



# Clatsop County

Community Development – Planning

800 Exchange St., Suite 100  
Astoria, OR 97103  
(503) 325-8611 phone  
(503) 338-3606 fax  
[www.clatsopcounty.gov](http://www.clatsopcounty.gov)

## **NOTICE OF DECISION**

**CONDITIONAL USE PERMIT #186-24-000029-PLNG**

**DATE:** March 14, 2024

**REQUEST:** Type II conditional use application for habitat restoration project per LAWDUC 4.3720(5) and 4.4640(1).

**APPLICANT:** Jason Smith  
Columbia River Estuary Study Taskforce (CREST)  
818 Commercial Street, Suite 203, Astoria, OR 97103

**PROPERTY DESCRIPTION:**

*Agency Creek Site:* T8N, R07W, Section 18, Tax Lot 101 (±40.96 acres)  
T8N, R08W, Section 13, Tax Lot 200 (±132.27 acres)

*Warren Slough Site:* T8N, R07W, Section 8, Tax Lot 500 (±118.24 acres)

*Railroad Right-of-Way:* Oregon Department of Transportation (ODOT), via exclusive rail service easement to Portland & Western Railroad (PNWR)

**ACTION:** **APPROVAL – With Conditions**

Mr. Jason Smith,

The Community Development Department has completed review of the request cited above. This decision includes findings and conditions of approval, attached.

If you, or a party with standing, wish to appeal this decision, you may do so, up to the date and time appearing at the bottom of this letter. The appeal must comply with Section 2.2190 of the Clatsop County Land and Water Development and Use Code #20-03 (procedure for an appeal). This department will not issue development permits for any activities or structures until the 12-day appeal period has expired.

If you have any questions regarding this decision, appeal procedures or any of the conditions of approval, please contact me at (503) 325-8611.

Sincerely,

A handwritten signature in purple ink that reads "Gail Henrikson".

Gail Henrikson, Director  
Community Development Department

Attachments: Staff Report  
Exhibits

**DEADLINE TO APPEAL: 4:00 P.M. March 26, 2024**



# Clatsop County

## Community Development – Planning

800 Exchange St., Suite 100  
Astoria, OR 97103  
(503) 325-8611 phone  
(503) 338-3606 fax  
[www.clatsopcounty.gov](http://www.clatsopcounty.gov)

## **STAFF REPORT**

### **CONDITIONAL USE PERMIT #186-24-000029-PLNG**

**DATE:** March 14, 2024

**REQUEST:** Type II conditional use application for a fish access and habitat restoration project per LAWDUC 4.3720(5) and 4.4640(1).

**APPLICANT:** Jason Smith  
Columbia River Estuary Study Taskforce (CREST)  
818 Commercial Street, Suite 203, Astoria, OR 97103

**PROPERTY DESCRIPTION:**

*Agency Creek Site:* T8N, R07W, Section 18, Tax Lot 101 (±40.96 acres)  
Agency Creek Management Co.  
9600 SW Barnes Road, Suite #200, Portland, OR 97225

T8N, R08W, Section 13, Tax Lot 200 (±132.27 acres)  
Oregon Department of Forestry (ODF)  
92219 OR-202, Astoria, OR 97103

*Warren Slough Site:* T8N, R07W, Section 8, Tax Lot 500 (±118.24 acres)  
North Coast Land Conservancy Inc.  
P.O. Box 67, Seaside, OR 97138

*Staging and Stockpile Site:  
(adjacent to Warren Slough Site)* T8N, R07W, Section 9, Tax Lot 700 (±0.75 acre)  
Richard and Linda Olsen (Clatsop County Lessee)  
93876 Blind Slough Road, Astoria, OR 97103

*Railroad Right-of-Way:* Oregon Department of Transportation (ODOT), via exclusive rail service easement to Portland & Western Railroad (PNWR)

**ZONING DESIGNATION:** Aquatic Natural (AN)  
Exclusive Farm Use (EFU)  
Forest-80 Zone (F-80)  
Natural Shorelands Zone (NS)

*Overlays/Layers:* Shoreland Overlay District (SO)  
Flood Hazard Overlay (FHO)  
Statewide Wetlands Inventory (SWI; regulated by the Oregon Department of State Lands) - NRCS Predominantly Hydric Soils  
FEMA Flood Hazard – A-100 year-zone

**COUNTY STAFF REVIEWER:** Jason Pollack, Planner

**TYPE II DECISION MAKER:** Community Development Director

**APPLICATION SUBMITTED:** January 16, 2024

**DEEMED COMPLETE:** February 7, 2024 (150 days: June 8, 2024)

**STAFF RECOMMENDATION:** **APPROVAL** – Subject to Conditions

**PUBLIC COMMENTS:** Jerry & Noreen Lebo, 41090 Ziak-Gnat Creek Lane



**EXHIBITS:**

1. Application Materials
2. Public Notice
3. Pre-App Meeting
4. Published Notice

**APPLICATION SUMMARY:**

On January 16, 2024, Jason Smith of the Columbia River Estuary Study Taskforce (CREST) submitted an application to Clatsop County Community Development for a fish access and habitat restoration project in unincorporated Clatsop County. According to the applicant, the project would seek to enhance habitat divided by railroad infrastructure owned by Portland & Western Railroad Inc. (PNWR). The CUP application includes two project sites under one application; known as Agency Creek and Warren Slough at approximately river mile 23 of the Columbia River. The project will create new openings in the railroad prism to provide access to approximately 44 total acres of wetland habitat for migrating and juvenile salmonids.

The subject property includes multiple tax lots (see details on cover page) and a railroad right-of-way owned by the Oregon Department of Transportation (ODOT), with a permanent exclusive rail service easement by PNWR. The project area, covering approximately six acres, is within the Aquatic Natural (AN) Zone, Forest-80 (F-80) Zone, Natural Shorelands (NS) Zone, and Shoreland Overlay District (SO). The project area also contains wetlands identified in the Statewide Wetlands Inventory (SWI; regulated by the Oregon Department of State Lands) and Goal 17 Significant Riparian Vegetation, according to the Land Use Planning Division's Columbia River Estuary Resource Base Maps.

