NL	Column Totais:	_ (A)	_ (B)
2				Prevalence Index = B	3/A =	
3				Hydrophytic Vegetation Ir	ndicators:	
4				1 - Rapid Test for Hydro	ophytic Vegetation	
5				2 - Dominance Test is 2	>50%	
6				3 - Prevalence Index is	≤3.0 ¹	
7				4 - Morphological Adap	tations ¹ (Provide sup	porting
8				data in Remarks or	on a separate sheet)	
9.				5 - Wetland Non-Vascu	Ilar Plants ¹	
10.				Problematic Hydrophyti	ic Vegetation ¹ (Expla	in)
11				¹ Indicators of hydric soil and	d wetland hydrology r	nust
		= Total Cover		be present, unless disturbed	d or problematic.	
Woody Vine Stratum (Plot size:)						
1				Hydrophytic		
2.				Vegetation		
		= Total Cover		Present? Yes	No <u>X</u>	
% Bare Ground in Herb Stratum98						
Remarks: Vegetation is less than 5% areal cover over area	a. Area in t	he shoreline is	s too rock	xy for vegetation establishmen	it.	

UPL 1

Sampling Point:

			-	11000									
(inches)	Color (moist	t <u>) %</u>	Colo	r (moist)	%	Type ¹	Loc ²	Texture			Remarks	3	
0 – 1"	10 YR 3/3	100						Silt	Sec	liment b	oetween r	ocks	
						·							
							<u> </u>						
			_										
							. <u> </u>						
Гуре: С=Со	ncentration, D=	Depletion, RN	M=Reduce	d Matrix, CS	S=Covered	d or Coate	ed Sand Gra	ins.	² Location:	PL=Por	re Lining,	M=Matri	ix.
ydric Soil Iı	ndicators: (Ap	plicable to a	ll LRRs, u	inless other	rwise note	ed.)		Indie	ators for	Problen	natic Hye	dric Soil	ls³:
Histosol ((A1)		Sar	ndy Redox (\$	S5)				2 cm Muck	(A10)			
_ Histic Epi	ipedon (A2)		Stri	pped Matrix	(S6)				Red Paren	t Materia	al (TF2)		
_ Black His	stic (A3)		Loa	my Mucky N	Mineral (F1	1) (excep i	t MLRA 1)		Very Shallo	ow Dark	Surface	(TF12)	
Hydroger	n Sulfide (A4)		Loa	my Gleyed	Matrix (F2	2)			Other (Exp	lain in F	Remarks)		
Depleted	Below Dark Su	ırface (A11)	Dep	pleted Matrix	k (F3)								
_ Thick Da	rk Surface (A12	2)	Rec	lox Dark Su	rface (F6)			³ Indi	cators of h	ydrophy	tic vegeta	ation and	ł
_ Sandy M	ucky Mineral (S	1)	Dep	bleted Dark	Surface (F	-7)		W	etland hyd	rology n	nust be p	resent,	
_ Sandy Gl	leyed Matrix (S4	4)	Rec	ox Depress	sions (F8)			u	niess distu	rbed or	problema	atic.	
estrictive L	ayer (it presen	it):											
Type:													
Depth (inc	hes):							Hydric	Soil Prese	nt? Y	'es	No	Х
/DROLO(allow sediment	In some loca											
YDROLOC	GY Irology Indicate	ors:											
YDROLOC Vetland Hyd	GY Irology Indicate	ors:	red; check	all that appl	y)			<u>S</u>	econdary Ir	ndicators	s (2 or m	ore requi	ired)
(DROLOC Vetland Hyd X Surface	GY Irology Indicate ators (minimum Water (A1)	ors: of one requir	red; check	all that appl	y) ined Leave	es (B9) (e	xcept	<u>S</u>	econdary Ir _ Water-S	ndicators tained L	<u>s (2 or m</u>	ore requi	<u>ired)</u> RA 1, 2,
(DROLOC /etland Hyd rimary Indica X_ Surface High Wat	GY Irology Indicate ators (minimum Water (A1) ter Table (A2)	ors: of one requir	red; check	<u>all that appl</u> Water-Sta	y) ined Leave 1, 2, 4A, a	es (B9) (e and 4B)	xcept	<u>S</u>	econdary Ir _ Water-S 4A, a	ndicators tained L nd 4B)	<u>s (2 or m</u> .eaves (B	ore requi	<u>ired)</u> RA 1, 2,
/DROLOC /etland Hyd rimary Indica X_ Surface High Wat Saturatio	GY Irology Indicate ators (minimum e Water (A1) ter Table (A2) n (A3)	ors: of one requir	red; check	all that appl Water-Sta MLRA Salt Crust	<u>y)</u> ined Leave 1, 2, 4A, a (B11)	es (B9) (e and 4B)	xcept	<u>S</u>	econdary Ir _ Water-S 4A, a _ Drainago	ndicators tained L nd 4B) e Pattern	<u>s (2 or m</u> .eaves (B ns (B10)	ore requi	<u>ired)</u> RA 1, 2,
Comparison of the second	GY Irology Indicate ators (minimum Water (A1) ter Table (A2) n (A3) arks (B1)	ors: of one requir	red; check	all that appl Water-Sta MLRA Salt Crust Aquatic In	y) ined Leave 1, 2, 4A, a (B11) vertebrate:	es (B9) (e and 4B) ss (B13)	xcept	<u>S</u>	econdary Ir _ Water-S 4A, a _ Drainage _ Dry-Sea	ndicators tained L nd 4B) e Patteri son Wa	<u>s (2 or m</u> eaves (B ns (B10) ter Table	ore requi 39) (MLR (C2)	<u>ired)</u> RA 1, 2,
Comparison of the second	GY Irology Indicate ators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2)	ors: of one requir	red; check	all that appl Water-Sta MLRA Salt Crust Aquatic In Hydrogen	y) ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oc	es (B9) (e and 4B) es (B13) dor (C1)	xcept	<u>S</u>	econdary Ir Water-S 4A, a Drainage Dry-Sea Saturatic	ndicators tained L nd 4B) e Patten son Wat on Visibl	<u>s (2 or m</u> .eaves (B ns (B10) ter Table le on Aer	ore requi 39) (MLR (C2) ial Image	<u>ired)</u> RA 1, 2 , ery (C9
Print	GY Irology Indicate ators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3)	ors: of one requir	red; check	<u>all that appl</u> Water-Sta MLRA Salt Crust Aquatic In Hydrogen Oxidized F	y) ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizospher	es (B9) (e and 4B) es (B13) dor (C1) res along	xcept	<u> S</u> s (C3)	econdary Ir _ Water-S 4A, a _ Drainago _ Dry-Sea _ Saturatio _ Geomor	ndicators tained L nd 4B) e Pattern son Wa on Visibl phic Pos	<u>s (2 or m</u> .eaves (B ns (B10) ter Table le on Aer sition (D2	ore requi 9) (MLR (C2) ial Image	<u>ired)</u> RA 1, 2, ery (C9
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	GY Irology Indicate ators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5)	ors: of one requir		all that appl Water-Sta MLRA Salt Crust Aquatic Im Hydrogen Oxidized F Presence Recent Iro	y) ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizospher of Reduce on Reductio	es (B9) (e and 4B) es (B13) dor (C1) res along ed Iron (C4 on in Tille	xcept Living Roots 4) d Soils (C6)	<u>S</u> s (C3)	econdary II _ Water-S _ 4A, a _ Drainago _ Dry-Sea _ Saturatio _ Geomor _ Shallow _ FAC-Ne	ndicators tained L nd 4B) e Pattern son Wa son Wa son Visibl phic Pos Aquitaro utral Tes	s (2 or mo eaves (B ns (B10) ter Table le on Aer sition (D2 d (D3) st (D5)	ore requi 99) (MLR (C2) ial Image 2)	<u>ired)</u> A 1, 2 , ery (C9
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PROLOC Vetland Hyd 'rimary Indica X Surface High Wat Saturatio Water Ma Sediment Drift Depo Algal Mat Iron Depo Surface S Inundatio Sparsely ield Observ urface Wate /ater Table F aturation Pre ncludes cap 'escribe Rec emarks: Ber Des not mee	GY Irology Indicate ators (minimum Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) t or Crust (B4) osits (B5) Soil Cracks (B6) on Visible on Ae Vegetated Con vations: er Present? Present? esent? illary fringe) iorded Data (str mch area inunda et criteria for web	ors: of one requir of one requir rial Imagery (cave Surface Yes <u>X</u> Yes <u></u> Yes <u></u> eam gauge, n ated by river s tland.	red; check	all that appl Water-Sta MLRA Salt Crust Aquatic In Aquatic In Aquatic In Oxidized F Presence Recent Iro Stunted or Other (Exp Depth (in Depth (in Well, aerial p but no wetl	y) ined Leave 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphel of Reduce on Reduction r Stressed plain in Re ches): ches): photos, pro- land soil or	es (B9) (e and 4B) es (B13) dor (C1) res along ed Iron (C4 on in Tille Plants (D emarks) River evious ins r wetland	xcept Living Roots 4) d Soils (C6) 1) (LRR A) U U U U U U U U U U U U U U U U U U U	s (C3)	econdary Ir Water-S 4A, a Drainage Dry-Sea Saturatio Geomor Shallow FAC-Ne Raised A Frost-He Iogy Prese	ndicators tained L nd 4B) e Pattern son Water on Visibl phic Pos Aquitaro utral Tes Ant Mou eave Hui eave Hui eave Hui eave Thi	s (2 or mo eaves (B ns (B10) ter Table le on Aerr sition (D2 d (D3) st (D5) inds (D6) mmocks /es X	ore requi 9) (MLR (C2) ial Image 2) (LRR A) (D7) Ne water, b	<u>ired)</u> A 1, 2 , ery (C9)

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

SOIL

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

Project Site:	G	SP Cama	as Mill				Ci	ty/County:	<u>Cam</u>	as/Cla	<u>rk</u>	Sampling D	Date:	7/22	/20	
Applicant/Owner:	G	Georgia-F	Pacific	Consumer Ope	rations	LLC Camas					State: <u>WA</u>	Sampling F	Point:	UP 7	<u>7</u>	
Investigator(s):	T	heresa l	Price, (Chevenne Ginth	ner				Se	ection,	Township, Ran	ge: <u>S11, T</u>	1N, R3E			
Landform (hillslope,	, terra	ace, etc.)): <u>R</u>	iverbank slope			Local relie	ef (concave	e, conve	x, non	e): <u>none</u>		Slope	(%):	<u>4%</u>	
Subregion (LRR):		<u>LRR A</u>			Lat	: <u>45.579623</u>			Long:	-122.4	409093		Datum:			
Soil Map Unit Name	e:	NbB - N	ewbur	g Silt Loam, 3-8	% slop	es					NWI clas	sification:	<u>n/a</u>			
Are climatic / hydrol	logic	conditior	ns on t	he site typical fo	or this ti	me of year?	Yes	\boxtimes	No		(If no, explain i	n Remarks.)				
Are Vegetation	□,	Soil	□,	or Hydrology	□,	significantly di	sturbed?	Are "No	rmal Ci	cumst	ances" present	?	Yes	\boxtimes	No	
Are Vegetation	□,	Soil	□,	or Hydrology	□,	naturally probl	ematic?	(If neede	ed, expl	ain an	y answers in Re	emarks.)				

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

Hydrophytic Vegetation Present?	Yes	\boxtimes	No					
Hydric Soil Present?	Yes		No	\boxtimes	Is the Sampled Area within a Wetland?	Yes	No	\boxtimes
Wetland Hydrology Present?	Yes		No	\boxtimes				
Remarks: Riparian corridor along Camas Slough, Amo	rpha do	minan	t shrul	b in ric	parian and wetland areas.			

Slough. Amorpha dominant shrub in riparian and wetland areas.

VEGETATION – Use scientific names of plants

<u>Tree Stratum</u> (Plot size: <u>10 x 10</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:		
1. <u>N/A</u>				Number of Dominant Species		(
2				That Are OBL, FACW, or FAC:	<u>1</u>	(A)
3				Total Number of Dominant	1	
4				Species Across All Strata:	<u> </u>	(D)
50% =, 20% =	<u>0</u>	= Total Cove	r	Percent of Dominant Species	100%	(A/B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>5 x 5</u>)				That Are OBL, FACW, or FAC:	10070	(,,,,,)
1. <u>Amorpha fruiticosa</u>	<u>35</u>	<u>ves</u>	FACW	Prevalence Index worksheet:		
2				<u>Total % Cover of:</u>	Multiply by:	
3				OBL species	x1 =	
4				FACW species	x2 =	
5				FAC species	x3 =	
50% = <u>17</u> , 20% = <u>7</u>	<u>35</u>	= Total Cove	r	FACU species	x4 =	
<u>Herb Stratum (</u> Plot size: <u>3 x 3</u>)				UPL species	x5 =	
1. <u>Phalaris arundinacea</u>	<u>60</u>	yes	FACW	Column Totals:(A)		(B)
2				Prevalence Index = B/A =		
3				Hydrophytic Vegetation Indicators:		
4				1 – Rapid Test for Hydrophytic Vegetation	on	
5				□ 2 - Dominance Test is >50%		
6				\Box 3 - Prevalence Index is $\leq 3.0^1$		
7				4 - Morphological Adaptations ¹ (Provide	supporting	
8				data in Remarks or on a separate sh	eet)	
9				5 - Wetland Non-Vascular Plants ¹		
10				Problematic Hydrophytic Vegetation ¹ (E	xplain)	
11						
50% = <u>30</u> , 20% = <u>12</u>	<u>60</u>	= Total Cove	r	¹ Indicators of hydric soil and wetland hydrolog	jy must	
Woody Vine Stratum (Plot size: <u>5 x 5</u>)						
1. <u>N/A</u>						
2				Hydrophytic		_
50% =, 20% =	<u>0</u>	= Total Cove	r	Vegetation Yes 🖂	No	
% Bare Ground in Herb Stratum <u>15</u>						
Remarks: Amorpha dominant shrub - further	east and wes	st Dogwood (co	ornus sericea	a) scattered.		

Project Site: <u>GP Camas Mill</u>

SOIL

SOIL											Sa	mpling P	oint: <u>UP 7</u>			
Profi	ile Desc	ription: (Describe to	o the depth	n needed to d	ocument t	ne indicato	or or conf	irm the absen	ice of	indicate	ors.)					
Depth Matrix				I	Redox Feat	tures										
(inch	nes)	Color (moist)	%	Color (mo	oist)	%	Type ¹	Loc ²		Texture			I	Remarks	;	
<u>(</u>)- <u>12</u>	<u>10 YR 3/2</u>	<u>70</u>	<u>10 YR 4</u> /	/3	<u>30</u>	<u>C</u>	M	(Clay-Loa	am.	Very fin	e grit, not	heavy cl	a <u>y.</u>	
	<u>0-1</u>	<u>10 YR 3/1</u>	<u>10</u>		_				<u>(</u>	Clay-Loa	am_	Very fin	ie grit.			
1	<u>2-18</u>	<u>10 YR 3/2</u>	<u>65</u>	<u>10 YR 4</u> /	/3	<u>35</u>	<u>C</u>	M	<u>(</u>	Clay-Loa	am_	Very fin	ie grit, som	newhat n	nore claye	ey
_					_											
_					_											
_					_											
_					_											
_					_						•					
¹Тур	¹ Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix															
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils ³ :																
	Histoso	l (A1)			Sandy Re	edox (S5)					2 c	m Muck	(A10)			
	Histic E	pipedon (A2)			Stripped	Matrix (S6)					Re	d Parent	Material (1	ΓF2)		
	Black H	listic (A3)			Loamy M	ucky Miner	al (F1) (e x	(cept MLRA 1))		Ve	ry Shallo	w Dark Su	rface (TF	-12)	
	Hydrog	en Sulfide (A4)			Loamy G	eyed Matri	x (F2)				Oth	ner (Expla	ain in Rem	arks)		
	Deplete	ed Below Dark Surfa	ce (A11)		Depleted	Matrix (F3))									
	Thick D	ark Surface (A12)			Redox Da	ark Surface	(F6)									
	Sandy	Mucky Mineral (S1)			Depleted	Dark Surfa	ice (F7)			³ Indicators of hydrophytic vegetation and				and		
	Sandy	Gleyed Matrix (S4)			Redox De	pressions	(F8)			w u	nless	disturbed	d or proble	natic.	ι,	
Rest	rictive L	ayer (if present):														
Туре	:															
Dept	Depth (inches): Yes 🗌 No 🛛						\boxtimes									
Rem	arks:	No indicators obser	ved, soil dio	d not meet ind	icators as v	e obsered	soil pil loo	cated ~ 1-ft high	her tha	an WL 1	pit.					