**Agency Creek**

The Agency Creek site includes removal of three undersized culverts to be replaced by one channel spanning bridge of 36-feet. The Agency Creek site is a 40.96-acre parcel owned by Agency Creek Management Co., identified as Township 8N, Range 07W, Section 18, Tax Lot 101 (807180000101), the property is split zoned F-80 and AN. The work site includes the railroad infrastructure owned by PNWR and the project area falls within the railroad right-of-way (ROW). The Agency Creek site includes levee removal of three failed levees, this work will take place within the floodplain and will be subject to the requirements of the Flood Hazard Overlay (FHO).

**Warren Slough**

The Warren Slough Site includes removal of two undersized culverts to be replaced by one channel spanning bridge of 60-feet. The Warren Slough site is roughly 17.5 acres in size and falls within the railroad ROW. The closest property to the Warren Slough site is identified as Township 8N, Range 07W, Section 8, Tax Lot 500 (807080000500), the project area is split zoned AN and NS. The Warren Slough site also includes a staging area for equipment in the Exclusive Farm Use (EFU) Zone.

**PUBLIC NOTICES:**

The application was deemed complete by staff on February 7, 2024. A public notice was then mailed to surrounding property owners and interested parties on February 8, 2024. On February 21, 2024, staff determined that per Section 2.5020 a published notice is required in a newspaper of general distribution. A notice of use permitted with review was sent to *The Astorian*, a newspaper for publication on Saturday, February 24, 2024. This ten-day comment period ended on March 7, 2024.

The findings and conclusions contained in this report demonstrate the proposal can be approved with conditions.

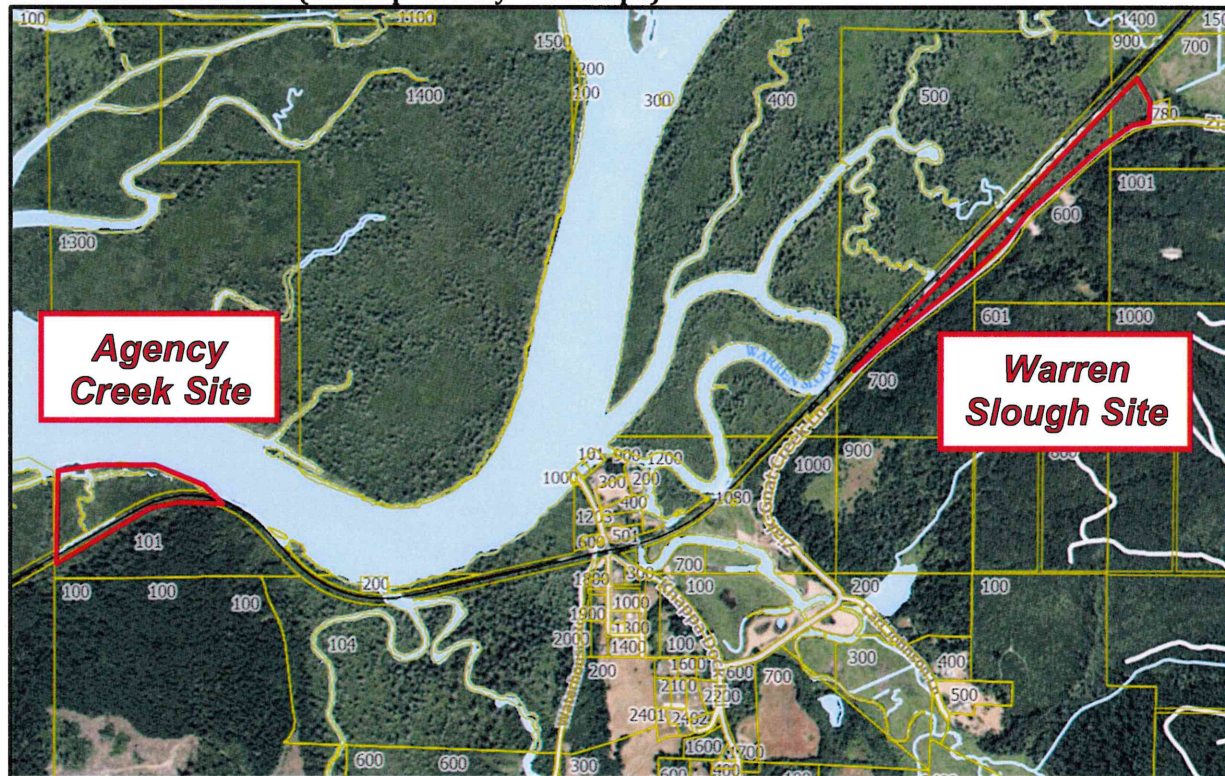
## PROPERTY STATUS:

The subject tax lots each were created by deeds recorded with the Clatsop County Clerk, as follows:

- T8N, R07W, Section 8, Tax Lot 500:
  - Book 132, Page 65 (1932), Sheriff's Deed – Tax Foreclosure
- T8N, R07W, Section 18, Tax Lot 101:
  - Book 165, Page 297 (Unreadable, 1940s), Warranty Deed
  - Book 225, Page 527-530 (1954), Warranty Deed

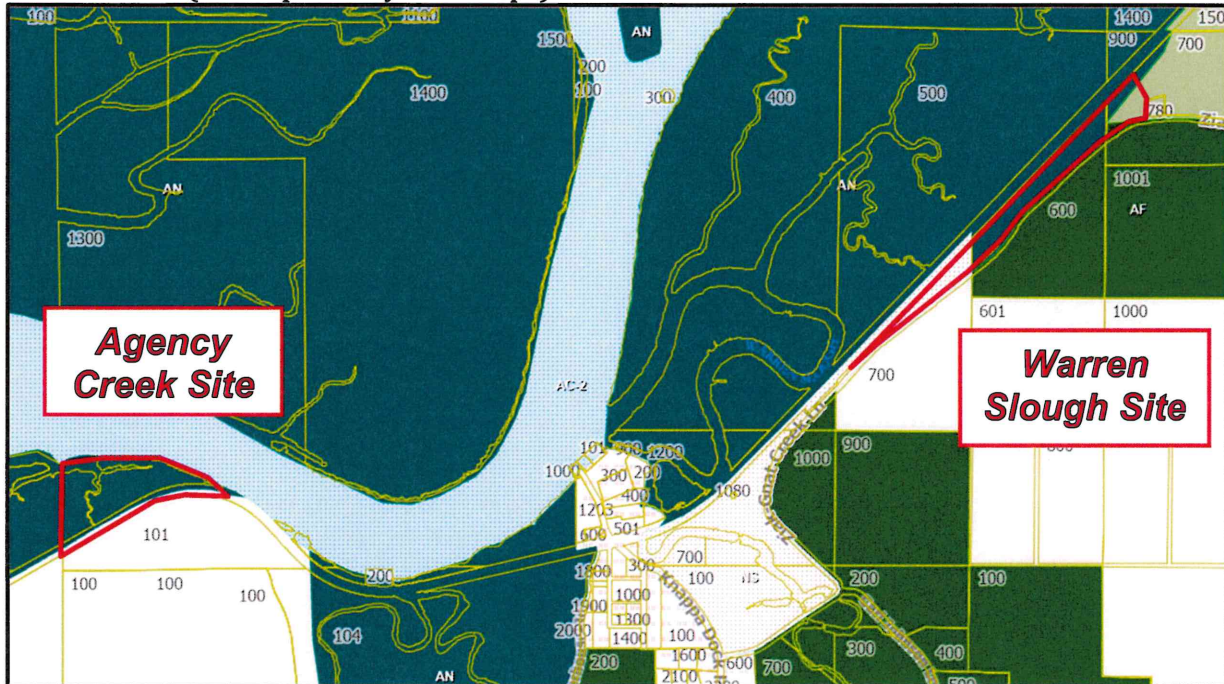
The subject tax lots each meet the definition of a “lot of record” (Section 1.0500, LAWDUC). Assessor records do not indicate the presence of any structures on the subject tax lots. According to a letter from ODOT and PNWR, (dated January 12, 2024; see Exhibit 1) ODOT owns the railroad corridor and PNWR owns the railroad tracks/infrastructure and holds a permanent exclusive rail service easement over the corridor. ODOT and PNWR have allowed CREST to proceed with local, state, and federal permit applications while CREST’s final construction plans are reviewed and approved by a consultant of PNWR. A condition of approval will require the applicant to provide the Land Use Planning Division written authorization from PNWR that final designs have been approved and construction may proceed prior to commencing work (Condition #1C).

## 2020 AERIAL PHOTO (Clatsop County Webmaps):

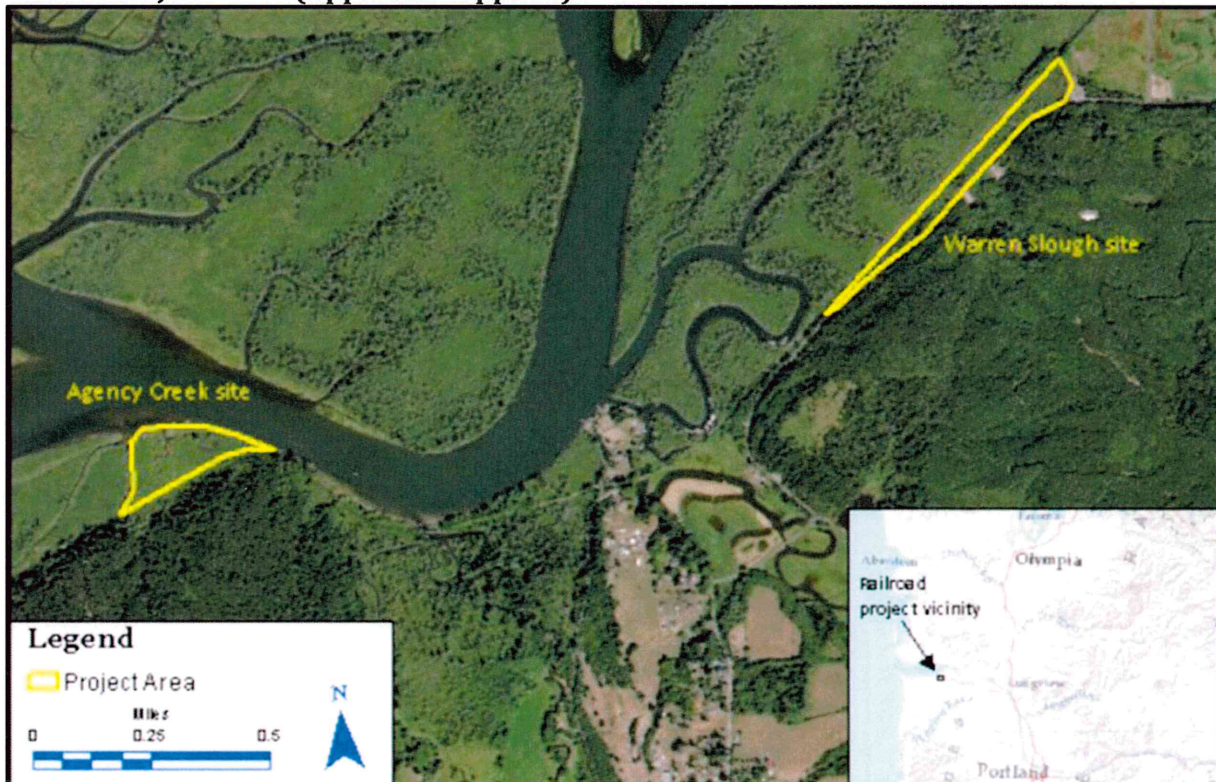




**ZONING MAP (Clatsop County Webmaps):**



**CREST PROJECT MAP (Applicant Supplied):**





## I. APPLICABLE CRITERIA

The applicable criteria for this land use application are contained in the following documents and sources:

### **Land and Water Development and Use Code 20-03 (LAWDUC):**

- 1.0500. Definitions
- 2.1020. Type II Procedure
- 2.2040. Mailed Notice for a Type II Procedure
- 2.2050. Procedure for Mailed Notice
- 2.4000. Conditional Development and Use
- 2.5000. Development and Use Permitted with Review
- 2.7000. Coastal Zone Consistency Review
- 3.2000. Erosion Control Development Standards
- 4.3300. Exclusive Farm Use
- 4.3500. Forest-80 Zone (F-80)
- 4.4600. Aquatic Natural Zone (AN)
- 4.4700. Natural Shorelands Zone (NS)
- 5.1000. Flood Hazard Overlay (FHO)
- 5.4100. Shoreland Overlay District (SO)
- 6.3000. Columbia River Estuary Impact Assessment and Resource Capability Determination
- 6.4000. Columbia River Estuary Shoreland and Aquatic Use and Activity Standards
- 6.5000. Protection of Riparian Vegetation
- 6.7000. Development of Historic and/or Archeological Sites

### **COMPREHENSIVE PLAN:**

- Goal 1 – Citizen Involvement
  - Goal 2 – Land Use Planning
  - Goal 4 – Forest Lands
  - Goal 5 – Open Spaces, Scenic and Historic Areas and Natural Resources
  - Goal 6 – Air, Water, and Land Resources Quality
  - Goal 7 – Areas Subject to Natural Disasters and Hazards
  - Goals 16 & 17 – Estuarine Resources and Coastal Shorelands
- Northeast Community Plan*

## II. APPLICATION EVALUATION

The following section examines the application versus the applicable criteria.

### **A. Clatsop County Land and Water Development and Use Code (20-03)**

#### **ARTICLE 1. INTRODUCTORY PROVISIONS**

##### **Section 1.0500. Definitions**

**AQUATIC AREAS** -- Aquatic areas include the tidal waters, including subtidal areas and wetlands of the estuaries and non-tidal sloughs, streams, and wetlands within the shorelands area boundary. The lands underlying the waters are also included. The upper limit of aquatic areas is the upper limit of aquatic vegetation or, where such a line cannot be accurately determined, Mean Higher High Water (MHHW) in tidal areas or Ordinary High Water (OHW) in non-tidal areas.

**ARCHAEOLOGICAL RESOURCES** -- Districts, sites, building, structures, and artifacts with material evidence of prehistoric human life and culture.

ESTUARY -- A body of water semi-enclosed by land, connecting with the open ocean, and within which salt water is diluted by freshwater derived from the land. The estuary includes: estuarine water, intertidal areas, and submerged lands. The Columbia River Estuary, for regulatory purposes, extends to the western edge of Puget Island as defined by the north/south line between Section 21 and 22, Township 8 North, Range 6 West on the Oregon side, to the Wahkiakum-Cowlitz County line on the Washington side, and to the head of tide for all tributaries.

FILL -- The placement by man of sand, sediment or other material to create new uplands or raise the elevation of the land.

INTERTIDAL -- Between extreme low water and the landward limit of aquatic vegetation, or where vegetation is absent, mean higher high water.

PILING -- Wood, concrete or steel posts driven into the bottom in aquatic areas either as mooring devices, or to support a dock, float, range marker, or other structure.

RESTORATION -- Revitalizing, returning or replacing attributes and amenities such as natural biological productivity and aesthetic or cultural resources which have been diminished or lost by past alterations, activities or catastrophic events. For the purpose of Oregon Statewide Planning Goal 16, estuarine restoration means to revitalize or reestablish functional characteristics and processes of the estuary diminished or lost by past alterations, activities, or catastrophic events. A restored area must be a shallow subtidal or an intertidal or tidal marsh area after alteration work is performed, and may not have been a functioning part of the estuarine system when alteration work began.

Active restoration involves the use of specific remedial actions such as removing dikes or fills, installing water treatment facilities, or rebuilding or removing deteriorated urban waterfront areas or returning diked areas to tidal influence.

Passive restoration is the use of natural processes, sequences, and timing which occurs after the removal or reduction of adverse stresses without other specific positive remedial action.

RIPARIAN -- Of, pertaining to, or situated on the edge of the bank of a river or other body of water.

SHORELINE -- The boundary between a body of water and the land, measured on tidal waters at the landward limit of aquatic vegetation or, where aquatic vegetation is absent, Mean Higher High Water; and on non-tidal waterways at the ordinary high water mark.

SHORELINE STABILIZATION -- The protection from erosion and sloughing of ocean and estuary shorelines and the banks of tidal or non-tidal streams, rivers or lakes by vegetative or structural means. Vegetative shoreline stabilization is the use of lands that anchor the soil to prevent shoreline erosion and sloughing. Structural shoreline stabilization is the use of riprap, bulkheads, sea walls, or other non-vegetative material to prevent shoreline erosion.

SIGNIFICANT SHORELAND RESOURCES -- Are described in subarea plans, and are included in the Coastal Shorelands boundaries. Significant shoreland resources include significant non-tidal wetlands, significant shoreland fish and wildlife habitat, significant riparian vegetation, exception aesthetic resources and coastal headlands.

SUBTIDAL -- Below the level of mean lower low tide. In the Columbia River Estuary this is generally three (3) feet below mean lower lot water.

TIDAL MARSH -- Tidal wetlands vegetated with emergent vascular plants lying between extreme low tide and landward limit of aquatic vegetation.