HYDROLOGY

Wet	and Hydrology Indicat	ors:											
Primary Indicators (minimum of one required; check all that apply)								Secondary Indicators (2 or more required)					
	Surface Water (A1)					Water-Stained Leaves (B9)			Water-Stained Leaves (B9)				
	High Water Table (A2)				(except MLRA 1, 2, 4A, and 4B)			(MLRA 1, 2, 4A, and 4B)				
	Saturation (A3)					Salt Crust (B11)	[Drainage Patterns (B10)				
	Water Marks (B1)					Aquatic Invertebrates (B13)	[Dry-Season Water Table (C2)				
	Sediment Deposits (B	2)				Hydrogen Sulfide Odor (C1)	[Saturation Visible on Aerial Imagery (C9)				
	Drift Deposits (B3)					Oxidized Rhizospheres along Living Roots (C3)			Geomorphic Position (D2)				
	Algal Mat or Crust (B4	ł)				Presence of Reduced Iron (C4)	[Shallow Aquitard (D3)				
	Iron Deposits (B5)					Recent Iron Reduction in Tilled Soils (C6)			FAC-Neutral Test (D5)				
	Surface Soil Cracks (B6)					Stunted or Stresses Plants (D1) (LRR A)			Raised Ant Mounds (D6) (LRR A)				
	Inundation Visible on Aerial Imagery (B7)			37)		Other (Explain in Remarks)			Frost-Heave Hummocks (D7)				
Sparsely Vegetated Concave Surface (B8)													
Field	Observations:												
Surfa	ace Water Present?	Yes		No	\boxtimes	Depth (inches):							
Wate	er Table Present?	Yes		No	\boxtimes	Depth (inches):							
Satu (inclu	ration Present? udes capillary fringe)	Yes		No	\boxtimes	Depth (inches): We	etland	Hyo	drology Present? Yes 🗌 No 🛛				
Desc	cribe Recorded Data (str	eam gau	ge, moi	nitoring	well, a	erial photos, previous inspections), if available:							
Rem	arks: Riparian corrio upstream Dar	dor along n outfalls	Camas	s Sloug	h. May	get occasional flow during very high flow periods	s, exce	ept S	Slough/Columbia are controlled somewhat by				

APPENDIX D: WETLAND RATING FORMS AND SUPPORTING FIGURES

Wetland 1 Information Sheet <u>Wetland Name:</u> Wetland 1 <u>Location:</u> Camas Mill Riverbank, upriver of Fire Water Pumphouse



Local	City of
Jurisdiction	Camas
WRIA	28
Ecology Rating	Category II
2014	
Buffer Width	180 feet
Cowardin	REM1R
Classification	
HGM	Riverine
Classification	

RATING SUMMARY – Western Washington

 Name of wetland (or ID #):
 Wetland 1
 Date of site visit: 716-17/2019

 Rated by
 Dunkin, K
 Trained by Ecology?x
 Yes
 No Date of training 2015

 HGM Class used for rating
 Riverine
 Wetland has multiple HGM classes?
 Y
 X
 N

OVERALL WETLAND CATEGORY \parallel (based on functions \times or special characteristics___)

1. Category of wetland based on FUNCTIONS

____Category I – Total score = 23 - 27

X Category II – Total score = 20 - 22

Category III – Total score = 16 - 19

Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality		H	ydrolo	ogic					
		-			Circle the appropriate ratings					
Site Potential	Η	M	L	Н	М		Н	M	L	
Landscape Potential	H	M	L	н	M	L	Н	М	\bigcirc	
Value	θ	Μ	L	θ	Μ	L	H	Μ	L	TOT
Score Based on										
Ratings	8			6		6			20	

Score for each function based on three ratings (order of ratings is not important)

9 = H,H,H 8 = H,H,M 7 = H,H,L 7 = H,M,M 6 = H,M,L 6 = M,M,M 5 = H,L,L 5 = M,M,L 4 = M,L,L

3 = L,L,L

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2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY		
Estuarine	Ι	II	
Wetland of High Conservation Value	I		
Bog	I		
Mature Forest	I		
Old Growth Forest	I		
Coastal Lagoon	Ι	II	
Interdunal	ΙΠ	III IV	
None of the above	X		

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (can be added to another figure)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (can be added to another figure)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	Н 2.1, Н 2.2, Н 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants	S 4.1	
(can be added to figure above)		
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

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 except during floods?

NO - go to 2

- YES the wetland class is **Tidal Fringe** go to 1.1
- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe 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 an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.

2. The entire wetland unit is flat and precipitation is the 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 all** of the following criteria? ____The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size; ____At least 30% of the open water area is deeper than 6.6 ft (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**.

NO - go to 5

YES – The wetland class is **Slope**

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 ft diameter and less than 1 ft deep).

- 5. Does the entire wetland unit **meet all** of the following criteria?
 - The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.
 - _The overbank flooding occurs at least once every 2 years.

Wetland name or number <u>Wetland 1</u>

NO – go to 6 **YES** – The wetland class is **Riverine NOTE**: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is Depressional

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help 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 the wetland unit being scored.

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 HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit	HGM class to
being rated	use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream	Depressional
within boundary of depression	
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other	Treat as
class of freshwater wetland	ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.
RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS			
Water Quality Functions - Indicators that the site functions to imp	rove water quality		
R 1.0. Does the site have the potential to improve water quality?			
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a	a flooding event:		
Depressions cover $>^{3}/_{4}$ area of wetland	points = 8		
Depressions cover > $\frac{1}{2}$ area of wetland	points = 4	0	
Depressions present but cover < ½ area of wetland	points = 2	-	
No depressions present	points = 0		
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, not Cowardi	n classes)		
Trees or shrubs $> ^{2}/_{3}$ area of the wetland	points = 8		
Trees or shrubs $> 1/3$ area of the wetland	points = 6	_	
Herbaceous plants (> 6 in high) > $^{2}/_{3}$ area of the wetland	points = 6	6	
Herbaceous plants (> 6 in high) > $^{1}/_{3}$ area of the wetland	points = 3		
Trees, shrubs, and ungrazed herbaceous < $^{1}/_{3}$ area of the wetland	points = 0		
Total for R 1 Add the points in the boxes above		6	

Rating of Site Potential If score is: $12-16 = H \times 6-11 = M = 0-5 = L$

Record the rating on the first page

R 2.0. Does the landscape have the potential to support the water quality function of th	e site?	-
R 2.1. Is the wetland within an incorporated city or within its UGA?	Yes = 2 No = 0	2
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	Yes = 1 No = 0	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that ha within the last 5 years?	ave been clearcut Yes = 1 No = 0	0
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questic Other sources <u>Upstream industrial areas</u>	ons R 2.1-R 2.4 Yes = 1 No = 0	1
Total for R 2 Add the points	in the boxes above	5
Pating of Landssone Detential If score is: y 2.6 - H 1. ar 2 - M 0 L	Bacard the rating on t	ha first naga

Rating of Landscape Potential If score is: <u>X</u>3-6 = H <u>1 or 2 = M</u> 0 = L

Record the rating on the first page

R 3.0. Is the water quality improvement provided by the site valuable to society?	
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	
$V_{cc} = 1$ No = 0	1
Yes = I No = 0	
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	
Yes = 1 No = 0	0
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (answer	
YES if there is a TMDL for the drainage in which the unit is found) Yes = 2 No = 0	2
Total for R 3 Add the points in the boxes above	3

Rating of Value If score is: $\underline{\times}$ 2-4 = H ___1 = M ___0 = L

Record the rating on the first page

Wetland name or number ______ 1

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosi	on		
R 4.0. Does the site have the potential to reduce flooding and erosion?			
R 4.1. Characteristics of the overbank storage the wetland provides:			
Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).			
If the ratio is more than 20 points = 9			
If the ratio is 10-20 points = 6	1		
If the ratio is 5-<10 points = 4			
If the ratio is 1-<5 points = 2			
If the ratio is < 1 points = 1			
R 4.2. Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are <u>NOT Cowardin</u> classes).			
Forest or shrub for $>^1/_3$ area OR emergent plants $>^2/_3$ area points = 7	4		
Forest or shrub for $> 1/_{10}$ area OR emergent plants $> 1/_3$ area points = 4			
Plants do not meet above criteria points = 0	_		
Total for R 4Add the points in the boxes above	5		
Rating of Site Potential If score is:12-16 = H $6-11 = M$ X $0-5 = L$ Record the rating on the second the s			
R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?			
R 5.1. Is the stream or river adjacent to the wetland downcut? Yes = 0 No = 1	0		
R 5.2. Does the up-gradient watershed include a UGA or incorporated area? Yes = 1 No = 0	1		
R 5.3. Is the up-gradient stream or river controlled by dams? Yes = 0 No = 1	0		
Total for R 5Add the points in the boxes above	1		

Rating of Landscape Potential If score is: 3 = H X 1 or 2 = M 0 = L

Record the rating on the first page

R 6.0. Are the hydrologic functions provided by the site valuable to society?	
R 6.1. Distance to the nearest areas downstream that have flooding problems? Choose the description that best fits the site. The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) Surface flooding problems are in a sub-basin farther down-gradient No flooding problems anywhere downstream	2
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for R 6Add the points in the boxes above	2
Deting of Value if score is: $X = A = H$ $A = H$ $A = H$	a first naga

Record the rating on the first page

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.	1
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac 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 2 points Seasonally flowing stream in, or adjacent to, the wetland 2 points Seasonally flowing stream in, or adjacent to, the wetland 2 points Seasonally flowing stream in, or adjacent to, the wetland 2 points	2
H 1.3. Richness of plant species	
Count the number of plant species in the wetland that cover at least 10 ft ² . Different patches of the same species can be combined to meet the size threshold and 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	1
H 1.4. Interspersion of habitats	
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you</i> <i>have four or more plant classes or three classes and open water, the rating is always high.</i> None = 0 points All three diagrams in this row are HIGH = 3points	2

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. The number of checks is the number of points.	
X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).	
Standing snags (dbh > 4 in) within the wetland	
X_Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)	
Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)	3
X At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated <i>(structures for egg-laying by amphibians)</i>	
Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)	
Total for H 1Add the points in the boxes above	9

Rating of Site Potential If score is: 15-18 = H X - 7-14 = M -0-6 = L

Record the rating on the first page

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).	
Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] =	_%
If total accessible habitat is:	
> ¹ / ₃ (33.3%) of 1 km Polygon points	= 3
20-33% of 1 km Polygon points	= 2 0
10-19% of 1 km Polygon points	= 1
< 10% of 1 km Polygon points	= 0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.	
Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] =	_%
Undisturbed habitat > 50% of Polygon points	= 3
Undisturbed habitat 10-50% and in 1-3 patches points	= 2 0
Undisturbed habitat 10-50% and > 3 patches points	= 1
Undisturbed habitat < 10% of 1 km Polygon points	= 0
H 2.3. Land use intensity in 1 km Polygon: If	
> 50% of 1 km Polygon is high intensity land use points = (- 2) _2
≤ 50% of 1 km Polygon is high intensity points	= 0
Total for H 2 Add the points in the boxes ab	ove -2

Rating of Landscape Potential If score is: _____**4-6 = H** _____**1-3 = M** X < 1 = L

Record the rating on the first page

H 3.0. Is the habitat provided by the site valuable to society?		
 H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose on that applies to the wetland being rated. Site meets ANY of the following criteria: It has 3 or more priority habitats within 100 m (see next page) It provides habitat for Threatened or Endangered species (any plant or animal on the s It is mapped as a location for an individual WDFW priority species It is a Wetland of High Conservation Value as determined by the Department of Natura It has been categorized as an important habitat site in a local or regional comprehensive 	bly the highest score points = 2 state or federal lists) al Resources ve plan, in a	2
X Site has 1 or 2 priority habitats (listed on next page) within 100 m Site does not meet any of the criteria above	points = 1 points = 0	
Rating of Value If score is: $X 2 = H 1 = M 0 = L$	Record the rating on	the first page

Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

WDFW Priority Habitats

<u>Priority habitats listed by WDFW</u> (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

- Aspen Stands: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.
- Old-growth/Mature forests: <u>Old-growth west of Cascade crest</u> Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. <u>Mature forests</u> Stands with average diameters exceeding 21 in (53 cm) dbh; 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; 80-200 years old west of the Cascade crest.
- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 see web link above*).
- X **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 see web link above*).
- X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and
 Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report –
 see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 6.5 ft (0.15 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.



- Wetland boundary (approximate)
 - 150-foot buffer around wetland
 - Herbaceous plants > 6 inches high (not Cowardin classes)

Map 1. Plant Cover

R 1.2, 2.4, 4.1, 4.2



—— Wetland location (approximate)

Contributing Basin

Map 2. Contributing Basin

R 2.2, 2.3



Map 3. 303(d) List Waters

R 3.1



 Wetland boundary (approximate)

Aquatic bed

Emergent

Map 4. Cowardin Plant Classes

H 1.1, 1.4



- Wetland boundary (approximate)
- 1-kilometer buffer around wetland (white line)
- Relatively Undisturbed Land Use
 - Low or Moderate Intensity Land Use
 - High Intensity Land Use

Map 5. 1 Land Use Intensity

H. 2.1, 2.2, 2.3

Wetland 2 Information Sheet <u>Wetland Name:</u> Wetland 2 <u>Location:</u> Camas Mill Riverbank, downriver of Riverbank Pumphouse



RATING SUMMARY – Western Washington

 Name of wetland (or ID #):
 Wetland 2
 Date of site visit: 716-17/2019

 Rated by
 Dunkin, K
 Trained by Ecology?x
 Yes
 No Date of training 2015

 HGM Class used for rating
 Riverine
 Wetland has multiple HGM classes?
 Y
 X
 N

OVERALL WETLAND CATEGORY \parallel (based on functions \times or special characteristics___)

1. Category of wetland based on FUNCTIONS

Category I – Total score = 23 - 27

X Category II – Total score = 20 - 22

_____Category III – Total score = 16 - 19

Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality		Hydrologic		Habitat					
		-			Circle	the ap	propr	iate ro	atings	
Site Potential	Η	M	L	Н	М		Н	M	L	
Landscape Potential	H	M	L	Н	M	L	Н	М	\bigcirc	
Value	θ	Μ	L	θ	Μ	L	H	Μ	L	TOT
Score Based on										
Ratings		8			6			6		20

Score for each function based on three ratings (order of ratings is not important)

9 = H,H,H 8 = H,H,M 7 = H,H,L 7 = H,M,M 6 = H,M,L 6 = M,M,M 5 = H,L,L 5 = M,M,L 4 = M,L,L

3 = L,L,L

11

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY		
Estuarine	Ι	II	
Wetland of High Conservation Value	I		
Bog	I		
Mature Forest	I		
Old Growth Forest	I		
Coastal Lagoon	I II		
Interdunal	I II III IV		
None of the above	х		

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (can be added to another figure)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (can be added to another figure)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	Н 2.1, Н 2.2, Н 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants	S 4.1	
(can be added to figure above)		
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

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 except during floods?

NO - go to 2

- YES the wetland class is **Tidal Fringe** go to 1.1
- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe 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 an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.

2. The entire wetland unit is flat and precipitation is the 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 all** of the following criteria? ____The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size; ____At least 30% of the open water area is deeper than 6.6 ft (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**.

NO - go to 5

YES – The wetland class is **Slope**

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 ft diameter and less than 1 ft deep).

- 5. Does the entire wetland unit **meet all** of the following criteria?
 - The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.
 - _The overbank flooding occurs at least once every 2 years.

NO – go to 6 **YES** – The wetland class is **Riverine NOTE**: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is Depressional

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help 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 the wetland unit being scored.

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 HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit	HGM class to	
being rated	use in rating	
Slope + Riverine	Riverine	
Slope + Depressional	Depressional	
Slope + Lake Fringe	Lake Fringe	
Depressional + Riverine along stream	Depressional	
within boundary of depression		
Depressional + Lake Fringe	Depressional	
Riverine + Lake Fringe	Riverine	
Salt Water Tidal Fringe and any other	Treat as	
class of freshwater wetland	ESTUARINE	

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

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS Water Quality Functions - Indicators that the site functions to improve water quality R 1.0. Does the site have the potential to improve water quality? R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event: Depressions cover $>^3/_4$ area of wetland points = 8 Depressions cover > $\frac{1}{2}$ area of wetland points = 40 Depressions present but cover < 1/2 area of wetland points = 2 No depressions present points = 0 R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, not Cowardin classes) Trees or shrubs > 2/3 area of the wetland points = 8 Trees or shrubs $> \frac{1}{3}$ area of the wetland points = 6 6 Herbaceous plants (> 6 in high) > $^{2}/_{3}$ area of the wetland points = 6Herbaceous plants (> 6 in high) > $\frac{1}{3}$ area of the wetland points = 3 Trees, shrubs, and ungrazed herbaceous $< \frac{1}{3}$ area of the wetland points = 0 Add the points in the boxes above Total for R 1 6

Rating of Site Potential If score is: $12-16 = H \times 6-11 = M$ 0-5 = L

Record the rating on the first page

R 2.0. Does the landscape have the potential to support the water quality function of th	e site?	-
R 2.1. Is the wetland within an incorporated city or within its UGA?	Yes = 2 No = 0	2
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	Yes = 1 No = 0	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that ha within the last 5 years?	ave been clearcut Yes = 1 No = 0	0
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in question Other sources <u>Upstream industrial areas</u>	ons R 2.1-R 2.4 Yes = 1 No = 0	1
Total for R 2 Add the points	in the boxes above	5
Rating of Landscape Potential If score is: V 3-6 = H 1 or 2 = M 0 = L	Record the rating on t	he first nage

Rating of Landscape Potential If score is: <u>X</u> **3-6 = H** ____**1 or 2 = M** ____

Record the rating on the first page

R 3.0. Is the water quality improvement provided by the site valuable to society?	
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	
	1
Yes = 1 No = 0	
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	
Yes = 1 No = 0	0
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (answer	
YES if there is a TMDL for the drainage in which the unit is found) Yes = 2 No = 0	2
Total for R 3 Add the points in the boxes above	3

Rating of Value If score is: <u>x</u> 2-4 = H <u>1 = M</u> 0 = L

Record the rating on the first page

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion		
R 4.0. Does the site have the potential to reduce flooding and erosion?		
R 4.1. Characteristics of the overbank storage the wetland provides:		
Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the		
stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average		
width of stream between banks).		
If the ratio is more than 20 points = 9	1	
If the ratio is 10-20 points = 6	•	
If the ratio is 5-<10 points = 4		
If the ratio is 1-<5 points = 2		
If the ratio is < 1 points = 1		
R 4.2. Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or		
shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person		
height. These are <u>NOT Cowardin</u> classes).		
Forest or shrub for $> \frac{1}{3}$ area OR emergent plants $> \frac{2}{3}$ area points = 7	4	
Forest or shrub for $> 1/10$ area OR emergent plants $> 1/3$ area points = 4		
Plants do not meet above criteria points = 0		
Total for R 4 Add the points in the boxes above	5	
Rating of Site Potential If score is:12-16 = H $6-11 = M$ X $0-5 = L$ Record the rating on the first page		
R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
R 5.1. Is the stream or river adjacent to the wetland downcut? Yes = 0 No = 1	0	
R 5.2. Does the up-gradient watershed include a UGA or incorporated area? Yes = 1 No = 0	1	
R 5.3. Is the up-gradient stream or river controlled by dams? Yes = 0 No = 1	0	

Total for R 5

Rating of Landscape Potential If score is: 3 = H X 1 or 2 = M 0 = L

Record the rating on the first page

1

Add the points in the boxes above

R 6.0. Are the hydrologic functions provided by the site valuable to society?	
R 6.1. Distance to the nearest areas downstream that have flooding problems? Choose the description that best fits the site. The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) Surface flooding problems are in a sub-basin farther down-gradient No flooding problems anywhere downstream	2
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for R 6Add the points in the boxes above	2
Pating of Value If coord its V 2.4 - H 1 - M 0 - I	

Record the rating on the first page

Wetland name or number <u>________</u> 2

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.	1
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac 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 2 points = 0 Seasonally flowing stream in, or adjacent to, the wetland 2 points Lake Fringe wetland 2 points X Freshwater tidal wetland 2 points	2
H 1.3. Richness of plant species	
Count the number of plant species in the wetland that cover at least 10 ft ² . Different patches of the same species can be combined to meet the size threshold and 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	1
H 1.4. Interspersion of habitats	
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you</i> <i>have four or more plant classes or three classes and open water, the rating is always high.</i> None = 0 points All three diagrams in this row are HIGH = 3points	2

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. The number of checks is the number of points.	
X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).	
Standing snags (dbh > 4 in) within the wetland	
X_Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)	
Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)	3
X At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated <i>(structures for egg-laying by amphibians)</i>	
Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)	
Total for H 1Add the points in the boxes above	9

Rating of Site Potential If score is: ____**15-18 = H** ___**X7-14 = M** ___**0-6 = L**

Record the rating on the first page

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).	
Calculate: % undisturbed habitat+ [(% moderate and low intensity land uses)/2]=	%
If total accessible habitat is:	
> ¹ / ₃ (33.3%) of 1 km Polygon poir	nts = 3
20-33% of 1 km Polygon poir	nts = 2 0
10-19% of 1 km Polygon poir	nts = 1
< 10% of 1 km Polygon poir	nts = 0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.	
Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] =	%
Undisturbed habitat > 50% of Polygon poir	nts = 3
Undisturbed habitat 10-50% and in 1-3 patches poir	nts = 2 0
Undisturbed habitat 10-50% and > 3 patches poir	nts = 1
Undisturbed habitat < 10% of 1 km Polygon poir	nts = 0
H 2.3. Land use intensity in 1 km Polygon: If	
> 50% of 1 km Polygon is high intensity land use points	= (- 2) _2
≤ 50% of 1 km Polygon is high intensity poir	nts = 0
Total for H 2 Add the points in the boxes	above -2
	the second by a first second

Rating of Landscape Potential If score is: _____4-6 = H _____1-3 = M \times < 1 = L

Record the rating on the first page

٦

H 3.0. Is the habitat provided by the site valuable to society?		
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only that applies to the wetland being rated.</i>	the highest score	
Site meets ANY of the following criteria:	points = 2	
It has 3 or more priority habitats within 100 m (see next page)		
X It provides habitat for Threatened or Endangered species (any plant or animal on the sta	te or federal lists)	
 It is mapped as a location for an individual WDFW priority species 		2
— It is a Wetland of High Conservation Value as determined by the Department of Natural	Resources	Z
 It has been categorized as an important habitat site in a local or regional comprehensive 	plan, in a	
Shoreline Master Plan, or in a watershed plan		
X Site has 1 or 2 priority habitats (listed on next page) within 100 m	points = 1	
Site does not meet any of the criteria above	points = 0	
Rating of Value If score is: X 2 = H 1 = M 0 = L	Record the rating on t	the first page

Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

WDFW Priority Habitats

<u>Priority habitats listed by WDFW</u> (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

- Aspen Stands: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.
- Old-growth/Mature forests: <u>Old-growth west of Cascade crest</u> Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. <u>Mature forests</u> Stands with average diameters exceeding 21 in (53 cm) dbh; 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; 80-200 years old west of the Cascade crest.
- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 see web link above*).
- X **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 see web link above*).
- X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and
 Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report –
 see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 6.5 ft (0.15 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.