WATER-DEPENDENT -- A use or use and activity which can only be carried out on, in or adjacent to water areas because the use requires access to the waterbody for waterborne transportation, recreation, energy production, or source of water.

WATER-RELATED -- Uses which are not directly dependent upon access to a water body, but which provide goods or services that are directly associated with water-dependent and or waterways, and which, if not located adjacent to water, would result in a public loss of quality in the goods or services offered. Except as necessary for water-dependent or water-related uses or facilities, residences, parking lots, spoil and dump sites, roads and highways, restaurants, businesses, factories, and trailer parks are not generally considered dependent on or related to water location needs.

**STAFF FINDING:** The above terms and definitions are provided for reference as they are relevant to the application and may be used throughout this report.

## **ARTICLE 2. PROCEDURES FOR LAND USE APPLICATIONS.**

### **Section 2.1020. Type II Procedure.**

#### **Section 2.2040. Mailed Notice for a Type II Procedure.**

**STAFF FINDINGS AND CONCLUSION:** Notice of the application was mailed to property owners within 750 feet of the subject property in accordance with the requirements of Section 2.2040 (see Exhibit 2). Comments received during the 10-day public comment period can be found in Exhibit 2 and Section III of this report. **The criteria for a Type II review procedure have been satisfied.**

## **SECTION 2.0200. STATE AND FEDERAL PERMIT REQUIREMENTS**

If any state or federal permit is required for a development or use, an applicant, prior to issuance of a development permit or action, shall submit to the Planning Division a copy of the state or federal permit.

**APPLICANT RESPONSE:** Copies of all required state and federal permits required for this project will be submitted to the Planning Division prior to issuance of a development permit or action.

**STAFF FINDINGS AND CONCLUSION:** Based on information provided by the applicant, the proposal is subject to multiple state and federal permits from various agencies including the Oregon Department of State Lands (DSL), Department of Environmental Quality (DEQ), and U.S. Army Corps of Engineers (USACE). County regulations require the applicant to provide the Planning Division copies of all state and/or federal permits prior to starting the project.

**This criterion will be satisfied through a condition of approval (Condition #1A).**

## **SECTION 2.4000. CONDITIONAL DEVELOPMENT AND USE.**

### **Section 2.4020. Application for a Conditional Development and Use.**

If a development and use is classified as conditional in a zone, it is subject to approval under Sections 2.4000 to 2.4050. An applicant for a proposed conditional development and use shall provide facts and evidence and a site plan in compliance with Section 2.9400 sufficient to enable the Community Development Director or hearing body to make a determination.

### **Section 2.4030. Authorization of a Conditional Development and Use.**

- (3)** In addition to the other applicable standards of this ordinance, the hearing body must determine that the development will comply with the following criteria to approve a conditional development and use.
  - (A)** The proposed use does not conflict with any provision, goal, or policy of the Comprehensive Plan.



**APPLICANT RESPONSE:** The proposed Agency Creek and Warren Slough projects are consistent with all applicable goals and policies of Clatsop County's Comprehensive Plan. Specifically, this restoration project is designed to improve physical and biological resources associated with the Columbia River Estuary. Restoration of riparian vegetation around wetlands and waterways in the Columbia River Estuary is considered a high priority under Goals 16 and 17 of the Clatsop County Comprehensive Plan. Additionally, The Northeast Regional Plan encourages the increase of fish runs in the project area (Fish and Wildlife Policy 5).

**(B)** The proposed use meets the requirements and standards of this ordinance.

**APPLICANT RESPONSE:** The proposed Agency Creek and Warren Slough projects are consistent with the requirements and standards of the Clatsop County Land and Water Development and Use regulations. Specifically, this project is listed as a Conditional Use in the Aquatic Natural (AN) zone, Natural Shorelands Zone (NS), and Forest-80 (F-80) Zone and can be permitted pursuant to the appropriate provisions of the LAWDUC.

**STAFF FINDINGS AND CONCLUSION:** As demonstrated above, the proposed restoration project spans multiple zones and can be permitted in each zone subject to applicable review procedures and criteria. The applicable LAWDUC criteria implement Comprehensive Plan goals and policies.  
**This staff report evaluates the proposal against the applicable criteria found in the LAWDUC, which implement the goals and policies of the Comprehensive Plan, and demonstrates all applicable criteria are satisfied or can be satisfied with conditions of approval.**

**(C)** The site under consideration is suitable for the proposed use considering:

- 1) The size, design, and operating characteristics of the use, including but not limited to off-street parking, fencing/buffering, lighting, signage, and building location.
- 2) The adequacy of transportation access to the site, including street capacity and ingress and egress to adjoining streets.
- 3) The adequacy of public facilities and services necessary to serve the use.
- 4) The natural and physical features of the site such as topography, natural hazards, natural resource values, and other features.

**APPLICANT RESPONSE:** No parking, fencing/buffering, lighting, signage, or permanent buildings are proposed for either the Agency Creek or Warren Slough projects. No permanent transportation facilities are proposed for this project. Access to and from the site will only occur during the construction phase. No continued vehicle access will be needed once the project is completed. Each site is currently isolated and subject to Columbia River tides, re-establishing access along the railroad will be required. The projects do not require use of public facilities and services long-term. For the Warren Slough site there is a request to use a County gravel lot for a temporary parking/staging area. CREST acknowledges that such project activities within a County road right-of-way, including staging materials and equipment, will require an Application and Permit to Occupy or Perform Operations Upon a County or Public Road. CREST will submit the appropriate application to Clatsop County Public Works department well in advance of the proposed project.

This project seeks to improve connectivity between the mainstem-Columbia River and the Agency Creek and Warren Slough sites. Habitat connectivity is listed as a limiting factor impacting the survival of ESA listed salmonids. These projects seek to restore access to critical habitat types, that are currently isolated due to the continued presence of a derelict railroad. See additional information provided in Section 6.3000. Columbia River Estuary Impact Assessment and Resource Capability Determination.



**STAFF FINDINGS AND CONCLUSIONS:** The proposed conditional use is a habitat restoration project which involves installing new channel spanning bridges to replace undersized culverts through the railroad prism. The project will also include strategic breaches in the railroad prism, channel excavation, and breaching an abandoned levee at the Agency Creek site. As proposed, the goal is to increase the hydraulic connectivity between the mainstem Columbia River and the adjacent tidal marsh. According to the applicant, the marsh habitat has degraded following construction of the railroad, which essentially functions as a levy separating it from the river; historically, the marsh would have been connected to the river through a series of tidal channels, which the project proposes to mimic in its design and function.

The proposed use does not require vehicle access or parking, nor does it require fencing/buffering, or lighting. Transportation access to the site would be by boat or along the railroad and would be necessary only during construction and following construction to monitor the success of habitat restoration measures and make repairs as needed.

Per the *Draft Final Design Drawings* for the Agency Creek site (Exhibit 1), access to the construction site would be via Waterhouse Road, a County road. If the County road right-of-way is to be used for contractor parking or staging materials and/or equipment, the applicant shall first obtain a Perform Operations Permit from Clatsop County Public Works (Condition #1B).

Per the *Draft Final Design Drawings* for the Warren Slough site (Exhibit 1), access to the construction site would be via Ziak-Gnat Creek Lane, a County road. If the County road right-of-way is to be used for contractor parking or staging materials and/or equipment, the applicant shall first obtain a Perform Operations Permit from Clatsop County Public Works (Condition #1B).

The proposal does not require public facilities and services to operate.

(4) The natural and physical features of the site are discussed in detail in the Impact Assessment and Resource Capability Determination (Section 6.3000), and Columbia River Estuary Shoreline and Aquatic Use and Activity Standards (Section 6.4000), later in this report. The applicant responses and staff findings in those sections support a conclusion that the site is suitable for the proposed use, considering its natural and physical features, through compliance with applicable criteria and conditions of approval.

**Through compliance with the applicable development standards and conditions of approval described throughout this report, the site will be suitable for the proposed use (Condition #1B).**

**(D)** The proposed use is compatible with existing and projected uses on surrounding lands, considering the factors in (C) above.

**APPLICANT RESPONSE:** The projects are largely bordered by other aquatic natural lands and natural shoreland areas. See Figure 2 in Section 5.4100. Shoreland Overlay District (SO) below). The adjacent lands will not be impacted by construction or the outcome of the projects. The proposed projects are compatible with existing and projected uses on the surrounding lands.

**STAFF FINDINGS AND CONCLUSION:** Existing and projected uses on surrounding lands include the railroad corridor, Columbia River navigation channel, and residential development in the AF zone. The majority of the land surrounding the Warren Slough site is owned by the North Coast Land Conservancy and the State of Oregon. While the majority of the land surrounding the Agency Creek site is owned by the North Coast Land Conservancy, the State of Oregon, and Agency Creek Management Company, a private timber land owner.

These organizations are invested in habitat conservation, restoration, and environmental stewardship, which is consistent with the proposed project. The proposal is being reviewed by the owners of the railroad



(ODOT and PNWR) to ensure there are no adverse effects on that facility. The proposed work area is not anticipated to have any effect on those uses. A condition of approval will require the applicant to provide the Land Use Planning Division with written authorization from the railroad owners to proceed with construction prior to starting work (Condition #1C).

**This criterion is satisfied through a condition of approval (Condition #1C).**

**(E)** The proposed use will not interfere with normal use of coastal shorelands.

**APPLICANT RESPONSE:** The projects are consistent with the normal use of coastal shorelands and several of the criteria that drive the coastal shorelands designation, particularly parts 1) Areas subject to ocean flooding and lands within 100 feet of the ocean shore or within 50 feet of an estuary or coastal lake; (5) Natural or man-made riparian resources, especially vegetation necessary to stabilize the shoreline and to maintain water quality and temperature necessary for the maintenance of fish habitat and spawning areas; 6) Areas of significant shoreland and wetland biological habitats whose habitat quality is primarily derived from or related to the association with coastal water areas; 7) Areas necessary for water-dependent and water-related uses including areas of recreational importance which utilize coastal water or riparian resources; areas appropriate for navigation and port facilities, dredged material disposal and mitigation sites, and areas having characteristics suitable for aquaculture; 8) Areas of exceptional aesthetic or scenic quality, where the quality is primarily derived from or related to the association with coastal water areas; 9) Coastal headlands; 10) Dikes and their associated inland toe drains; and 11) Locations of archaeological or historical importance associated with the estuary.

The proposed projects will not change or interfere with the current use of the shorelands. Instead, the proposed projects will improve the condition of significant shoreland and wetland biological habitats and the associated natural resources within shorelands. The projects will do so by restoring and enhancing hydrologic connectivity and sediment accretion processes to 44 (22 acres at each the Agency Creek and Warren Slough sites) acres of off-channel floodplain wetlands, provide improved access to quality habitat for ESA-listed salmonids (possibly also benefit Columbian white-tailed deer), and restore diverse native vegetation communities through approximately a half-acre of native seeding and planting. Water quality is the major benefactor of improved hydrologic connectivity, as stagnant water is reduced, the site will see an increase in dissolved oxygen and reduction in water temperature (a key limiting factor to salmonids). Additionally, the proposed restoration efforts will increase the flux(ingress/egress) of macrodetritus macroinvertebrates that fall-out into the water column, transporting those key nutrients and food web elements into the greater Columbia River Estuary. Collectively these elements provide a greater benefit beyond the 22 acres of improved habitat provided by each of the sites themselves.