- Wetland boundary (approximate)
 - 150-foot buffer around wetland
 - Herbaceous plants > 6 inches high (not Cowardin classes)

Map 1. Plant Cover

R 1.2, 2.4, 4.1, 4.2



Wetland location (approximate)

Contributing Basin

Map 2. Contributing Basin

R 2.2, 2.3



Map 3. 303(d)

R 3.1



- Wetland boundary (approximate)
 - Aquatic bed
 - Emergent

Map 4. Cowardin Plant Classes

H. 1.1, 1.4



Wetland boundary (approximate)
 1-kilometer buffer around wetland (white line)
 Relatively Undisturbed Land Use
 Low or Moderate Intensity Land Use
 High Intensity Land Use

Map 5. Land Use Intensity

H. 2.1, 2.2, 2.3

Wetland 3 Information Sheet Wetland Name: Wetland 3 Location: Camas Mill Riverbank.



Local	City of
Jurisdiction	Camas
WRIA	28
Ecology	Category II
Rating 2014	
Buffer Width	180 feet
Cowardin	PFO
Classification	
HGM	Riverine
Classification	

RATING SUMMARY – Western Washington

 Name of wetland (or ID #):
 Wetland 3
 Date of site visit: 716-17/2019

 Rated by
 Dunkin, K
 Trained by Ecology?x
 Yes
 No Date of training 2015

 HGM Class used for rating
 Riverine
 Wetland has multiple HGM classes?
 Y
 X
 N

OVERALL WETLAND CATEGORY \parallel (based on functions \times or special characteristics___)

1. Category of wetland based on FUNCTIONS

Category I – Total score = 23 - 27

X Category II – Total score = 20 - 22

Category III – Total score = 16 - 19

Category IV – Total score = 9 - 15

FUNCTION	N	lr /a	nprov ter Q	ving uality	Hy	ydrolc	ogic	ŀ	labit	at	
			-			Circle t	the ap	propri	ate ro	atings	
Site Potential	Η		M	L	Н	M	L	Н	M	L	
Landscape Potential	H)	М	L	Н	M	L	Н	М	(\cdot)	
Value	H)	М	L	H	Μ	L	θ	Μ	L	TOTAL
Score Based on											
Ratings			8			7			6		21

Score for each function based on three ratings (order of ratings is not important)

9 = H,H,H 8 = H,H,M 7 = H,H,L 7 = H,M,M 6 = H,M,L 6 = M,M,M 5 = H,L,L 5 = M,M,L

4 = M,L,L 3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY		
Estuarine	Ι	II	
Wetland of High Conservation Value		Ι	
Bog		Ι	
Mature Forest	I		
Old Growth Forest		Ι	
Coastal Lagoon	Ι	II	
Interdunal	ΙΠ	III IV	
None of the above		x	

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (can be added to another figure)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (can be added to another figure)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	Н 2.1, Н 2.2, Н 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants	S 4.1	
(can be added to figure above)		
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

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 except during floods?



YES – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

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 an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

 $\sqrt[6]{0}$ – 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 all** of the following criteria? ____The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size; ____At least 30% of the open water area is deeper than 6.6 ft (2 m).

🚺 – 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**.

NO – go to 5

YES – The wetland class is **Slope**

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 ft diameter and less than 1 ft deep).

- 5. Does the entire wetland unit **meet all** of the following criteria?
 - The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.
 - ___The overbank flooding occurs at least once every 2 years.

YES – Freshwater Tidal Fringe

Wetland name or number _______ Wetland 3

NO - go to 6

YES – The wetland class is Riverine **NOTE**: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? This means that any outlet, if present, is higher than the interior of the wetland.

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help 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 the wetland unit being scored.

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 HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit	HGM class to
being rated	use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream	Depressional
within boundary of depression	
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other	Treat as
class of freshwater wetland	ESTUARINE

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

RIVERINE AND FRESHWATER TIDAL FRINGE WETLA	NDS	
Water Quality Functions - Indicators that the site functions to improve	e water quality	
R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a floo	oding event:	
Depressions cover $>^{3}/_{4}$ area of wetland	points = 8	
Depressions cover > $\frac{1}{2}$ area of wetland	points = 4	4
Depressions present but cover < $\frac{1}{2}$ area of wetland	points = 2	
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, not Cowardin cla	sses)	
Trees or shrubs $> \frac{2}{3}$ area of the wetland	points = 8	
Trees or shrubs $> \frac{1}{3}$ area of the wetland	points = 6	
Herbaceous plants (> 6 in high) > $^{2}/_{3}$ area of the wetland	points = 6	6
Herbaceous plants (> 6 in high) > $^{1}/_{3}$ area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous $< 1/3$ area of the wetland	points = 0	
Total for R 1 Add the points in the boxes above		10

Rating of Site Potential If score is: $12-16 = H \times 6-11 = M = 0-5 = L$

Record the rating on the first page

R 2.0. Does the landscape have the potential to support the water quality function of th	e site?	
R 2.1. Is the wetland within an incorporated city or within its UGA?	Yes = 2 No = 0	2
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	Yes = 1 No = 0	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that ha within the last 5 years?	ave been clearcut Yes = 1 No = 0	0
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in question Other sources <u>Upstream industrial areas</u>	ons R 2.1-R 2.4 Yes = 1 No = 0	1
Total for R 2 Add the points	in the boxes above	5
Pating of Landsson Datantial if score is: $y = 26 - H = 1 \text{ or } 2 - M = 0 - I$	Bacard the rating on t	ha first naga

Rating of Landscape Potential If score is: χ 3-6 = H ___1 or 2 = M ___0 = L Re

Record the rating on the first page

R 3.0. Is the water quality improvement provided by the site valuable to society?	
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	
	1
Yes = 1 No = 0	
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	
Yes = 1 No = 0	0
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (answer	
YES if there is a TMDL for the drainage in which the unit is found) Yes = 2 No = 0	2
Total for R 3 Add the points in the boxes above	3

Rating of Value If score is: $\underline{\times}$ 2-4 = H ___1 = M ___0 = L

Record the rating on the first page

Wetland name or number ______ 3

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion		
R 4.0. Does the site have the potential to reduce flooding and erosion?		
R 4.1. Characteristics of the overbank storage the wetland provides: Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks). If the ratio is more than 20 points = 9 If the ratio is 10-20 points = 6 If the ratio is 5-<10	1	
If the ratio is < 1points = 1R 4.2. Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).Forest or shrub for >1/3 area OR emergent plants > 2/3 areapoints = 7Forest or shrub for > 1/10 area OR emergent plants > 1/3 areapoints = 4Plants do not meet above criteriapoints = 0	7	
Total for R 4Add the points in the boxes above	8	
Rating of Site Potential If score is:12-16 = HX_6-11 = M0-5 = LRecord the rating on the first pageR 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
R 5.1. Is the stream or river adjacent to the wetland downcut? Yes = 0 No = 1	0	
R 5.2. Does the up-gradient watershed include a UGA or incorporated area? Yes = 1 No = 0	1	
R 5.3. Is the up-gradient stream or river controlled by dams? Yes = 0 No = 1	0	

Total for R 5

Rating of Landscape Potential If score is: 3 = H X 1 or 2 = M 0 = L

Record the rating on the first page

1

Add the points in the boxes above

R 6.0. Are the hydrologic functions provided by the site valuable to society?	
R 6.1. Distance to the nearest areas downstream that have flooding problems? Choose the description that best fits the site. The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) Surface flooding problems are in a sub-basin farther down-gradient No flooding problems anywhere downstream	2
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	
Total for R 6Add the points in the boxes above	2
Pating of Value of score is: $X_{2,4} = H_{1,1} = M_{1,2} = H_{1,2}$	ha first naga

Record the rating on the first page

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked. Aquatic bed 4 structures or more: points = 4 Autic bed 3 structures: points = 2 Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1 X Forested (areas where trees have > 30% cover) 1 structure: points = 0 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 1 structures	1
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods). Permanently flooded or inundated 4 or more types present: points = 3 X Seasonally flooded or inundated 3 types present: points = 2 Occasionally flooded or inundated 2 types present: points = 1 X Saturated only 1 type present: points = 0 Permanently flowing stream or river in, or adjacent to, the wetland 2 points Seasonally flowing stream in, or adjacent to, the wetland 2 points Lake Fringe wetland 2 points Freshwater tidal wetland 2 points	1
H 1.3. Richness of plant species	
Count the number of plant species in the wetland that cover at least 10 ft².Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistleIf you counted: > 19 speciespoints = 25 - 19 speciespoints = 1< 5 species	1
H 1.4. Interspersion of habitats	
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you</i> <i>have four or more plant classes or three classes and open water, the rating is always high.</i> None = 0 points All three diagrams in this row are HIGH = 3points	2

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. The number of checks is the number of points.	
$X_{\rm Large}$, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).	
Standing snags (dbh > 4 in) within the wetland	
Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)	
Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)	2
X At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated <i>(structures for egg-laying by amphibians)</i>	
Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)	
Total for H 1Add the points in the boxes above	7

Rating of Site Potential If score is: ___15-18 = H ___X 7-14 = M ____0-6 = L

Record the rating on the first page

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).	
Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] =%	
If total accessible habitat is:	
> ¹ / ₃ (33.3%) of 1 km Polygon points = 3	
20-33% of 1 km Polygon points = 2	0
10-19% of 1 km Polygon points = 1	
< 10% of 1 km Polygon points = 0	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.	
Calculate: % undisturbed habitat+ [(% moderate and low intensity land uses)/2] =%	
Undisturbed habitat > 50% of Polygon points = 3	
Undisturbed habitat 10-50% and in 1-3 patches points = 2	0
Undisturbed habitat 10-50% and > 3 patches points = 1	
Undisturbed habitat < 10% of 1 km Polygon points = 0	
H 2.3. Land use intensity in 1 km Polygon: If	
> 50% of 1 km Polygon is high intensity land use points = (- 2)	-2
≤ 50% of 1 km Polygon is high intensity points = 0	_
Total for H 2 Add the points in the boxes above	-2

Rating of Landscape Potential If score is: 4-6 = H 1-3 = M X < 1 = L

Г

Record the rating on the first page

-1

H 3.0. Is the habitat provided by the site valuable to society?		
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose on that applies to the wetland being rated.</i>	ly the highest score	
Site meets ANY of the following criteria:	points = 2	
It has 3 or more priority habitats within 100 m (see next page)		
Δ It provides habitat for Threatened or Endangered species (any plant or animal on the st	tate or federal lists)	
 It is mapped as a location for an individual WDFW priority species 		2
— It is a Wetland of High Conservation Value as determined by the Department of Natura	I Resources	-
It has been categorized as an important habitat site in a local or regional comprehensiv	e plan, in a	
X Site has 1 or 2 priority habitats (listed on next page) within 100 m	points = 1	
Site does not meet any of the criteria above	points = 0	
Rating of Value If score is: X 2 = H 1 = M 0 = L	Record the rating on t	he first page

Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

WDFW Priority Habitats

<u>Priority habitats listed by WDFW</u> (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

- Aspen Stands: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.
- Old-growth/Mature forests: <u>Old-growth west of Cascade crest</u> Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. <u>Mature forests</u> Stands with average diameters exceeding 21 in (53 cm) dbh; 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; 80-200 years old west of the Cascade crest.
- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 see web link above*).
- X **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 see web link above*).
- X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and
 Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report –
 see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 6.5 ft (0.15 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.



- Wetland boundary (approximate)
 - 150-foot buffer around wetland
 - Trees or shrubs (not Cowardin classes)
 - Herbaceous plants > 6 inches high (not Cowardin classes)

Map 1. Plant Cover

R 1.2, 2.4, 4.1, 4.2


Wetland location (approximate)

Contributing Basin

Map 2. Contributing Basin

R 2.2, 2.3



Map 3. 303(d)

R 3.1



Wetland boundary	(approximate)
------------------	---------------

Emergent

Forested

Map 4. Cowardin Plant Classes

H. 1.1, 1.4



- Wetland boundary (approximate)
 1-kilometer buffer around wetland (white line)
 Relatively Undisturbed Land Use
 - Low or Moderate Intensity Land Use
 - High Intensity Land Use

Map 5. Land Use Intensity

H. 2.1, 2.2, 2.3

Wetland 4 Information Sheet Wetland Name: Wetland 4 Location: Camas Mill Riverbank



Local	City of
Jurisdiction	Camas
WRIA	28
Ecology	Category II
Rating 2014	
Buffer Width	180 feet
Cowardin	REM1R
Classification	
HGM	Riverine
Classification	

RATING SUMMARY – Western Washington

 Name of wetland (or ID #):
 Wetland 4
 Date of site visit: 716-17/2019

 Rated by
 Dunkin, K
 Trained by Ecology?x
 Yes
 No Date of training 2015

 HGM Class used for rating
 Riverine
 Wetland has multiple HGM classes?
 Y
 X
 N

OVERALL WETLAND CATEGORY \parallel (based on functions \times or special characteristics___)

1. Category of wetland based on FUNCTIONS

Category I – Total score = 23 - 27

X Category II – Total score = 20 - 22

_____Category III – Total score = 16 - 19

_____Category IV – Total score = 9 - 15

FUNCTION	lı Wa	mprov Iter Q	ving uality	H	ydrolo	ogic		Habit	at	
		-			Circle	the ap	propr	iate ro	atings	
Site Potential	Η	M	L	Н	М		Н	M	L	
Landscape Potential	H	M	L	н	M	L	Н	M	(\cdot)	
Value	θ	Μ	L	H	Μ	L	H	Μ	L	тот
Score Based on										
Ratings		8			6			6		20

Score for each function based on three ratings (order of ratings is not important)

9 = H,H,H 8 = H,H,M 7 = H,H,L 7 = H,M,M 6 = H,M,L 6 = M,M,M 5 = H,L,L 5 = M,M,L 4 = M,L,L

3 = L,L,L

11

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY			
Estuarine	Ι	II		
Wetland of High Conservation Value	I			
Bog	I			
Mature Forest		I		
Old Growth Forest		Ι		
Coastal Lagoon	Ι	II		
Interdunal	I II	III IV		
None of the above		Х		

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (can be added to another figure)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (can be added to another figure)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	Н 2.1, Н 2.2, Н 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants	S 4.1	
(can be added to figure above)		
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

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 except during floods?

NO - go to 2

- YES the wetland class is **Tidal Fringe** go to 1.1
- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe 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 an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.

2. The entire wetland unit is flat and precipitation is the 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 all** of the following criteria? ____The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size; ____At least 30% of the open water area is deeper than 6.6 ft (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**.

NO - go to 5

YES – The wetland class is **Slope**

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 ft diameter and less than 1 ft deep).

- 5. Does the entire wetland unit **meet all** of the following criteria?
 - The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.
 - _The overbank flooding occurs at least once every 2 years.

NO – go to 6 **YES** – The wetland class is **Riverine NOTE**: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is Depressional

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help 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 the wetland unit being scored.