The projects each propose to breach the railroad levee in one discrete location and place a bridge (a 36-foot span bridge at Agency Creek and a 60-footspan bridge at Warren Slough) over the railroad prism breaches to vastly improve the connection between the interior floodplain wetlands at Agency Creek and Warren Slough and the mainstem Columbia River. Agency Creeks connectivity will be further improved by breaching an abandoned and failing levee in three locations (referred to as Levee Scrape down Areas A-C in the plan set). Currently a series of undersized and perched culverts serve as the only connection between the Columbia River and interior wetlands at each site, presenting significant fish passage barriers. The wetlands at each project site were historically connected prior to the establishment of the railroad (and the abandoned levee at Agency Creek), and the projects seek to voluntarily mitigate adverse effects of past development. The character of the site and the shorelands will remain intact, as the project will have a minimal footprint. Additionally, all applicable Erosion and Sediment Control Best Management Practices will be in place to ensure that the project will not cause any adverse effects.

The cumulative impact of implementing these restoration projects will result in increased fish and wildlife access to 44 acres of quality wetland habitat that will have major, long-term benefits for both terrestrial and aquatic wildlife that currently have limited access to the project area. See section 6.3000 Columbia River



Estuary Impact Assessment and Resource Capability Determination for further information describing the impacts and benefits of the proposed project.

(F) The proposed use will cause no unreasonable adverse effects to aquatic or coastal shoreland areas; and

**APPLICANT RESPONSE:** The proposed projects will not cause any adverse effects to aquatic environments. These wetlands were historically connected prior to the establishment of the railroad (and abandoned levee at Agency Creek), and the project seeks to voluntarily mitigate adverse effects of past development. The character of each site and the shorelands will remain intact, as the projects will have a minimal footprint. Strict Erosion and Sediment Control Best Management Practices will be put in place prior to the arrival of large equipment to ensure that the project will not cause any adverse effects. The sites will be immediately stabilized upon completion, and seeded and planted with thousands of native plants appropriate for the area. All necessary local, state, and federal permits (environmental and cultural) required to perform the work will be secured prior to implementation. There will be a net zero loss of aquatic areas. Project elements for the Agency Creek and Warren Slough restoration projects have been proposed for their ability to enhance tidal marsh ecosystem function, rearing habitat for ESA-listed juvenile salmonids, and historic habitat types for Columbian white-tailed deer (*Odocoileus virginianus leucurus*). Elements have been proposed that will provide immediate habitat benefit as well as support the longer-term trajectory of functioning habitat.

The purpose of these projects is to enhance overall marsh ecosystem function including enhancing habitat for Endangered Species Act listed juvenile salmonids and also potentially benefit Columbia White-tailed Deer. These projects will seek to address habitat and food web limiting factors for estuary habitat as listed in the 2011 Columbia River Estuary ESA Recovery Plan Module for Salmon and Steelhead. This project will also work towards recovery goals of the 2014 Opinion of Federal Columbia River Power System Operations Biological Opinion, as well as the Lower Columbia Fish Recovery Board Sub-Basin Plan biological and physical objectives.

The landforms visible at today's project areas have been altered by a variety of anthropogenic impacts including vast flood control systems (Bonneville Dam has altered the Columbia River hydrology), dredging navigation corridors, infrastructure development (roads and railroads), and surrounding Columbia River agricultural development (diking, ditching, draining, and subsidence). Within the project area, floodplain wetlands and tributary valleys have been isolated by road and railroad construction, levees, and nearby dredging has altered Columbia River channel morphology. Disconnecting the floodplain surface from regular flood inundation has resulted in the associated loss of inundation benefits including sediment deposition, reduction in contributions to the vegetation seed bank, reduction in particulate and nutrient exchange, and a lack of scouring flood flows that result in loss of habitat complexity. Additionally, construction of railroads has limited tidal backwater influences and disconnected much of the areas which historically contributed sediment food web resources (macrodetritus/nutrients, and macroinvertebrates) to not only within the project areas, but the greater Columbia River Estuary.

The cumulative impact of implementing this restoration project will result in increased fish and wildlife access to quality wetland habitat that will have major, long-term benefits for both terrestrial and aquatic wildlife that currently have limited access to the project area. See section 6.3000 Columbia River Estuary Impact Assessment and Resource Capability Determination for further information describing the impacts and benefits of the proposed project.

(G) The use is consistent with the maintenance of peripheral and major big game habitat on lands identified in the Comprehensive Plan as Agricultural Lands or Conservation Forest Lands. In making this determination, consideration shall be given to the cumulative effects of the proposed action and other development in the area on big game habitat.



**APPLICANT RESPONSE:** The proposed projects are located outside of Big Game Habitat. The proposed projects will not result in cumulative effects that create or add to existing negative impacts associated with other projects in the area or as a result of the project. The projects will result in a net increase of wetland function and fish and wildlife habitat for each of the project sites.

**(H)** In addition to compliance with the criteria as determined by the hearing body and with the requirements of Sections 1.1041 and 1.1050, the applicant must accept those conditions listed in Section 2.4040 that the hearing body finds are appropriate to obtain compliance with the criteria.

**APPLICANT RESPONSE:** The projects shall comply with the requirements of Sections 1.1041 and 1.1050, and the applicant accepts the appropriate imposed conditions listed in Section 2.4040.

**STAFF FINDINGS AND CONCLUSION:** The proposed habitat restoration project can be permitted in the affected zoning districts through applicable review procedures and criteria. Coastal shorelands and aquatic/estuarine resources are addressed in detail in the Impact Assessment and Resource Capability Determination (Section 6.3000), and Columbia River Estuary Shoreland and Aquatic Use and Activity Standards (Section 6.4000), later in this report. The proposal, which was specifically designed to restore degraded aquatic and coastal shoreland areas, is found to satisfy the applicable criteria with conditions of approval as appropriate. Therefore, the proposal is not anticipated to interfere with the normal use of coastal shorelands or cause unreasonable adverse effects to aquatic or coastal shoreland areas. **These criteria are satisfied.**

## **SECTION 2.5000. DEVELOPMENT AND USE PERMITTED WITH REVIEW**

### **Section 2.5010. Application for a Development and Use Permitted with Review**

If a development and use is listed as a development and use permitted with review, it is subject to approval under Section 2.5020 and 2.5030. An applicant for a proposed development and use permitted with review shall provide facts and evidence and a site plan in compliance with Section 2.9400 sufficient to enable the Community Development Director or hearing body to make a determination.