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 HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit	HGM class to
being rated	use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream	Depressional
within boundary of depression	
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other	Treat as
class of freshwater wetland	ESTUARINE

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

Wetland name or number <u>Wetland</u> 4

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS		
Water Quality Functions - Indicators that the site functions to improve water qualit	,	
R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:		
Depressions cover $>^{3}/_{4}$ area of wetland points = 8		
Depressions cover > ½ area of wetland points = 4	0	
Depressions present but cover < ½ area of wetland points = 2	Ŭ	
No depressions present points = C		
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, not Cowardin classes)		
Trees or shrubs $> 2/3$ area of the wetland points = 8		
Trees or shrubs $> 1/3$ area of the wetland points = 6		
Herbaceous plants (> 6 in high) > $^{2}/_{3}$ area of the wetland points = 6	6	
Herbaceous plants (> 6 in high) > $^{1}/_{3}$ area of the wetland points = 3		
Trees, shrubs, and ungrazed herbaceous $< 1/3$ area of the wetland points = C		
Total for R 1 Add the points in the boxes above	6	

Rating of Site Potential If score is: $12-16 = H \times 6-11 = M = 0-5 = L$

Record the rating on the first page

R 2.0. Does the landscape have the potential to support the water quality function of the	e site?	-
R 2.1. Is the wetland within an incorporated city or within its UGA?	Yes = 2 No = 0	2
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	Yes = 1 No = 0	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that ha within the last 5 years?	ve been clearcut Yes = 1 No = 0	0
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questio Other sources <u>Upstream industrial areas</u>	ns R 2.1-R 2.4 Yes = 1 No = 0	1
Total for R 2Add the points	in the boxes above	5
Pating of Landscape Detential If score is: y 2.6 - H 1 or 2 - M 0 - L	Pacard the rating on th	ha first naga

Rating of Landscape Potential If score is: <u>X</u> 3-6 = H <u>1</u> or 2 = M <u>0</u> = L

Record the rating on the first page

R 3.0. Is the water quality improvement provided by the site valuable to society?	
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	
$V_{cc} = 1$ No = 0	1
Yes = I NO = 0	
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	
Yes = 1 No = 0	0
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (answer	
YES if there is a TMDL for the drainage in which the unit is found) Yes = 2 No = 0	2
Total for R 3 Add the points in the boxes above	3

Rating of Value If score is: $\underline{\times}$ 2-4 = H ___1 = M ___0 = L

Record the rating on the first page

Wetland name or number ______4

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS				
Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosio	n			
R 4.0. Does the site have the potential to reduce flooding and erosion?				
R 4.1. Characteristics of the overbank storage the wetland provides:				
Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average				
width of stream between banks).				
If the ratio is more than 20 points = 9				
If the ratio is 10-20 points = 6	1			
If the ratio is 5-<10 points = 4				
If the ratio is 1-<5 points = 2				
If the ratio is < 1 points = 1				
R 4.2. Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or				
shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person				
height. These are <u>NOT Cowardin</u> classes).				
Forest or shrub for $>^{1}/_{3}$ area OR emergent plants $>^{2}/_{3}$ area points = 7	4			
Forest or shrub for $> 1/10$ area OR emergent plants $> 1/3$ area points = 4				
Plants do not meet above criteria points = 0				
Total for R 4 Add the points in the boxes above	5			
Rating of Site Potential If score is:12-16 = H $6-11 = M$ X $0-5 = L$ Record the rating on the second the s	he first page			
R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	-			
R 5.1. Is the stream or river adjacent to the wetland downcut? Yes = 0 No = 1	0			
R 5.2. Does the up-gradient watershed include a UGA or incorporated area? Yes = 1 No = 0	1			
R 5.3. Is the up-gradient stream or river controlled by dams? Yes = 0 No = 1	0			

Rating of Landscape Potential If score is:___3 = H X_1 or 2 = M ___0 = L

Total for R 5

Record the rating on the first page

1

Add the points in the boxes above

R 6.0. Are the hydrologic functions provided by the site valuable to society?	
R 6.1. Distance to the nearest areas downstream that have flooding problems? Choose the description that best fits the site. The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) Surface flooding problems are in a sub-basin farther down-gradient No flooding problems anywhere downstream	2
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for R 6Add the points in the boxes above	2
Rating of Value If score is: X 2-4 = H 1 = M 0 = L Record the rating on the second the se	he first page

Wetland name or number <u>_________4</u>

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.	1
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac 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 2 points = 0 Seasonally flowing stream in, or adjacent to, the wetland 2 points Lake Fringe wetland 2 points X Freshwater tidal wetland 2 points	2
H 1.3. Richness of plant species	
Count the number of plant species in the wetland that cover at least 10 ft ² . Different patches of the same species can be combined to meet the size threshold and 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	1
H 1.4. Interspersion of habitats	
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you</i> <i>have four or more plant classes or three classes and open water, the rating is always high.</i> None = 0 points All three diagrams in this row are HIGH = 3points	2

Wetland name or number <u>4</u>

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. The number of checks is the number of points.	
$X_{\rm Large}$, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).	
Standing snags (dbh > 4 in) within the wetland	
X Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)	
Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)	3
X At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated <i>(structures for egg-laying by amphibians)</i> Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of</i>	
strata)	
Total for H 1Add the points in the boxes above	9

Rating of Site Potential If score is: ____15-18 = H ____7-14 = M ____0-6 = L

Record the rating on the first page

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).	
Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] =%	
If total accessible habitat is:	
> ¹ / ₃ (33.3%) of 1 km Polygon points = 3	
20-33% of 1 km Polygon points = 2	0
10-19% of 1 km Polygon points = 1	
< 10% of 1 km Polygon points = 0	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.	
Calculate: % undisturbed habitat+ [(% moderate and low intensity land uses)/2]=%	
Undisturbed habitat > 50% of Polygon points = 3	
Undisturbed habitat 10-50% and in 1-3 patches points = 2	0
Undisturbed habitat 10-50% and > 3 patches points = 1	
Undisturbed habitat < 10% of 1 km Polygon points = 0	
H 2.3. Land use intensity in 1 km Polygon: If	
> 50% of 1 km Polygon is high intensity land use points = (- 2)	-2
≤ 50% of 1 km Polygon is high intensity points = 0	_
Total for H 2 Add the points in the boxes above	-2
Rating of Landscape Potential If score is: 4-6 = H1-3 = M X _ < 1 = L Record the rating on the second	he first page

H 3.0. Is the habitat provided by the site valuable to society? H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose only the highest score that applies to the wetland being rated. Site meets ANY of the following criteria: points = 2 It has 3 or more priority habitats within 100 m (see next page)
 It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species 2 — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan X Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1Site does not meet any of the criteria above points = 0Rating of Value If score is: X 2 = H ___1 = M ___0 = L Record the rating on the first page

Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

WDFW Priority Habitats

<u>Priority habitats listed by WDFW</u> (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

- Aspen Stands: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.
- Old-growth/Mature forests: <u>Old-growth west of Cascade crest</u> Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. <u>Mature forests</u> Stands with average diameters exceeding 21 in (53 cm) dbh; 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; 80-200 years old west of the Cascade crest.
- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 see web link above*).
- X **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 see web link above*).
- X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and
 Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report –
 see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 6.5 ft (0.15 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.



- Wetland boundary (approximate)
- 150-foot buffer around wetland
- Herbaceous Plants >6 inches (not Cowardin classes)

Map 1. Plant Cover

R 1.2, 2.4, 4.1, 4.2



- —— Wetland location (approximate)
 - Contributing Basin

Map 2. Contributing Basin

R 2.2, 2.3



Map 3. 303(d) List Waters

R 3.1





Aquatic bed

Emergent

Map 4. Cowardin Plant Classes

H 1.1, 1.4



- Wetland boundary (approximate)
- 1-kilometer buffer around wetland (white line)
- Relatively Undisturbed Land Use
- Low or Moderate Intensity Land Use
 - High Intensity Land Use

Map 5. Land Use Intensity

H. 2.1, 2.2, 2.3

Wetlands 5 & 6 Information Sheet <u>Wetland Name:</u> Wetland 5 and Wetland 6 <u>Location:</u> Camas Mill Riverbank, upriver of Truck Dock



Local	City of
Jurisdiction	Camas
WRIA	28
Ecology	Category II
Rating 2014	0,
Buffer Width	180 feet
Cowardin	REM1R
Classification	
HGM	Riverine
Classification	

RATING SUMMARY – Western Washington

 Name of wetland (or ID #):
 Wetland 5 & 6
 Date of site visit: 716-17/2019

 Rated by
 Dunkin, K
 Trained by Ecology?x
 Yes
 No Date of training 2015

 HGM Class used for rating
 Riverine
 Wetland has multiple HGM classes?
 Y
 X
 N

OVERALL WETLAND CATEGORY \parallel (based on functions \times or special characteristics___)

1. Category of wetland based on FUNCTIONS

____Category I – Total score = 23 - 27

X Category II – Total score = 20 - 22

Category III – Total score = 16 - 19

Category IV – Total score = 9 - 15

FUNCTION	lı Wa	mprov iter Q	/ing uality	H	ydrolo	ogic		Habit	at	
		-			Circle	the ap	propr	iate ro	atings	
Site Potential	Η	M	L	Н	М		Н	M	L	
Landscape Potential	H	M	L	н	M	L	Н	М	\bigcirc	
Value	θ	Μ	L	θ	Μ	L	H	Μ	L	TOT
Score Based on										
Ratings		8			6			6		20

Score for each function based on three ratings (order of ratings is not important)

9 = H,H,H 8 = H,H,M 7 = H,H,L 7 = H,M,M 6 = H,M,L 6 = M,M,M 5 = H,L,L 5 = M,M,L 4 = M,L,L

3 = L,L,L

11

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY		
Estuarine	Ι	II	
Wetland of High Conservation Value	I		
Bog	Ι		
Mature Forest	I		
Old Growth Forest		Ι	
Coastal Lagoon	Ι	II	
Interdunal	ΙΠ	III IV	
None of the above		x	

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (can be added to another figure)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (can be added to another figure)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	Н 2.1, Н 2.2, Н 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants	S 4.1	
(can be added to figure above)		
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland Rating System for Western WA: 2014 Update Rating Form – Effective January 1, 2015

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

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 except during floods?

NO - go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine)

YES – Freshwater Tidal Fringe 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 an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.

2. The entire wetland unit is flat and precipitation is the 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 all** of the following criteria? ____The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size; ____At least 30% of the open water area is deeper than 6.6 ft (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**.

NO - go to 5

YES – The wetland class is **Slope**

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 ft diameter and less than 1 ft deep).

- 5. Does the entire wetland unit **meet all** of the following criteria?
 - The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.
 - _The overbank flooding occurs at least once every 2 years.

NO – go to 6 **YES** – The wetland class is **Riverine NOTE**: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is Depressional

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is Depressional

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help 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 the wetland unit being scored.

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 HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit	HGM class to
being rated	use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream	Depressional
within boundary of depression	
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other	Treat as
class of freshwater wetland	ESTUARINE

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

Wetland name or number Wetland 5&6

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS Water Quality Functions - Indicators that the site functions to improve water quality R 1.0. Does the site have the potential to improve water quality? R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event: Depressions cover $>^3/_4$ area of wetland points = 8 Depressions cover > $\frac{1}{2}$ area of wetland points = 40 Depressions present but cover < 1/2 area of wetland points = 2 No depressions present points = 0 R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, not Cowardin classes) Trees or shrubs > 2/3 area of the wetland points = 8 Trees or shrubs $> \frac{1}{3}$ area of the wetland points = 6 6 Herbaceous plants (> 6 in high) > $^{2}/_{3}$ area of the wetland points = 6Herbaceous plants (> 6 in high) > $\frac{1}{3}$ area of the wetland points = 3 Trees, shrubs, and ungrazed herbaceous $< \frac{1}{3}$ area of the wetland points = 0 Add the points in the boxes above Total for R 1 6

Rating of Site Potential If score is: $12-16 = H \times 6-11 = M$ 0-5 = L

Record the rating on the first page

R 2.0. Does the landscape have the potential to support the water quality function of th	e site?	-
R 2.1. Is the wetland within an incorporated city or within its UGA? Yes = 2 No = 0		2
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area? Yes = 1 No = 0		1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that ha within the last 5 years?	ave been clearcut Yes = 1 No = 0	0
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in question Other sources <u>Upstream industrial areas</u>	ons R 2.1-R 2.4 Yes = 1 No = 0	1
Total for R 2 Add the points	in the boxes above	5
Rating of Landscape Potential If score is: V 3-6 = H 1 or 2 = M 0 = L	Record the rating on t	he first nage

Rating of Landscape Potential If score is: <u>X</u> 3-6 = H ____1 or 2 = M ___

Record the rating on the first page

R 3.0. Is the water quality improvement provided by the site valuable to society?	
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	
$V_{cc} = 1$ No = 0	1
Yes = T NO = O	
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	
Yes = 1 No = 0	0
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (answer	
YES if there is a TMDL for the drainage in which the unit is found) Yes = 2 No = 0	2
Total for R 3 Add the points in the boxes above	3

Rating of Value If score is: <u>x</u> 2-4 = H <u>1 = M</u> 0 = L

Record the rating on the first page

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion		
R 4.0. Does the site have the potential to reduce flooding and erosion?		
R 4.1. Characteristics of the overbank storage the wetland provides:		
Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the		
stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average		
width of stream between banks).		
If the ratio is more than 20 points = 9	1	
If the ratio is 10-20 points = 6	•	
If the ratio is 5-<10 points = 4		
If the ratio is 1-<5 points = 2		
If the ratio is < 1 points = 1		
R 4.2. Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or		
shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person		
height. These are <u>NOT Cowardin</u> classes).		
Forest or shrub for $>^{1}/_{3}$ area OR emergent plants $>^{2}/_{3}$ area points = 7		
Forest or shrub for $> 1/_{10}$ area OR emergent plants $> 1/_3$ area points = 4		
Plants do not meet above criteria points = 0		
Total for R 4 Add the points in the boxes above	5	
Rating of Site Potential If score is:12-16 = H $6-11 = M$ X $0-5 = L$ Record the rating on the first page		
R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
R 5.1. Is the stream or river adjacent to the wetland downcut? Yes = 0 No = 1 0		
R 5.2. Does the up-gradient watershed include a UGA or incorporated area? Yes = 1 No = 0	1	
R 5.3. Is the up-gradient stream or river controlled by dams? Yes = 0 No = 1	0	

Total for R 5

Rating of Landscape Potential If score is: 3 = H X 1 or 2 = M 0 = L

Record the rating on the first page

1

Add the points in the boxes above

R 6.0. Are the hydrologic functions provided by the site valuable to society?	
R 6.1. Distance to the nearest areas downstream that have flooding problems? Choose the description that best fits the site. The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) Surface flooding problems are in a sub-basin farther down-gradient No flooding problems anywhere downstream	2
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for R 6Add the points in the boxes above	2

Record the rating on the first page

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.	1
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac 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 2 points Seasonally flowing stream in, or adjacent to, the wetland 2 points Seasonally flowing stream in, or adjacent to, the wetland 2 points Seasonally flowing stream in, or adjacent to, the wetland 2 points	2
H 1.3. Richness of plant species $f_{1,2}$ count the number of plant species in the unstland that source at least 10 $f_{1,2}^2$	
Count the number of plant species in the wetland that cover at least 10 ft . Different patches of the same species can be combined to meet the size threshold and 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	1
H 1.4. Interspersion of habitats	
All three diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you have four or more plant classes or three classes and open water, the rating is always high.</i> None = 0 points Low = 1 point All three diagrams in this row are HIGH = 3 points	2

Wetland name or number Wetland 5&6

H 1.5. Special habitat features:	
Check the habitat features that are present in the wetland. The number of checks is the number of points.	
X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).	
Standing snags (dbh > 4 in) within the wetland	
<u>X</u> Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)	
Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (cut shrubs or trees that have not yet weathered where wood is exposed)	3
X At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated <i>(structures for egg-laying by amphibians)</i>	
Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>)	
Total for H 1Add the points in the boxes above	9

Rating of Site Potential If score is: ___15-18 = H ___X7-14 = M ___0-6 = L

Record the rating on the first page

H 2.0. Does the landscape have the potential to support the habitat functions of the site?		
H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).		
Calculate: % undisturbed habitat+ [(% moderate and low intensity land uses)/2]=	%	
If total accessible habitat is:		
> ¹ / ₃ (33.3%) of 1 km Polygon p	ooints = 3	
20-33% of 1 km Polygon p	ooints = 2	0
10-19% of 1 km Polygon p	oints = 1	
< 10% of 1 km Polygon p	oints = 0	
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.		
Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] =	%	
Undisturbed habitat > 50% of Polygon p	oints = 3	
Undisturbed habitat 10-50% and in 1-3 patches p	oints = 2	0
Undisturbed habitat 10-50% and > 3 patches p	oints = 1	
Undisturbed habitat < 10% of 1 km Polygon p	oints = 0	
H 2.3. Land use intensity in 1 km Polygon: If		
> 50% of 1 km Polygon is high intensity land use poir	nts = (- 2)	-2
≤ 50% of 1 km Polygon is high intensity p	oints = 0	
Total for H 2 Add the points in the box	es above	-2
		<i>c</i> .

Rating of Landscape Potential If score is: 4-6 = H 1-3 = M X < 1 = L

Record the rating on the first page

H 3.0. Is the habitat provided by the site valuable to society?		
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose onl</i>	y the highest score	
Site meets ANY of the following criteria:	points = 2	
- It has 3 or more priority habitats within 100 m (see next page)		
 It provides habitat for Threatened or Endangered species (any plant or animal on the st It is mapped as a location for an individual WDFW priority species 	ate or federal lists)	
— It is a Wetland of High Conservation Value as determined by the Department of Natura	l Resources	2
 It has been categorized as an important habitat site in a local or regional comprehensiv Shoreline Master Plan, or in a watershed plan 	e plan, in a	
X Site has 1 or 2 priority habitats (listed on next page) within 100 m	points = 1	
Site does not meet any of the criteria above	points = 0	
Rating of Value If score is: X 2 = H 1 = M 0 = L	Record the rating on t	he first page

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WDFW Priority Habitats

<u>Priority habitats listed by WDFW</u> (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

- Aspen Stands: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.
- Old-growth/Mature forests: <u>Old-growth west of Cascade crest</u> Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. <u>Mature forests</u> Stands with average diameters exceeding 21 in (53 cm) dbh; 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; 80-200 years old west of the Cascade crest.
- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 see web link above*).
- X **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 see web link above*).
- X Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and
 Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report –
 see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 6.5 ft (0.15 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.



- Wetland boundary (approximate)
 - 150-foot buffer around wetland
 - Herbaceous Plants (not Cowardin classes)

Map 1. Plant Cover

R 1.2, 2.4, 4.1, 4.2



- Wetland location (approximate)
 - Contributing Basin

Map 2. Contributing Basin

R 2.2, 2.3



Map 3. 303(d) List Waters

R 3.1



 Wetland
Aquatic b

boundary (approximate)



Emergent

Map 4. Cowardin Plant Classes

H 1.1, 1.4



- Wetland boundary (approximate)
- 1-kilometer buffer around wetland (white line)
- Relatively Undisturbed Land Use
- Low or Moderate Intensity Land Use
 - High Intensity Land Use

Map 5. Land Use Intensity

H. 2.1, 2.2, 2.3



- Wetland boundary (approximate)
 - 150-foot buffer around wetland
 - Herbaceous Plants (not Cowardin classes)

Map 1. Plant Cover

R 1.2, 2.4, 4.1, 4.2



- Wetland location (approximate)
 - Contributing Basin

Map 2. Contributing Basin

R 2.2, 2.3


Map 3. 303(d) List Waters

R 3.1



Wetland boundary (approximate)



Aquatic bed

Emergent

Map 4. Cowardin Plant Classes

H 1.1, 1.4



- Wetland boundary (approximate)
- 1-kilometer buffer around wetland (white line)
- Relatively Undisturbed Land Use
- Low or Moderate Intensity Land Use
 - High Intensity Land Use

Map 5. Land Use Intensity

H. 2.1, 2.2, 2.3

Wetland 7 Information Sheet Wetland Name: Wetland 7 Location: Lady Island, Camas Slough Riverbank, upriver from Truck Dock



Local	City of
Jurisdiction	Camas
WRIA	28
Ecology	Category II
Rating 2014	
Buffer Width	180 feet
Cowardin	REM1R
Classification	
HGM	Riverine
Classification	

RATING SUMMARY – Western Washington

 Name of wetland (or ID #):
 Wetland 7 (WL 7)
 Date of site visit:
 7/22/20

 Rated by
 Cheyenne Ginther
 Trained by Ecology?
 Yes x No Date of training

 HGM Class used for rating
 Riverine
 Wetland has multiple HGM classes?
 Y x N

NOTE: Form is not complete without the figures requested (figures can be combined). Source of base aerial photo/map ______

OVERALL WETLAND CATEGORY _____ (based on functions____ or special characteristics____)

1. Category of wetland based on FUNCTIONS

Category I – Total score = 23 - 27

X Category II – Total score = 20 - 22

_____Category III - Total score = 16 - 19

____Category IV – Total score = 9 - 15

FUNCTION	lr Wa	nprov ter Q	/ing uality	Ну	/drolo	ogic		Habita	ət	
					Circle	the ap	propr	iate ra	tings	
Site Potential	Н	M	L	Н	Μ	L	Н	Μ	L	
Landscape Potential	H	Μ	L	Н	M	L	Н	M	L	
Value	H	Μ	L	H	Μ	L	H	Μ	L	TOTA
Score Based on Ratings		8			6			6		20

Score for each function based on three ratings (order of ratings is not important) 9 = H,H,H 8 = H,H,M 7 = H,H,L 7 = H,M,M

6 = H,M,L 6 = M,M,M

AL

5 = H,L,L 5 = M,M,L

4 = M,L,L 3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CAT	EGORY
Estuarine	Ι	II
Wetland of High Conservation Value		Ι
Bog		Ι
Mature Forest		Ι
Old Growth Forest		Ι
Coastal Lagoon	Ι	II
Interdunal	I II	III IV
None of the above		

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Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (can be added to map of hydroperiods)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (can be added to another figure)	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	Н 1.1, Н 1.4	2
Hydroperiods	H 1.2	4
Ponded depressions	R 1.1	1
Boundary of area within 150 ft of the wetland (can be added to another figure)	R 2.4	1
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	2
Width of unit vs. width of stream (can be added to another figure)	R 4.1	1
Map of the contributing basin	R 2.2, R 2.3, R 5.2	6
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	~
polygons for accessible habitat and undisturbed habitat		5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	7

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (can be added to another figure)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	Н 2.1, Н 2.2, Н 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	Н 1.1, Н 1.4	
Hydroperiods	H 1.2	
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of dense, rigid trees, shrubs, and herbaceous plants	S 4.1	
(can be added to figure above)		
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	
polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

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HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

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 except during floods?

NO – go to 2

YES – the wetland class is Tidal Fringe – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

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 an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 *If your wetland can be classified as a Flats wetland, use the form for Depressional wetlands.*

3. Does the entire wetland unit meet all of the following criteria?
__The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
__At least 30% of the open water area is deeper than 6.6 ft (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**.

NO – go to 5

YES – The wetland class is Slope

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 ft diameter and less than 1 ft deep).

- 5. Does the entire wetland unit **meet all** of the following criteria?
 - _____The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
 - ____The overbank flooding occurs at least once every 2 years.

YES – Freshwater Tidal Fringe

Wetland name or number WL 7

NO - go to 6

YES – The wetland class is **Riverine NOTE**: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? This means that any outlet, if present, is higher than the interior of the wetland.

NO – go to 7

YES – The wetland class is Depressional

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help 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 the wetland unit being scored.

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 HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit	HGM class to
being rated	use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream	Depressional
within boundary of depression	
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other	Treat as
class of freshwater wetland	ESTUARINE

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

DEPRESSIONAL AND FLATS WETLANDS		
Water Quality Functions - Indicators that the site functions to improve wa	ter quality	
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland:		
Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet).	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing	g outlet. points = 2	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 1 points = 1	
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions). Ye	s = 4 No = 0	
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cow	vardin classes):	
Wetland has persistent, ungrazed, plants > 95% of area	points = 5	
Wetland has persistent, ungrazed, plants > ½ of area	points = 3	
Wetland has persistent, ungrazed plants $> \frac{1}{10}$ of area	points = 1	
Wetland has persistent, ungrazed plants $<^{1}/_{10}$ of area	points = 0	
D 1.4. Characteristics of seasonal ponding or inundation:		
This is the area that is ponded for at least 2 months. See description in manual.		
Area seasonally ponded is > $\frac{1}{2}$ total area of wetland	points = 4	
Area seasonally ponded is > $\frac{1}{4}$ total area of wetland	points = 2	
Area seasonally ponded is < ¼ total area of wetland	points = 0	
Total for D 1Add the points in the b	ooxes above	

Rating of Site Potential If score is: 12-16 = H _____6-11 = M _____0-5 = L Record the rating on the first page

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0		
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0		
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3?		
Source	Yes = 1 No = 0	
Total for D 2Add the points in the boxes above		

Rating of Landscape Potential If score is: 3 or 4 = H 1 or 2 = M 0 = L Record the rating on the first page

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0		
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the	e 303(d) list? Yes = 1 No = 0	
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (<i>answer YES if there is a TMDL for the basin in which the unit is found</i>)? Yes = 2 No = 0		
Total for D 3	Add the points in the boxes above	
Rating of Value If score is: 2-4 = H 1 = M 0 = L	Record the rating on the first page	

DEPRESSIONAL AND FLATS WETLANDS			
Hydrologic Functions - Indicators that the site functions t	to reduce flooding and stream degradation		
D 4.0. Does the site have the potential to reduce flooding and erosic	on?		
D 4.1. <u>Characteristics of surface water outflows from the wetland</u> : Wetland is a depression or flat depression with no surface water lea Wetland has an intermittently flowing stream or ditch, OR highly co Wetland is a flat depression (QUESTION 7 on key), whose outlet is a Wetland has an unconstricted, or slightly constricted, surface outlet	iving it (no outlet) points = 4 postricted permanently flowing outletpoints = 2 permanently flowing ditch points = 1 that is permanently flowing points = 0		
D 4.2. Depth of storage during wet periods: Estimate the height of ponding with no outlet, measure from the surface of permanent water or if d Marks of ponding are 3 ft or more above the surface or bottom of o Marks of ponding between 2 ft to < 3 ft from surface or bottom of o Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet The wetland is a "headwater" wetland Wetland is flat but has small depressions on the surface that trap wa Marks of ponding less than 0.5 ft (6 in)	a above the bottom of the outlet. For wetlands by, the deepest part. utlet points = 7 putlet points = 5 points = 3 points = 3 points = 1 points = 0		
D 4.3. <u>Contribution of the wetland to storage in the watershed</u> : <i>Estimate the contributing surface water to the wetland to the area of the wetland</i> . The area of the basin is less than 10 times the area of the unit The area of the basin is 10 to 100 times the area of the unit The area of the basin is more than 100 times the area of the unit Entire wetland is in the Flats class. Total for D 4 Rating of Site Potential If score is: <u>12-16 = H</u> <u>6-11 = M</u> <u>0-5 = </u>	he ratio of the area of upstream basin d unit itself. points = 5 points = 3 points = 0 points = 5 Add the points in the boxes above L Record the rating on the first page		
D 5.0. Does the landscape have the potential to support hydrologic	functions of the site?		
D 5.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0		
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that ge D 5.3. Is more than 25% of the contributing basin of the wetland covered w >1 residence/ac, urban, commercial, agriculture, etc.)?	enerate excess runoff? Yes = 1 No = 0 with intensive human land uses (residential at Yes = 1 No = 0 Add the points in the boxes above		
Rating of Landscape Potential If score is: 3 = H 1 or 2 = M 0	= L Record the rating on the first page		
 D 6.0. Are the hydrologic functions provided by the site valuable to D 6.1. The unit is in a landscape that has flooding problems. Choose the determ wetland unit being rated. Do not add points. Choose the highest The wetland captures surface water that would otherwise flow down damaged human or natural resources (e.g., houses or salmon redds) Flooding occurs in a sub-basin that is immediately down-gradient. Surface flooding problems are in a sub-basin farther down-grade Flooding from groundwater is an issue in the sub-basin. The existing or potential outflow from the wetland is so constrained water stored by the wetland cannot reach areas that flood. Explain the There are no problems with flooding downstream of the wetland. D 6.2. Has the site been identified as important for flood storage or flood of the sub-basin flood storage or flood storage or flood of the sub-basin flood stor	society? scription that best matches conditions around t score if more than one condition is met. n-gradient into areas where flooding has): nt of unit. points = 2 lient. points = 1 l by human or natural conditions that the why points = 0 points = 0 conveyance in a regional flood control plan? Yes = 2 No = 0		
Total for D 6	Add the points in the boxes above		
Rating of Value If score is: 2-4 = H 1 = M 0 = L	Record the rating on the first page		

RIVERINE AND FRESHWATER TIDAL FRINGE WETL	ANDS	
Water Quality Functions - Indicators that the site functions to impro	ove water quality	
R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a f	looding event:	
Depressions cover > ³ / ₄ area of wetland	points = 8	
Depressions cover > $\frac{1}{2}$ area of wetland	points = 4	0
Depressions present but cover < ½ area of wetland	points = 2	
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, not Cowardin of	classes)	
Trees or shrubs $> ^{2}/_{3}$ area of the wetland	points = 8	
Trees or shrubs $> 1/3$ area of the wetland	points = 6	6
Herbaceous plants (> 6 in high) > $^{2}/_{3}$ area of the wetland	points = 6	0
Herbaceous plants (> 6 in high) > $^{1}/_{3}$ area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous < $^{1}/_{3}$ area of the wetland	points = 0	
Total for R 1Add the points in the boxes above		6

Rating of Site Potential If score is: 12-16 = H <u>X</u> 6-11 = M _0-5 = L

Record the rating on the first page

R 2.0. Does the landscape have the potential to support the water quality function of the site?	-
R 2.1. Is the wetland within an incorporated city or within its UGA? (Yes = 2) No = 0	2
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area? (Yes = 1) No = 0	1
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years? Yes = 1 (No = 0)	0
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? (Yes = 1) No = 0	1
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources Waterfowl use and deer grazing (indicated by prints) Yes = 1 No = 0	1
Total for R 2Add the points in the boxes above	6
Rating of Landscape Potential If score is: $X = 3-6 = H$ 1 or $2 = M$ $0 = I$ Becord the rating on	the first nane

 Rating of Landscape Potential If score is: X 3-6 = H
 1 or 2 = M
 0 = L
 Record the rating on the first page

R 3.0. Is the water quality improvement provided by the site valuable to society?	
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	
Yes = 1 No = 0	1
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	
<mark>Yes = 1</mark> No = 0	1
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (answer	2
YES if there is a TMDL for the drainage in which the unit is found) Yes = 2 No = 0	2
Total for R 3 Add the points in the boxes above	4

Rating of Value If score is: <u>X</u> 2-4 = H <u>1</u> = M <u>0</u> = L

Record the rating on the first page

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion	
R 4.0. Does the site have the potential to reduce flooding and erosion?	
R 4.1. Characteristics of the overbank storage the wetland provides:	
Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).	
If the ratio is more than 20 23 meters/195 meters points = 9	1
If the ratio is 10-20 points = 6	1
If the ratio is 5-<10 points = 4	
If the ratio is 1-<5 points = 2	
If the ratio is < 1 points = 1	
R 4.2. Characteristics of plants that slow down water velocities during floods: Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are <u>NOT Cowardin</u> classes). Forest or shrub for $>^1/_3$ area OR emergent plants $>^2/_3$ area points = 7 Eorest or shrub for $>^1/_{10}$ area OR emergent plants $>^1/_2$ area points = 4	4
Plants do not meet above criteria points = 0	
Total for R 4 Add the points in the boxes above	5
Rating of Site Potential If score is:12-16 = H $6-11 = M$ $x_0-5 = L$ Record the rating on the second state of the s	he first page
R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	-
R 5.1. Is the stream or river adjacent to the wetland downcut? Yes = 0 No = 1	1
R 5.2. Does the up-gradient watershed include a UGA or incorporated area? Yes = 1 No = 0	1
R 5.3. Is the up-gradient stream or river controlled by dams? Yes = 0 No = 1	0
Total for R 5Add the points in the boxes above	2
Rating of Landscape Potential If score is: 3 = H X 1 or 2 = M 0 = L Record the rating on the second the	he first page
R 6.0. Are the hydrologic functions provided by the site valuable to society?	
R 6.1. Distance to the nearest areas downstream that have flooding problems? <i>Choose the description that best fits the site</i> . The sub-basis immediately down gradient of the wetland has flooding problems that result in domage to	
human or natural resources (e.g., houses or salmon redds)	2
Surface flooding problems are in a sub-basin farther down-gradientpoints = 1No flooding problems anywhere downstreampoints = 0	
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 (No = 0)	0
Total for R 6 Add the points in the boxes above	2

Rating of Value If score is: X 2-4 = H 1 = M 0 = L

Record the rating on the first page

LAKE FRINGE WETLANDS		
Water Quality Functions - Indicators that the site functions to improve water quality		
L 1.0. Does the site have the potential to improve water quality?		
L 1.1. Average width of plants along the lakeshore (use polygons of Cowardin classes):		
Plants are more than 33 ft (10 m) wide	points = 6	
Plants are more than 16 ft (5 m) wide and <33 ft	points = 3	
Plants are more than 6 ft (2 m) wide and <16 ft	points = 1	
Plants are less than 6 ft wide	points = 0	
L 1.2. Characteristics of the plants in the wetland: Choose the appropriate description that repoints, and do not include any open water in your estimate of coverage. The herbaced the dominant form or as an understory in a shrub or forest community. These are not of cover is total cover in the unit, but it can be in patches. Herbaceous does not include Cover of herbaceous plants is >90% of the vegetated area Cover of herbaceous plants is $>^2/_3$ of the vegetated area Cover of herbaceous plants is $>^1/_3$ of the vegetated area	esults in the highest bus plants can be either <i>Cowardin classes. Area</i> <i>aquatic bed.</i> points = 6 points = 4 points = 3	
Other plants that are not aquatic bed > $^{2}/_{3}$ unit Other plants that are not aquatic bed in > $^{1}/_{3}$ vegetated area Aquatic bed plants and open water cover > $^{2}/_{3}$ of the unit	points = 3 points = 1 points = 0	
Total for L 1 Add the po	ints in the boxes above	
Rating of Site Potential If score is:8-12 = H4-7 = M0-3 = L	Record the rating on the fir	st page

L 2.0. Does the landscape have the potential to support the water quality function of the site?	
L 2.1. Is the lake used by power boats?	Yes = 1 No = 0
L 2.2. Is > 10% of the area within 150 ft of wetland unit on the upland side in land uses that gene	erate pollutants?
	Yes = 1 No = 0
L 2.3. Does the lake have problems with algal blooms or excessive plant growth such as milfoil?	Yes = 1 No = 0
Total for L 2 Add the points	s in the boxes above
Rating of Landscape Potential: If score is: 2 or 3 = H 1 = M 0 = L	Record the rating on the first page

L 3.0. Is the water quality improvement provided by the site valuable to	o society?	
L 3.1. Is the lake on the 303(d) list of degraded aquatic resources?	Yes = 1 No = 0	
L 3.2. Is the lake in a sub-basin where water quality is an issue (at least one aqu 303(d) list)?	uatic resource in the basin is on the Yes = 1 No = 0	
L 3.3. Has the site been identified in a watershed or local plan as important for <i>if there is a TMDL for the lake or basin in which the unit is found.</i>	r maintaining water quality? Answer YES Yes = 2 No = 0	
Total for L 3	Add the points in the boxes above	
Rating of Value If score is: 2-4 = H 1 = M 0 = L	Record the rating on the	e first page

Rating of Value If score is: 2-4 = H 1 = M 0 = L

LAKE FRINGE WETLANDS	
Hydrologic Functions - Indicators that the wetland unit functions to reduce shoreline eros	ion
L 4.0. Does the site have the potential to reduce shoreline erosion?	
L 4.1. Distance along shore and average width of Cowardin classes along the lakeshore (do not include Aquatic bed): <i>Choose the highest scoring description that matches conditions in the wetland.</i> > ¾ of distance is Scrub-shrub or Forested at least 33 ft (10 m) wide points = 6 > ¾ of distance is Scrub-shrub or Forested at least 6 ft (2 m) wide points = 4 > ¼ distance is Scrub-shrub or Forested at least 33 ft (10 m) wide points = 4 Plants are at least 6 ft (2 m) wide (any type except Aquatic bed) points = 2 Plants are less than 6 ft (2 m) wide (any type except Aquatic bed) points = 0	
Rating of Site Potential: If score is:6 = M0-5 = L Record the rating on	the first page
L 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
L 5.1. Is the lake used by power boats with more than 10 hp? Yes = 1 No = 0	

L 5.1. Is the lake used by power boats with more than 10 hp?Yes = 1No = 0L 5.2. Is the fetch on the lake side of the unit at least 1 mile in distance?Yes = 1No = 0Total for L 5Add the points in the boxes above

	Rating of Landscape Potential	If score is:	2 = H	1 = M	0 = L
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Record the rating on the first page

L 6.0. Are the hydrologic functions provided by the site valuable to society?	
L 6.1. Are there resources along the shore that can be impacted by erosion? If more than one resources the one with the highest score.	ource is present,
There are human structures or old growth/mature forests within 25 ft of OHWM of the sho	pre in the unit
	points = 2
There are nature trails or other paths and recreational activities within 25 ft of OHWM	points = 1
Other resources that could be impacted by erosion	points = 1
There are no resources that can be impacted by erosion along the shores of the unit	points = 0
Rating of Value: If score is: 2 = H 1 = M 0 = L	Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

SLOPE WETLANDS	
Water Quality Functions - Indicators that the site functions to improve water quality	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: (a 1% slope has a 1 ft vertical drop in elevation for every	
100 ft of horizontal distance)	
Slope is 1% or less points = 3	
Slope is $> 1\%-2\%$ points = 2	
Slope is $> 2\%-5\%$ points = 1	
Slope is greater than 5% points = 0	
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions): Yes = 3 No = 0	
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants:	
Choose the points appropriate for the description that best fits the plants in the wetland. Dense means you	
have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.	
Dense, uncut, herbaceous plants > 90% of the wetland area points = 6	
Dense, uncut, herbaceous plants > $\frac{1}{2}$ of area points = 3	
Dense, woody, plants > ½ of area points = 2	
Dense, uncut, herbaceous plants > ¼ of area points = 1	
Does not meet any of the criteria above for plants points = 0	
Total for S 1 Add the points in the boxes above	
Rating of Site Potential If score is: 12 = H 6-11 = M 0-5 = L Record the rating of the store of	n the first page
S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants?	
Yes = 1 No = 0	
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1?	
Other sources Yes = 1 No = 0	
Total for S 2Add the points in the boxes above	
Rating of Landscape Potential If score is: 1-2 = M 0 = L Record the rating of the store of the sto	n the first page
S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? At least one aquatic resource in the basin on the 303(d) list. Yes = 1 No = 0	is
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? Answer YES if there is a TMDL for the basin in which unit is found. Yes = 2 No = 0	
Total for S 3Add the points in the boxes above	

Rating of Value If score is: 2-4 = H 1 = M 0 = L

Record the rating on the first page

SLOPE WETLANDS Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion		
S 4.0. Does the site have the potential to reduce flooding and stream erosion?		
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose th for the description that best fits conditions in the wetland. <i>Stems of plants should be thick in), or dense enough, to remain erect during surface flows.</i>	te points appropriate x enough (usually > 1/8)	
Dense, uncut, rigid plants cover > 90% of the area of the wetland	points = 1	
All other conditions	points = 0	
Rating of Site Potential If score is: 1 = M 0 = L	Record the rating on the first page	
S 5.0. Does the landscape have the potential to support the hydrologic functions of the	site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that ge surface runoff?	enerate excess Yes = 1 No = 0	
Rating of Landscape Potential If score is: 1 = M 0 = L	Record the rating on the first page	
S 6.0. Are the hydrologic functions provided by the site valuable to society?		
S 6.1. Distance to the nearest areas downstream that have flooding problems:		

5 6.1. Distance to the hearest areas downstream that have hooding problems:		
The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or		
natural resources (e.g., houses or salmon redds)	points = 2	
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
No flooding problems anywhere downstream	points = 0	
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?		
	Yes = 2 No = 0	
Total for S 6 A	dd the points in the boxes above	

Rating of Value If score is: 2-4 = H __1 = M __0 = L

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

These questions apply to wetlands of all HGM classes.	
HABITAT FUNCTIONS - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked. X Aquatic bed 4 structures or more: points = 4 X Emergent 3 structures: points = 2 Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: points = 1 Forested (areas where trees have > 30% cover) 1 structure: points = 0 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 1	1
H 1.2. Hydroperiods	
Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac 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 2 points Seasonally flowing stream in, or adjacent to, the wetland 2 points Seasonally flowing stream in, or adjacent to, the wetland 2 points	2
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle If you counted: > 19 species 5 - 19 species < 5 species	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you</i> <i>have four or more plant classes or three classes and open water, the rating is always high.</i> None = 0 points All three diagrams in this row are HIGH = 3points	2

H 1.5. Special habitat features:	
 Check the habitat features that are present in the wetland. <i>The number of checks is the number of points</i>. Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). Standing snags (dbh > 4 in) within the wetland Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet weathered where wood is exposed</i>) At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (<i>structures for egg-laying by amphibians</i>) Invasive plants cover less than 25% of the wetland area in every stratum of plants (<i>see H 1.1 for list of strata</i>) 	0
Total for H 1Add the points in the boxes above	6
Rating of Site Potential If score is: 15-18 = H7-14 = M \underline{X} 0-6 = L Record the rating on the second	the first page

H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit). $Calculate: \ \%$ undisturbed habitat $_ + [(\% moderate and low intensity land uses)/2] = _ \ \% If total accessible habitat is: > \frac{1}{3} (33.3%) of 1 km Polygon 20-33\% of 1 km Polygon around the wetland. Calculate: \ \% undisturbed habitat _ + [(\% moderate and low intensity land uses)/2] = = \ \% Undisturbed habitat > 50% of Polygon 20-33\% of 1 km Polygon is not 1-3 patches 20-33\% of 1 km Polygon is high intensity land use 20-33\% of 1 km Polygon is high intensity land use 20-33\% of 1 km Polygon is high intensity land use 20-33\% of 1 km Polygon is high intensity land use 20-33\% of 1 km Polygon is high intensity land use 20-33\% of 1 km Polygon is high intensity land use 20-33\% of 1 km Polygon is high intensity land use 20-33\% of 1 km Polygon is high intensity land use 20-33\% of 1 km Polygon is high intensity land use 20-35\% of 1 km Polygon is high intensity land use 20-35\% of 1 km Polygon is high intensity land use 20-35\% of 1 km Polygon is high intensity land use 20-35\% of 1 km Polygon is high intensity land use 20-35\% of 1 km Polygon is high intensity land use 20-35\% of 1 km Polygon is high intensity land use 20-35\% of 1 km Polygon is high intensity land use 20-35\% of 1 km Polygon is high intensity land use 20-35\% of 1 km Polygon is high intensity land use 20-35\% of 1 km Polygon is high intensity land use 20-35\% of 1 km Polygon is high intensity$	H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
Calculate:% undisturbed habitat + [(% moderate and low intensity land uses)/2] =%If total accessible habitat is:> $^{1}/_{3}$ (33.3%) of 1 km Polygonpoints = 320-33% of 1 km Polygonpoints = 210-19% of 1 km Polygonpoints = 1< 10% of 1 km Polygon	H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).	
If total accessible habitat is: $> \frac{1}{3}$ (33.3%) of 1 km Polygonpoints = 31 $20-33\%$ of 1 km Polygonpoints = 21 $20-33\%$ of 1 km Polygonpoints = 21 $10-19\%$ of 1 km Polygonpoints = 11 $< 10\%$ of 1 km Polygonpoints = 01H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.points = 01 $Calculate:$ % undisturbed habitat + [(% moderate and low intensity land uses)/2] =%1Undisturbed habitat > 50% of Polygonpoints = 31Undisturbed habitat 10-50% and in 1-3 patchespoints = 21Undisturbed habitat 10-50% and > 3 patchespoints = 11Undisturbed habitat < 10% of 1 km Polygon	Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] =	%
> $\frac{1}{3}$ (33.3%) of 1 km Polygonpoints = 3120-33% of 1 km Polygonpoints = 2points = 210-19% of 1 km Polygonpoints = 1points = 0< 10% of 1 km Polygon	If total accessible habitat is:	
20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon	> ¹ / ₃ (33.3%) of 1 km Polygon point	ts = 3 1
10-19% of 1 km Polygonpoints = 1< 10% of 1 km Polygon	20-33% of 1 km Polygon point	ts = 2
< 10% of 1 km Polygonpoints = 0H 2.2. Undisturbed habitat in 1 km Polygon around the wetland	10-19% of 1 km Polygon point	<mark>ts = 1</mark>
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. Calculate: % undisturbed habitat+ [(% moderate and low intensity land uses)/2] =% points = 3 points = 3 points = 3 points = 3 points = 2 1 Undisturbed habitat 10-50% and in 1-3 patches points = 2 points = 1 points = 1 1 Undisturbed habitat 10-50% and > 3 patches points = 0 1 1 1 H 2.3. Land use intensity in 1 km Polygon: If points = (-2) 0 0 0 < 50% of 1 km Polygon is high intensity land use	< 10% of 1 km Polygon point	ts = 0
Calculate: % undisturbed habitat	H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.	
Undisturbed habitat > 50% of Polygonpoints = 31Undisturbed habitat 10-50% and in 1-3 patchespoints = 21Undisturbed habitat 10-50% and > 3 patchespoints = 11Undisturbed habitat < 10% of 1 km Polygon	Calculate: % undisturbed habitat + [(% moderate and low intensity land uses)/2] =	%
Undisturbed habitat 10-50% and in 1-3 patchespoints = 21Undisturbed habitat 10-50% and > 3 patchespoints = 1points = 1Undisturbed habitat < 10% of 1 km Polygon	Undisturbed habitat > 50% of Polygon point	ts = 3
Undisturbed habitat 10-50% and > 3 patchespoints = 1Undisturbed habitat < 10% of 1 km Polygon	Undisturbed habitat 10-50% and in 1-3 patches point	ts = 2
Undisturbed habitat < 10% of 1 km Polygon points = 0 H 2.3. Land use intensity in 1 km Polygon: If 0 > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1 km Polygon is high intensity points = 0 Total for H 2 Add the points in the boxes above	Undisturbed habitat 10-50% and > 3 patches point	<mark>ts = 1</mark>
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use ≤ 50% of 1 km Polygon is high intensity Total for H 2 Add the points in the boxes above 2	Undisturbed habitat < 10% of 1 km Polygon point	ts = 0
 > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0 Add the points in the boxes above 	H 2.3. Land use intensity in 1 km Polygon: If	0
≤ 50% of 1 km Polygon is high intensity points = 0 Total for H 2 Add the points in the boxes above 2	> 50% of 1 km Polygon is high intensity land use points =	= (- 2)
Total for H 2 Add the points in the boxes above 2	≤ 50% of 1 km Polygon is high intensity poin	<mark>ts = 0</mark>
	Total for H 2 Add the points in the boxes a	bove 2

Rating of Landscape Potential If score is: ____4-6 = H ____1-3 = M ____<1 = L

H = 0 is the babitat provided by the site valuable to society?

Record the rating on the first page

The number provided by the site valuable to society:	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose only the highest score	
that applies to the wetland being rated.	
Site meets ANY of the following criteria: points = 2	
-X It has 3 or more priority habitats within 100 m (see next page)	
$\frac{X}{X}$ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)	
 It is mapped as a location for an individual WDFW priority species 	
 It is a Wetland of High Conservation Value as determined by the Department of Natural Resources 	2
— It has been categorized as an important habitat site in a local or regional comprehensive plan, in a	2
Shoreline Master Plan, or in a watershed plan	
Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1	
Site does not meet any of the criteria above points = 0	
Rating of Value If score is: x 2 = H 1 = M 0 = L Record the rating of the state of th	on the first page

Rating of Value If score is: <u>X</u> 2 = H <u>1</u> = M <u>0</u> = L

WDFW Priority Habitats

<u>Priority habitats listed by WDFW</u> (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. <u>http://wdfw.wa.gov/publications/00165/wdfw00165.pdf</u> or access the list from here: <u>http://wdfw.wa.gov/conservation/phs/list/</u>)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: **NOTE:** This question is independent of the land use between the wetland unit and the priority habitat.

- Aspen Stands: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- Herbaceous Balds: Variable size patches of grass and forbs on shallow soils over bedrock.
- Old-growth/Mature forests: <u>Old-growth west of Cascade crest</u> Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. <u>Mature forests</u> Stands with average diameters exceeding 21 in (53 cm) dbh; 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; 80-200 years old west of the Cascade crest.
- Oregon White Oak: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 see web link above*).
- X **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 see web link above*).
- <u>X</u> **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- <u>X</u> **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 6.5 ft (0.15 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- Snags and Logs: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met	
SC 1.0. Estuarine wetlands	
Does the wetland meet the following criteria for Estuarine wetlands?	
— The dominant water regime is tidal,	
— Vegetated, and	
— With a salinity greater than 0.5 ppt Yes –Go to SC 1.1 No= Not an estuarine wetland	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area	
Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?	
Yes = Category I No - Go to SC 1.2	Cat. I
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions?	
— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less	
than 10% cover of non-native plant species. (If non-native species are Spartina, see page 25)	Cat. I
— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-	
mowed grassland.	Cat II
— The wetland has at least two of the following features: tidal channels, depressions with open water, or	
contiguous freshwater wetlands. Yes = Category I No = Category II	
SC 2.0. Wetlands of High Conservation Value (WHCV)	
SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High	
Conservation Value? Yes – Go to SC 2.2 No – Go to SC 2.3	Cat. I
SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	
Yes = Category I No = Not a WHCV	
SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland?	
http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf	
Yes – Contact WNHP/WDNR and go to SC 2.4 No = Not a WHCV	
SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on	
their website? Yes = Category I No = Not a WHCV	
SC 3.0. Bogs	
Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key	
Delow. If you answer YES you will still need to rate the wetland based on its functions.	
more of the first 32 in of the soil profile? Ves – Go to SC 3.3 No – Go to SC 3.7	
SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep	
over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or	
pond? Yes – Go to SC 3.3 No = Is not a bog	
SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30%	
cover of plant species listed in Table 4? Yes = Is a Category I bog No – Go to SC 3.4	
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 in deep. If the pH is less than 5.0 and the	
plant species in Table 4 are present, the wetland is a bog.	Cat. I
SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar,	
western nemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the	
species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?	
res = is a Category i bog NO = is not a bog	

SC 4.0. Forested Wetlands	
Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA	
Department of Fish and Wildlife's forests as priority habitats? If you answer YES you will still need to rate	
the wetland based on its functions.	
— Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered	
age OR have a diameter at breast beight (dbh) of 32 in (81 cm) or more	
— Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the	
species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).	
Yes = Category I No = Not a forested wetland for this section	Cat. I
SC 5.0. Wetlands in Coastal Lagoons	
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?	
— The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from	
marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks	
— The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at locate a partian of the lagoon (peads to be margured near the bettern).	Cat. I
$Y_{es} = G_0 \text{ to } SC 5.1 \qquad \text{No} = \text{Not a wetland in a coastal lagoon}$	
SC 5.1. Does the wetland meet all of the following three conditions?	
— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less	
than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).	Cat. II
— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-	
mowed grassland.	
— The wetland is larger than $1/_{10}$ ac (4350 ft ²)	
Yes = Category I No = Category II	
SC 6.0. Interdunal Wetlands	
Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If	
you answer yes you will still need to rate the wetland based on its habitat functions.	
In practical terms that means the following geographic areas.	
 Gravland-Westport: Lands west of SR 105 	Cat I
 Ocean Shores-Copalis: Lands west of SR 115 and SR 109 	
Yes – Go to SC 6.1 No = not an interdunal wetland for rating	
SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the babitat functions on the form (rates H H H or H H M	Cat. II
for the three aspects of function)? Yes = Category I No – Go to SC 6.2	
SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?	
Yes = Category II No – Go to SC 6.3	Cat. III
SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?	
Yes = Category III No = Category IV	Cat. IV
Cotogony of wetland based on Special Characteristics	
Category of wettand based on Special Characteristics	
in you unswered no for an types, enter not Applicable on Summary rom	

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Wetland area

= 150-foot buffer around wetland

Figure 1. Width of Unit vs. Width of Stream

R 1.1, 2.3, 4.1



- Wetland boundary (approximate)
- 150-foot buffer around wetland
- Aquatic Bed Cowardin Class
- Emergent Cowardin Class

Figure 2. Cowardin Plant Classes

R 1.2, 4.2; H 1.1, 1.4



Source: Washington Department of Ecology Water Quality Atlas online map.

Figure 3. 303(d) listed Waters

R 3.1



- Wetland boundary (approximate)
 - Permanently flowing river
 - 150-foot buffer around wetland
 - Saturated only

Figure 4. Hydroperiods

H 1.2; R 1.2, 2.4



- Wetland location
- Relatively Undisturbed
- Low to Moderate Intensity
- High Intensity

Figure 5. Land Use Intensity Within 1km of Study Area

H 2.1, 2.2, 2.3



Source: USGS The National Map online viewer.

Figure 6. Contributing Basin

R 2.2, 2.3, 5.2

LISTING_ID 1	TMDL_NAME	WATERBODY_NAME	PARAMETER_NAME	COUNTIES
6698 9	Salmon Creek Bacteria and Turbidity TMDL	COUGAR CANYON CREEK	Bacteria	Clark
6702 5	Salmon Creek Bacteria and Turbidity TMDL	WEAVER (WOODIN) CREEK	Bacteria	Clark
7871 l	Lower Columbia River TDG TMDL	COLUMBIA RIVER (BROUGHTON REACH)	Total Dissolved Gas	Skamania
7879 l	Lower Columbia River TDG TMDL	COLUMBIA RIVER (BROUGHTON REACH)	Total Dissolved Gas	Clark
7892 5	Salmon Creek Bacteria and Turbidity TMDL	CURTIN CREEK	Bacteria	Clark
7934 9	Salmon Creek Bacteria and Turbidity TMDL	MILL CREEK	Bacteria	Clark
7938 9	Salmon Creek Bacteria and Turbidity TMDL	SALMON CREEK	Bacteria	Clark
7940 9	Salmon Creek Bacteria and Turbidity TMDL	SALMON CREEK	Bacteria	Clark
7941 9	Salmon Creek Bacteria and Turbidity TMDL	SALMON CREEK	Bacteria	Clark
7942 \$	Salmon Creek Watershed Temperature TMDL	SALMON CREEK	Temperature	Clark
8788 9	Salmon Creek Bacteria and Turbidity TMDL	SALMON CREEK	Turbidity	Clark
8793 (Columbia River Basin Dioxin TMDL	COLUMBIA RIVER	Dioxin	Skamania
8794 (Columbia River Basin Dioxin TMDL	COLUMBIA RIVER	Dioxin	Clark
10015 0	Gibbons Creek Watershed Bacteria TMDL	GIBBONS CREEK REMNANT CHANNEL	Bacteria	Clark
22019 5	Salmon Creek Watershed Temperature TMDL	COUGAR CANYON CREEK	Temperature	Clark
22021 5	Salmon Creek Watershed Temperature TMDL	CURTIN CREEK	Temperature	Clark
22024 5	Salmon Creek Watershed Temperature TMDL	MILL CREEK	Temperature	Clark
22033 5	Salmon Creek Bacteria and Turbidity TMDL	SALMON CREEK	Bacteria	Clark
22034 9	Salmon Creek Bacteria and Turbidity TMDL	SALMON CREEK	Bacteria	Clark
22047 5	Salmon Creek Watershed Temperature TMDL	SALMON CREEK	Temperature	Clark
22049 5	Salmon Creek Watershed Temperature TMDL	SALMON CREEK	Temperature	Clark
22050 5	Salmon Creek Watershed Temperature TMDL	SALMON CREEK	Temperature	Clark
22051 5	Salmon Creek Watershed Temperature TMDL	WEAVER (WOODIN) CREEK	Temperature	Clark
22107 5	Salmon Creek Bacteria and Turbidity TMDL	SALMON CREEK	Bacteria	Clark
42529 (Gibbons Creek Watershed Bacteria TMDL	CAMPEN CREEK	Bacteria	Clark
42635 0	Gibbons Creek Watershed Bacteria TMDL	GIBBONS CREEK	Bacteria	Clark
72448 5	Salmon Creek Bacteria and Turbidity TMDL	MUD CREEK	Bacteria	Clark
72469 0	Gibbons Creek Watershed Bacteria TMDL	UNNAMED CREEK (TRIB TO GIBBONS CREEK)	Bacteria	Clark
72471 (Gibbons Creek Watershed Bacteria TMDL	GIBBONS CREEK	Bacteria	Clark
72474 (Gibbons Creek Watershed Bacteria TMDL	CAMPEN CREEK	Bacteria	Clark
72479 5	Salmon Creek Bacteria and Turbidity TMDL	TENNY CREEK	Bacteria	Clark
72481 9	Salmon Creek Bacteria and Turbidity TMDL	ROCKWELL CREEK	Bacteria	Clark
72482 5	Salmon Creek Bacteria and Turbidity TMDL	LALONDE CREEK	Bacteria	Clark
72483 5	Salmon Creek Bacteria and Turbidity TMDL	UNNAMED CREEK (TRIB TO SALMON CREEK)	Bacteria	Clark
72486 (Gibbons Creek Watershed Bacteria TMDL	UNNAMED CREEK (TRIB TO CAMPEN CREEK)	Bacteria	Clark

Note: Those circled are applicable to the Wetland 7.

Figure 7. TMDLs in WRIA-28

(Washougal & Salmon)

R 3.2, 3.3

APPENDIX E: IPAC AND PHS SPECIES LISTS

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.



Local offices

Washington Fish And Wildlife Office

(360) 753-9440
(360) 753-9405

510 Desmond Drive Se Suite 102

Exhibit 5 SHOR23-01

Lacey, WA 98503-1263

Oregon Fish And Wildlife Office

▶ (503) 231-6179
▶ (503) 231-6195

2600 Southeast 98th Avenue, Suite 100 Portland, OR 97266-1398

NOTFORCONSULTATIO

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

- 1. Draw the project location and click CONTINUE.
- 2. Click DEFINE PROJECT.
- 3. Log in (if directed to do so).
- 4. Provide a name and description for your project.
- 5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the <u>Ecological Services Program</u> of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact <u>NOAA Fisheries</u> for <u>species under their jurisdiction</u>.

1. Species listed under the <u>Endangered Species Act</u> are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the <u>listing status page</u> for more information. IPaC only shows species that are regulated by USFWS (see FAQ). 2. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Columbian White-tailed Deer Odocoileus virginianus leucurus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/154	Threatened
Birds	101
NAME	STATUS
Northern Spotted Owl Strix occidentalis caurina Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. <u>https://ecos.fws.gov/ecp/species/1123</u>	Threatened
Streaked Horned Lark Eremophila alpestris strigata Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7268	Threatened
Yellow-billed Cuckoo Coccyzus americanus There is final critical habitat for this species. Your location does not overlap the critical habitat. <u>https://ecos.fws.gov/ecp/species/3911</u>	Threatened
Fishes	
NAME	STATUS
Bull Trout Salvelinus confluentus There is final critical habitat for this species. Your location overlaps the critical habitat. <u>https://ecos.fws.gov/ecp/species/8212</u>	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. <u>https://ecos.fws.gov/ecp/species/9743</u>	Candidate
Flowering Plants	
NAME	STATUS
Golden Paintbrush Castilleja levisecta Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7706	Threatened
Nelson's Checker-mallow Sidalcea nelsoniana Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7340	Threatened
Critical habitats	

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE	
Bull Trout Salvelinus confluentus	Final	
https://ecos.fws.gov/ecp/species/8212#crithab		

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described <u>below</u>.

^{1.} The <u>Migratory Birds Treaty Act</u> of 1918.

^{2.} The <u>Bald and Golden Eagle Protection Act</u> of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <u>https://www.fws.gov/program/migratory-birds/species</u>
- Measures for avoiding and minimizing impacts to birds <u>https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds</u>
- Nationwide conservation measures for birds <u>https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf</u>

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the <u>E-bird data mapping tool</u> (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found <u>below</u>.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Sep 30
California Gull Larus californicus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Evening Grosbeak Coccothraustes vespertinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9679</u>

Olive-sided Flycatcher Contopus cooperi This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/3914</u>

Rufous Hummingbird selasphorus rufus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/8002</u>

Western Grebe aechmophorus occidentalis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/6743</u>

Wrentit Chamaea fasciata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

Breeds May 15 to Aug 10

Breeds elsewhere

Breeds May 20 to Aug 31

Breeds Apr 15 to Jul 15

Breeds Jun 1 to Aug 31

Breeds Mar 15 to Aug 10

How is the probability of presence score calculated? The calculation is done in three steps:

- 1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
- 2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
- 3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season ()

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (I)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

			🔳 pr	obabilit	y of pres	sence	breed	ing seas	son İs	urvey ef	fort –	no data
SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Bald Eagle Non-BCC Vulnerable												

California Gull BCC Rangewide (CON)		₩┼₩₩	* ***	₩ ₩₩₩	<u></u> 	∳ ┼∳≢	‡11I		IIII			
Clark's Grebe BCC Rangewide (CON)	++++	++++	┼┼╪┼	● ┼┼┼	┼┼┿┼	++++	++++	┼┼ ∎┼	++++	┼┿┼║	++#+	₩+++
Evening Grosbeak BCC Rangewide (CON)	++++	┼┼ ♥┼	• +++	┼┼ ♥♥	ŧ ∎∎∎	ŧŧ ŧ∔	ŧ ┼┼┼	<mark>┼</mark> ┼┼┼	₩+₩+	+***	++++	++++
Lesser Yellowlegs BCC Rangewide (CON)	++++	++++	++++	┼┼┿┼	++++	++++	┼┼ ₩┼	+***	♥▋┼┼	+++#	++++	++++
Olive-sided Flycatcher BCC Rangewide (CON)	++++	++++	++++	+++++	↓ † !	1111	1111	++++	++++	++++	+++*	4477
Rufous Hummingbird BCC Rangewide (CON)	++++	 ++ +	++##	1				3	***	++++	++++	++++
Western Grebe BCC Rangewide (CON)	****	****	***	+++++	+++*	HII	1++1	++++	# +# M		IIII]+1]
Wrentit BCC Rangewide (CON)	++++	++++	+	JIN	HIT			+∎ ++	# +++	++++	++++	++++

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. <u>Additional measures</u> or <u>permits</u> may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS <u>Birds of Conservation Concern (BCC)</u> and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the <u>Avian Knowledge</u> <u>Network (AKN)</u>. The AKN data is based on a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen science</u> <u>datasets</u> and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (<u>Eagle Act</u> requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the <u>Rapid Avian Information Locator (RAIL) Tool</u>.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the <u>Avian Knowledge Network (AKN)</u>. This data is derived from a growing collection of <u>survey</u>, <u>banding</u>, <u>and</u> <u>citizen science datasets</u>.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the <u>RAIL Tool</u> and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

- "BCC Rangewide" birds are <u>Birds of Conservation Concern</u> (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
- 2. "BCC BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
- 3. "Non-BCC Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the <u>Eagle Act</u> requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the <u>Northeast Ocean Data</u> <u>Portal</u>. The Portal also offers data and information about other taxa besides birds that may be helpful to

you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the <u>NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird</u> <u>Distributions and Abundance on the Atlantic Outer Continental Shelf</u> project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the <u>Diving Bird Study</u> and the <u>nanotag studies</u> or contact <u>Caleb Spiegel</u> or <u>Pam Loring</u>.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to <u>obtain a permit</u> to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability" of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Coastal Barrier Resources System

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on Federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Office or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

There are no known coastal barriers at this location.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the <u>official CBRS maps</u>. The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: <u>https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation</u>

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact <u>CBRA@fws.gov</u>.

Facilities

Wildlife refuges and fish hatcheries

Refuge and fish hatchery information is not available at this time

Wetlands in the National Wetlands Inventory (NWI)

Impacts to <u>NWI wetlands</u> and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local <u>U.S. Army Corps of</u> <u>Engineers District</u>.

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.



Priority Habitats and Species on the Web



Report Date: 07/31/2020

PHS Species/Habitats Overview:

7/31/2020

PHS Report

Exhibit 5 SHOR23-01

Occurence Name	Federal Status	State Status	Generalized Location
Slender-billed white-breasted nuthatch	N/A	Candidate	No
Vaux's swift	N/A	Candidate	No
Fall Chinook	N/A	N/A	No
Winter Steelhead	N/A	N/A	No
Dolly Varden/ Bull Trout	N/A	N/A	No
Fall Chum	N/A	N/A	No
Green Sturgeon	N/A	N/A	No
Sockeye	N/A	N/A	No
Coho	Threatened	N/A	No
Steelhead	Threatened	N/A	No
Coho	N/A	N/A	No
Summer Steelhead	N/A	N/A	No
Resident Coastal Cutthroat	N/A	N/A	No
Pink Salmon Odd Year	N/A	N/A	No
Cutthroat	Candidate	N/A	No
Chinook	Threatened	N/A	No
Spring Chinook	N/A	N/A	No
Summer Chinook	N/A	N/A	No
Chum	Threatened	N/A	No
White Sturgeon	N/A	N/A	No
Chinook	Not Warranted	N/A	No
Oak Woodland	N/A	N/A	No
Purple martin	N/A	N/A	No
Freshwater Emergent Wetland	N/A	N/A	No
Riverine	N/A	N/A	No
Freshwater Forested/Shrub Wetland	N/A	N/A	No
Biodiversity Areas And Corridor	N/A	N/A	No
Caves Or Cave-rich Areas	N/A	N/A	Yes

PHS Species/Habitats Details:

Slender-billed white-breasted nuthatch	
Scientific Name	Sitta carolinensis aculeata
Priority Area	Occurrence
Site Name	LADY ISLAND
Accuracy	1/8 mile (Quarter/Quarter Section)
Notes	SLENDER-BILLED WHITE-BREASTED NUTHATCH REGULAR OCCURRENCE IN COTTONWOOD GALLERY FORESTS. YEAR OF OBSERVATION UNREPORTED. DATA COMPILED BY WDFW REGIONAL BIOLOGIST 2009.
Source Record	110169
Source Dataset	WS_OccurPoint
Source Date	WS_OccurPoint
Source Name	CADY, W./AUDUBON PORTLAND;LABB
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	Candidate
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Y
Display Resolution	AS MAPPED
Geometry Type	Points

Vaux's swift	
Scientific Name	Chaetura vauxi
Priority Area	Communal Roost
Site Name	CAMAS TAVERN CHIMNEY
Accuracy	Map 1:12,000 <= 33 feet
Notes	VAUX'S SWIFT FALL MIGRATION ROOST. SEVERAL THOUSAND SWIFTS. DATE IS REPORTING DATE. OBS. DATE UNKNOWN.
Source Record	110175
Source Dataset	WS_OccurPoint
Source Date	WS_OccurPoint
Source Name	LABBE, T./WDFW;CADY, W./AUDUBO
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	Candidate
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00026
Geometry Type	Points

Fall Chinook	
Scientific Name	Oncorhynchus tshawytscha
Priority Area	Occurrence/Migration
Site Name	Washougal River
Accuracy	NA
Notes	LLID: 1223962455734, Fish Name: Chinook Salmon, Run Time: Fall, Life History: Anadromous
Source Record	43703
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Winter Steelhead	
Scientific Name	Oncorhynchus mykiss
Priority Area	Occurrence/Migration
Site Name	Washougal River
Accuracy	NA
Notes	LLID: 1223962455734, Fish Name: Steelhead Trout, Run Time: Winter, Life History: Anadromous
Source Record	43716
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

	1
Dolly Varden/ Bull Trout	
Scientific Name	Salvelinus malma/S. confluentus
Priority Area	Occurrence/Migration
Site Name	Camas Slough
Accuracy	NA
Notes	LLID: 1223964455727, Fish Name: Bull Trout, Run Time: Unknown or not Applicable, Life History: Unknown
Source Record	43723
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Winter Steelhead	
Scientific Name	Oncorhynchus mykiss
Priority Area	Occurrence/Migration
Site Name	Camas Slough
Accuracy	NA
Notes	LLID: 1223964455727, Fish Name: Steelhead Trout, Run Time: Winter, Life History: Anadromous
Source Record	43727
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Winter Steelhead	
Scientific Name	Oncorhynchus mykiss
Priority Area	Occurrence/Migration
Accuracy	NA
Notes	LLID: 1224124455873, Fish Name: Steelhead Trout, Run Time: Winter, Life History: Anadromous
Source Record	44088
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Fall Chum	
Scientific Name	Oncorhynchus keta
Priority Area	Occurrence/Migration
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Fish Name: Chum Salmon, Run Time: Fall, Life History: Anadromous
Source Record	65458
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Green Sturgeon	
Scientific Name	Acipenser medirostris
Priority Area	Occurrence/Migration
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Fish Name: Green Sturgeon, Run Time: Unknown or not Applicable, Life History: Adfluvial
Source Record	65471
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Sockeye	
Scientific Name	Oncorhynchus nerka
Priority Area	Occurrence/Migration
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Fish Name: Sockeye Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	65487
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	Oncorhynchus kisutch
Priority Area	Occurrence
Site Name	Washougal River
Accuracy	NA
Notes	LLID: 1223962455734, Stock Name: Washougal Coho, Run: Unspecified, Status: Unknown
Source Record	3780
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Threatened
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Steelhead	
Scientific Name	Oncorhynchus mykiss
Priority Area	Occurrence
Site Name	Washougal River
Accuracy	NA
Notes	LLID: 1223962455734, Stock Name: Washougal Winter Steelhead, Run: Winter, Status: Depressed
Source Record	6791
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Threatened
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	Oncorhynchus kisutch
Priority Area	Occurrence/Migration
Site Name	Washougal River
Accuracy	NA
Notes	LLID: 1223962455734, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	43708
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Summer Steelhead	
Scientific Name	Oncorhynchus mykiss
Priority Area	Occurrence/Migration
Site Name	Washougal River
Accuracy	NA
Notes	LLID: 1223962455734, Fish Name: Steelhead Trout, Run Time: Summer, Life History: Anadromous
Source Record	43713
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Fall Chum	
Scientific Name	Oncorhynchus keta
Priority Area	Occurrence/Migration
Accuracy	NA
Notes	LLID: 1224124455873, Fish Name: Chum Salmon, Run Time: Fall, Life History: Anadromous
Source Record	44086
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Resident Coastal Cutthroat	
Scientific Name	Oncorhynchus clarki
Priority Area	Occurrence/Migration
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Fish Name: Cutthroat Trout, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	65456
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Fall Chinook	
Scientific Name	Oncorhynchus tshawytscha
Priority Area	Occurrence/Migration
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Fish Name: Chinook Salmon, Run Time: Fall, Life History: Anadromous
Source Record	65457
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Pink Salmon Odd Year	
Scientific Name	Oncorhynchus gorbuscha
Priority Area	Occurrence/Migration
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Fish Name: Pink Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	65481
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

	· · ·
Cutthroat	
Scientific Name	Oncorhynchus clarki
Priority Area	Occurrence
Site Name	Washougal River
Accuracy	NA
Notes	LLID: 1223962455734, Stock Name: Mainstem Washougal Coastal Cutthroat, Run: Unspecified, Status: Unknown
Source Record	7900
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Candidate
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Chinook	
Scientific Name	Oncorhynchus tshawytscha
Priority Area	Occurrence
Site Name	Washougal River
Accuracy	NA
Notes	LLID: 1223962455734, Stock Name: Washougal Fall Chinook, Run: Fall, Status: Healthy
Source Record	1624
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Threatened
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Fall Chum	
Scientific Name	Oncorhynchus keta
Priority Area	Occurrence/Migration
Site Name	Washougal River
Accuracy	NA
Notes	LLID: 1223962455734, Fish Name: Chum Salmon, Run Time: Fall, Life History: Anadromous
Source Record	43706
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	Oncorhynchus kisutch
Priority Area	Occurrence/Migration
Site Name	Camas Slough
Accuracy	NA
Notes	LLID: 1223964455727, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	43722
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Summer Steelhead	
Scientific Name	Oncorhynchus mykiss
Priority Area	Occurrence/Migration
Site Name	Camas Slough
Accuracy	NA
Notes	LLID: 1223964455727, Fish Name: Steelhead Trout, Run Time: Summer, Life History: Anadromous
Source Record	43726
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	Oncorhynchus kisutch
Priority Area	Occurrence/Migration
Accuracy	NA
Notes	LLID: 1224124455873, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	44087
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

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Spring Chinook	
Scientific Name	Oncorhynchus tshawytscha
Priority Area	Occurrence/Migration
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Fish Name: Chinook Salmon, Run Time: Spring, Life History: Anadromous
Source Record	65459
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Summer Chinook	
Scientific Name	Oncorhynchus tshawytscha
Priority Area	Occurrence/Migration
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Fish Name: Chinook Salmon, Run Time: Summer, Life History: Anadromous
Source Record	65462
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

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Summer Steelhead	
Scientific Name	Oncorhynchus mykiss
Priority Area	Occurrence/Migration
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Fish Name: Steelhead Trout, Run Time: Summer, Life History: Anadromous
Source Record	65489
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Steelhead	
Scientific Name	Oncorhynchus mykiss
Priority Area	Occurrence
Site Name	Washougal River
Accuracy	NA
Notes	LLID: 1223962455734, Stock Name: Washougal Summer Steelhead, Run: Summer, Status: Unknown
Source Record	6784
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Threatened
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Chum	
Scientific Name	Oncorhynchus keta
Priority Area	Occurrence
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Stock Name: Lower Columbia Gorge Fall Chum, Run: Fall, Status: Depressed
Source Record	2765
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Threatened
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Resident Coastal Cutthroat	
Scientific Name	Oncorhynchus clarki
Priority Area	Occurrence/Migration
Site Name	Washougal River
Accuracy	NA
Notes	LLID: 1223962455734, Fish Name: Cutthroat Trout, Run Time: Unknown or not Applicable, Life History: Unknown
Source Record	43702
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Resident Coastal Cutthroat	
Scientific Name	Oncorhynchus clarki
Priority Area	Occurrence/Migration
Site Name	Camas Slough
Accuracy	NA
Notes	LLID: 1223964455727, Fish Name: Cutthroat Trout, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	43719
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Fall Chinook	
Scientific Name	Oncorhynchus tshawytscha
Priority Area	Occurrence/Migration
Site Name	Camas Slough
Accuracy	NA
Notes	LLID: 1223964455727, Fish Name: Chinook Salmon, Run Time: Fall, Life History: Anadromous
Source Record	43720
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

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Fall Chum	
Scientific Name	Oncorhynchus keta
Priority Area	Occurrence/Migration
Site Name	Camas Slough
Accuracy	NA
Notes	LLID: 1223964455727, Fish Name: Chum Salmon, Run Time: Fall, Life History: Anadromous
Source Record	43721
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	Oncorhynchus kisutch
Priority Area	Occurrence/Migration
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	65465
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Dolly Varden/ Bull Trout	
Scientific Name	Salvelinus malma/S. confluentus
Priority Area	Occurrence/Migration
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Fish Name: Bull Trout, Run Time: Unknown or not Applicable, Life History: Unknown
Source Record	65468
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Winter Steelhead	
Scientific Name	Oncorhynchus mykiss
Priority Area	Occurrence/Migration
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Fish Name: Steelhead Trout, Run Time: Winter, Life History: Anadromous
Source Record	65492
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

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White Sturgeon	
Scientific Name	Acipenser transmontanus
Priority Area	Occurrence/Migration
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Fish Name: White Sturgeon, Run Time: Unknown or not Applicable, Life History: Adfluvial
Source Record	65498
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Chinook	
Scientific Name	Oncorhynchus tshawytscha
Priority Area	Occurrence
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Stock Name: Bonneville Bright Fall Chinook, Run: Fall, Status: Unknown
Source Record	1628
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Not Warranted
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

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Chinook	
Scientific Name	Oncorhynchus tshawytscha
Priority Area	Occurrence
Site Name	Columbia River
Accuracy	NA
Notes	LLID: 1240483462464, Stock Name: Hanford Reach Fall Chinook, Run: Fall, Status: Healthy
Source Record	1720
Source Dataset	SASI
Source Name	Not Given
Source Entity	WDFW Fish Program
Federal Status	Not Warranted
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Oak Woodland	
Priority Area	Terrestrial Habitat
Site Name	WASHOUGAL OAKS
Accuracy	1/4 mile (Quarter Section)
Notes	OAK WOODLANDS ADJACENT TO WASHOUGAL RIVER AND SHEPARD HILL.
Source Record	912993
Source Dataset	PHSREGION
Source Name	MANLOW, STEVE WDFW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00030
Geometry Type	Polygons

Purple martin	
Scientific Name	Progne subis
Priority Area	Breeding Area
Site Name	LADY ISLAND
Accuracy	Map 1:12,000 <= 33 feet
Notes	EIGHT GOURD COLONY ON LADY ISLAND, OWNED BY GEORGIA-PACIFIC CORP. POOR ACCESS. SITE BOUNDARY IS NOT PRECISE.
Source Record	4637
Source Dataset	WS_OccurPolygon
Source Date	WS_OccurPolygon
Source Name	CADY, W./PRIVATE
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS LISTED OCCURRENCE
Sensitive	Ν
SGCN	Y
Display Resolution	AS MAPPED
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00026
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1R
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1R
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1S
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Forested/Shrub Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PFO1S
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1C
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE INTERMITTENT - NWI Code: R4SBC
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

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Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1R
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Forested/Shrub Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PFO1S
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons
Freshwater Forested/Shrub Wetland	
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Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PSS1S
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1R
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1S
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1R
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1R
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1R
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Biodiversity Areas And Corridor	
Priority Area	Terrestrial Habitat
Site Name	CAMAS BIODIVERSITY AREA
Accuracy	1/4 mile (Quarter Section)
Notes	BIODIVERSITY AREA IN THE VICINITY OF CAMAS AND WASHOUGAL. AREA SUPPORTS MATURE TIMBER. FREQUENT OBSERVATIONS OF VAUX SWIFTS SURROUNDING DEAD LAKE.
Source Record	913312
Source Dataset	PHSREGION
Source Name	STEVE MANLOW WDFW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00023
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

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Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1S
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

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Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE INTERMITTENT - NWI Code: R4SBCx
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1C
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Oak Woodland	
Priority Area	Terrestrial Habitat
Site Name	CLARK COUNTY OAK WOODLANDS
Accuracy	1/4 mile (Quarter Section)
Notes	OAK WOODLANDS
Source Record	912981
Source Dataset	PHSREGION
Source Name	MANLOW, STEVE WDFW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00030
Geometry Type	Polygons

Biodiversity Areas And Corridor	
Priority Area	Terrestrial Habitat
Site Name	LADY AND AKERMAN ISLANDS BAC
Accuracy	1/4 mile (Quarter Section)
Notes	RIPARIAN ZONE ON LADY AND ACKERMAN ISLANDS. COLUMBIA RIVER COTTONWOOD HABITAT.
Source Record	913311
Source Dataset	PHSREGION
Source Name	CARL DUGGER WDFW
Source Entity	WA Dept. of Fish and Wildlife
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00023
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Riverine	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: RIVERINE TIDAL - NWI Code: R1USR
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1R
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1R
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1R
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Emergent Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PEM1R
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Ν
SGCN	Ν
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Freshwater Forested/Shrub Wetland	
Priority Area	Aquatic Habitat
Site Name	N/A
Accuracy	NA
Notes	Wetland System: PALUSTRINE - NWI Code: PFO1R
Source Dataset	NWIWetlands
Source Name	Not Given
Source Entity	US Fish and Wildlife Service
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
ManagementRecommendations	http://www.ecy.wa.gov/programs/sea/wetlands/bas/index.html
Geometry Type	Polygons

Caves Or Cave-rich Areas	
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release (360-902-2543) for obtaining information about masked sensitive species and habitats.
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
SGCN	Ν
Display Resolution	TOWNSHIP

DISCLAIMER. This report includes information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necessary to rule out the presence of priority resources. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using reports more than six months old.

APPENDIX F: BEST MANAGEMENT PRACTICES

1.0 BEST MANAGEMENT PRACTICES

The In-water/Overwater Removals Project (Project) would be accomplished in a manner that is sensitive and protective of the environment. Best management practices (BMPs) will be implemented throughout the Project by first identifying potential detrimental effects and then implementing methods that eliminate or reduce the potential effect. These BMPs have been identified for dredging, dredged materials management, vessel operations, piling and dolphin removals, and structure demolition along the riverbank, including construction stormwater management.

1.1 Best Management Practices for Dredging and Dredged Materials Management

As stated, dredging will be required and includes:

- Removal of overburden to provide access for removal of three submarine pipelines traversing Camas Slough and two outfall pipes extending from Lady Island into the Columbia River.
- Reshaping the Camas Slough riverbank following the removal of overwater structures.
- Deepening to -10 feet (Columbia River Datum [CRD]) a 1,800-square-foot area surrounding the Dock Warehouse piers to enable access for demolition barges.

Until recently, maintenance dredging in the Camas Slough has occurred regularly to maintain barge access and other operations at the Mill's waterfront. However, the Dock Warehouse Piers have not received maintenance dredging and currently the riverbed at the piers has filled in with river sediment.

Dredging will be conducted in a manner to prevent impingement of fish by a dredging clamshell or hydraulic dredge. Regular observation of dredged sediment aboard the barge or at the placement areas will be conducted to minimize impingement. If impingement should occur, clamshell equipment will be adjusted (slowed) or modified to increase the opportunity for fish to avoid or escape the bucket and/or suction head. Where hydraulic dredging is used, the dredge will be lowered deeper into the sandy sediment to reduce water entrainment.

BMPs to minimize sediment loss and turbidity generation may include, but are not limited to, the following:

- Smooth closure of the bucket when at the riverbed;
- Minimal stockpiling of dredged material on the riverbed;
- Maintaining suction head of any hydraulic dredge in the riverbed to the extent practicable;
- Using a buffer plate or other means to reduce flow energy of the hydraulic dredge at the placement area; and
- Other conditions as specified in the Project's Water Quality Certification and other approvals.

When dredged materials are placed on a barge for transport to the placement area, no spill of sediment back to the river from the barge will be allowed. The barge will be managed such that the

dredged sediment load does not exceed the capacity of the barge. The load will be placed in the barge to maintain an even keel and avoid listing.

A Dredged Materials Management Plan will be developed and will likely include the following measures:

- Hay bales and/or filter fabric may be placed over the barge scuppers to help filter suspended sediment from the barge effluent, if needed, based on sediment testing results.
- The contractor will be required to use a tightly sealing bucket and to monitor for spillage during transfer operations.
- Visual water quality monitoring and, if necessary, follow-up measurements will be conducted around the barge at the removal and upland transfer area to confirm that material is not being released.
- When stockpiling dredged material at the Lady Island Dredge Material Area, BMPs will be employed as appropriate to control runoff and erosion, and for example could include:
 - installing silt fences, straw bales, and/or containment berms;
 - managing runoff and elutriate water; and
 - routine inspections of the off-load and stockpile areas to verify water quality protections are functioning properly.

In-water reuse and other upland reuse is preferred for dredged materials determined to be suitable. Coordination with the Dredged Materials Management Program is underway to determine sediment quality and suitability for in-water disposal.

Materials not suitable for in-water reuse but found suitable would be disposed at the Lady Island Dredged Materials Area (LI DMA) located at the western extent of Lady Island (see **Figure 1** in the Shoreline Report for location). Dredged materials from Camas Slough and the Columbia River in the vicinity have been stored at the LI DMA for many years. The Revised Tier 1 Report (Tetra Tech 2023) provides details on the development and long-term use of this area, as well as sediment quality evaluations. A sediment sampling and analysis investigation is planned at the time of this document which will provide data on existing sediment quality prior to dredging and materials management.

1.2 Best Management Practices for Vessel Operations

Derrick barges, material barges, tugboats, along with support boats (work skiffs, survey boats) will be used on the Columbia River and in Camas Slough during demolition to provide access to the structures for removal and materials management. These vessels would be in the Project area throughout the regulatory in-water work window.

A navigation channel allows access from the Columbia River at approximately RM 119.5 to Camas Slough and the Project area from downriver. No navigable access is available to Camas Slough from the Columbia River at RM 122 from upriver during most river stages.

Material barges would work between the various dredge prisms and the LI DMA for off-loading dredge materials during dredging operations.

BMPs for vessel operation will include the following:

- The contractor will notify the U.S. Coast Guard of planned river operations prior to commencing work.
- The Contractor will prepare a Spill, Prevention, Control, and Countermeasures Plan (SPCC Plan) to be used to safeguard against unintentional release of fuel, lubricants, or hydraulic fluids.
- Drive mechanisms of equipment operated from the barge will be prevented from entering water to the extent possible.
- Turbidity and other parameters will be monitored to ensure compliance, to the greatest extent possible, with the Surface Water Quality Standards for Washington (Washington Administrative Code [WAC] 173-201A).
- Any equipment operating in the water will use vegetable-based oils in hydraulic lines.
- A turbidity curtain will be used where river currents allow and moved as necessary to accommodate vessel operations.
- Floating debris will be recovered to the barge.
- Petroleum products, concrete, chemicals, or other toxic or deleterious materials will be prevented from entering surface waters to the extent possible through the use of BMPs. For example:
 - Fuel hoses, oil drums, oil or fuel transfer valves, and fittings will be checked regularly for leaks.
 - Fuels and lubricating materials will be maintained and stored properly to prevent spills.

Any barge used as a work platform to support demolition will be:

- Large enough to remain stable under foreseeable loads and adverse conditions;
- Inspected by the contractor before arrival to ensure the vessel and ballast are free of invasive species; and
- Secured, stabilized, and maintained as necessary to ensure no loss of balance, stability, anchorage, or other condition that can result in the release of demolition debris or other materials from the barge.

The contractor will time vessel operations to occur during regulatory in-water work windows, and during river stages and at locations where water depths are sufficient to avoid groundings, minimize prop-wash, and avoid creating unnecessary turbidity.

1.3 Best Management Practices for Piling and Dolphin Removals

In the Project area, pilings comprise the following materials:

- Carbon steel H-piles,
- Reinforced concrete piles,
- Concrete-filled steel pipe piles,

- Steel sheet piles,
- Untreated wood, and
- Treated wood piles.

Methods to remove pilings and dolphins will be determined in part by the nature and location of the pilings and dolphins. To protect water, sediment, and habitat quality, all pilings will be removed following the BMPs for removals, as published by the U.S. Environmental Protection Agency (2016) and Washington Department of Natural Resources (2017). Work will be accomplished while minimizing turbidity, sediment disturbance, and debris reentry to the water column.

In general, removals will use a direct-pull extraction method that primarily utilizes a vibratory hammer to loosen the piling along with a crane to stabilize and help extract the loosened pile. Use of a clamshell bucket may be required for removals in some locations. Complete extraction of pilings is preferred to partial removals, although some pilings may need to be cut below the mudline. The contractor will make multiple attempts to remove a pile before resorting to cutting the pile. Also, pilings along the riverbank may be partially excavated to enable removal.

The following BMPs will be implemented:

- Prior to commencement of work to remove piles, a work plan will be produced by the contractor with the intent to identify appropriate detailed methods to minimize turbidity, sediment disturbance, and debris reentry.
- The contractor will assess each pile's condition, material, and location and identify if access will be from a barge or from the riverbank.
- Where river currents allow, the contractor will surround the structure to be removed with a floating surface boom to capture floating surface debris.
- Some piles in the project area are protected by tire bumpers (e.g., the piling supporting the PECO Dock). Tires will be cut from the piling and placed on the barge or at an upland location for disposal.
- All dolphin-binding materials (e.g., cables, steel straps) will be removed to the barge or upland location for disposal.
- If the pile is intractable or breaks, the contractor will cut the pile off approximately 2 feet below the mudline with consideration given to the mudline elevation, slope, and stability of the location.
- The contractor's work plan will include procedures for extracting and handling pilings that break off during removal.
- To the extent possible, the contractor will keep all equipment (e.g., bucket, steel cable, vibratory hammer) out of the water, and grip piling above the waterline.
- The contractor will minimize overall damage to pilings during removal and will remove pilings slowly to minimize sediment disturbance and turbidity.
- A containment basin will be provided on the barge deck to contain removed materials along with sediment removed, floating debris, and splintered wood.

- Upon removal, the pile will be moved expeditiously into the containment area for processing.
- The piling shall not be shaken, hosed off, stripped or scraped, left hanging to drip, or subjected to any other action intended to clean or remove adhering material from the piling. Sediment associated with the removed piling must not be returned to the river.

1.4 Best Management Practices for Demolition along the Riverbank

BMPs will be employed throughout the operation of the Project and are to include:

- Limits of work will be clearly established prior to any demolition.
- Only established staging areas will be used for fueling, servicing, and demolition.
- Temporary equipment storage will be located in a manner that will prevent contaminants from entering aquatic areas.
- Demolition materials management areas will be identified on-site and will include appropriate sediment controls and stormwater controls.
- Materials resulting from demolition will be managed appropriately to protect the environment.
- Demolition materials will be recycled to the extent possible and if not recyclable, will be disposed at off-site approved facilities.
- Appropriate stormwater and temporary erosion and sediment control plans will be developed and will comply with the City's erosion control standards and state requirements.
- A site-specific SPCC Plan appropriate for the Project activities will be developed.

1.5 Stormwater Management during Demolition along the Riverbank

Within the demolition area on the Camas Slough riverbank, stormwater runoff is collected currently as industrial stormwater and conveyed to the Lady Island Wastewater Treatment facility for treatment. Treated waters are discharged to the Columbia River (Outfall 001) from the Lady Island Wastewater Treatment plant under GP's Industrial Permit (No. WA0000256). Per Condition S7 of the Permit, coordination with the Washington Department of Ecology (Ecology) would occur to secure permission for construction stormwater to be collected and treated as industrial water during demolition.

GP will also apply to be covered by the State's General Construction Stormwater Permit during demolition for areas not within the industrial treatment footprint and for coverage of off-site transportation.

Following completion of structure demolition and riverbank shaping, all industrial activities in this area will have ceased within the footprint. Impervious surfaces will have been greatly reduced over the area. Stormwater from this riverbank area, now free from all industrial activities and industrial structures, would infiltrate, or if not infiltrated, would flow naturally towards Camas Slough.

Additional details on best management practices for stormwater management are provided in the Project's Stormwater Pollution Prevention Plan (SWPPP).

In summary, the following BMPs will be followed to help ensure stormwater quality protection and protection of the adjacent aquatic areas:

- Identifying clear staging and laydown areas away from water.
- Sequencing work with water protection as a priority, for example time demolition activities so that low river stages allow demolition with no water present (in-the-dry).
- Conducting the riverbank demolition in a fashion that prevents the debris movement towards water, such as use of screens or staging in a manner that barricades materials from movement towards water
- Activities will be conducted to meet conditions as specified in the Project's Water Quality Certification and with requirements of the General Construction Stormwater Permit.
- Temporary disturbance to riverbank vegetation at Camas Slough and on Lady Island will be limited to the minimum amount needed to access and remove infrastructure.
- The Contractor will prepare an SPCC Plan to be used to safeguard against unintentional release of fuel, lubricants, or hydraulic fluids.
- Drive mechanisms of equipment operated from the riverbank, but that may reach waterward of the ordinary high water mark will be prevented from entering water to the extent possible.
- Turbidity and other parameters will be monitored to ensure compliance, to the greatest extent possible, with the Surface Water Quality Standards for Washington (Washington Administrative Code 173-201A).
- Petroleum products, concrete, chemicals, or other toxic or deleterious materials will be prevented from entering surface waters to the extent possible through the use of best management practices. For example:
 - Fuel hoses, oil drums, oil or fuel transfer valves, and fittings will be checked regularly for leaks.
 - Fuels and lubricating materials will be maintained and stored properly to prevent spills.

2.0 **REFERENCES**

- EPA (U.S. Environmental Protection Agency). 2016. EPA Region 10 Best Management Practices for Piling Removal and Placement in Washington State. February 18, 2016. Available online at: <u>http://www.nws.usace.army.mil/Portals/27/docs/regulatory/Forms/EPA%20BMPs%20for%20</u> <u>Piling%20Removal%202-18-16.pdf</u>. Accessed 9/18/2019.
- Tetra Tech. 2023 (in draft). Revised Tier 1 Evaluation for Dredged Materials Management. Prepared for Georgia Pacific Camas Operations, LLC.
- WDNR (Washington Department of Natural Resources (WDNR). 2017. Derelict Creosote Piling Removal Best Management Practices for Pile Removal and Disposal. Updated 1/25/2017. Available online: <u>https://www.dnr.wa.gov/publications/aqr_rest_pileremoval_bmp_2017.pdf</u>. Accessed 9/18/2019.