### **Section 2.5020. Authorization of a Development and Use Permitted with Review**

A new, enlarged or otherwise altered development listed in this Ordinance as a development and use permitted with review shall be approved by the Community Development Director under a Type II procedure with posted notice and mailed notice to the owners of property situated within (250) feet of the property of the applicant and with published notice in a newspaper of general distribution. After taking into account location, size, design and operation characteristics of the proposed development, the Director shall determine whether or not the proposed development complies with the requirements of Sections 1.1040 and 1.1050. The Director may require changes in the proposed development to ensure that it will meet applicable standards. Where the proposed development involves a nonwater dependent use or activity in the Marine Industrial Shorelands zone, Section 4.1700, mailed notice shall also be provided to any interested party who has submitted a written request concerning the proposed development, and to state and federal agencies with statutory planning and permit issuance authority in aquatic areas, including the Oregon Division of State Lands, Department of Fish and Wildlife, U.S. Fish and Wildlife Service, National Marine Fisheries Service, Corps of Engineers, and the Environmental Protection Agency.

### **Section 2.5030. Requirements for Development and Use Permitted with Review**

Proposed developments must be consistent with the Clatsop County Comprehensive Plan and must satisfy applicable development standards in this Ordinance. Developments in the AF zone must be found to be consistent with the maintenance of big game habitat. In making this determination, consideration shall be given to the cumulative effects of the proposed action and other development in the area on big game habitat. Developments requiring a state or federal permit are subject to the Consistency Review Procedure set forth in Section 2.7000. In permitting a development, the Director may impose any of the conditions listed in Section 2.4040 to ensure that the development is consistent with the resource



capabilities of the particular areas and the purpose of the zoning and special district classifications.

**STAFF FINDINGS AND CONCLUSION:** The proposed habitat restoration project can be permitted in the affected zoning districts through applicable review use procedures and criteria. Notice of the application was mailed to property owners within 750 feet of the subject property in accordance with the requirements of Section 2.2040 (Exhibit 2) and a published notice was placed in *The Astorian*, a newspaper of general distribution (Exhibit 4). Comments received during the 10-day public comment period can be found in Exhibit 2 and Section III of this report.

The applicant has provided the Planning Division with a copy of the Joint Permit Application (JPA) required by DSL/DEQ/USACE. Section 2.7000 was satisfied in part when staff completed Land Use Compatibility Statements for the Agency Creek (LUCS; Planning Record #23-000648) and Warren Slough sites (LUCS; Planning Record #23-000651). A copy of the decision for this conditional use application, including the conditions of approval, will be forwarded to the USACE in accordance with Section 2.7020.

**This section is satisfied.**

## **SECTION 2.7000. COASTAL ZONE CONSISTENCY REVIEW**

### **Section 2.7010. Applicability**

This section applies to the following activities that directly affect the coastal zone:

- 1) Actions requiring federal permits or licenses

### **Section 2.7020. Consistency Review Procedure for Activities Requiring State or Federal Permits or Licenses**

Applicants for activities in Clatsop County's coastal zone which require a state or federal permit or license shall submit to the Community Development Director a copy of the completed permit application, other supporting material provided to the permit granting agency and a set of findings which demonstrate that the development would be consistent with the applicable elements of the Comprehensive Plan and this Ordinance.

If the activity requires a local permit, the applicant shall apply for the local permit under the established permit program. Approval of the permit shall constitute a ruling that the action is consistent with the applicable elements of the Comprehensive Plan and Ordinance. If the action does not require a local permit, the County may make an investigation to provide information on the project's conformance with the Plan and Ordinance standards and provisions. The investigation can be done administratively or through public hearings.

The Community Development Director shall respond to the state or federal public permit granting agency within seven working days of the local actions. The response shall contain a statement of whether the permit is consistent with the applicable elements of the Comprehensive Plan, the reasons development is or is not consistent, standards and conditions which apply if the permit is granted, and the need for local permits for developments associated with the activity.

**APPLICANT RESPONSE:** Agency Creek and Warren Slough project activities meet Section 2.7010 (1) applicability standards. The project will require federal permits for construction. The project shall comply with the requirements of Section 2.7020.

**STAFF FINDINGS AND CONCLUSION:** The proposal is subject to Coastal Zone Consistency Review because it includes actions that require a federal permit (DSL/DEQ/USACE Joint Permit). The applicant has provided the Planning Division with a copy of the Joint Permit Application (JPA). Section 2.7020 was satisfied in part when staff completed Land Use Compatibility Statements for the Agency Creek (LUCS; Planning Record #23-000648) and Warren Slough sites (LUCS; Planning Record #23-000651). The LUCS section of the JPA, informs the agencies of the applicable County regulations and permit requirements. A



copy of the decision for this conditional use application, including the conditions of approval, will be forwarded to the USACE in accordance with Section 2.7020. **This section is satisfied.**

### **Section 3.2000. EROSION CONTROL DEVELOPMENT STANDARDS**

#### **Section 3.2010. Purpose.**

The objective of this section is to manage development activities including clearing, grading, excavation and filling of the land, which can lead to soil erosion and the sedimentation of watercourses, wetlands, riparian areas, public and private roadways. The intent of this section is to protect the water quality of surface water, improve fish habitat, and preserve top soil by developing and implementing standards to help reduce soil erosion related to land disturbing activities. In addition, these standards are to serve as guidelines to educate the public on steps to take to reduce soil erosion.

**APPLICANT RESPONSE:** The objective of this section is to manage development activities including clearing, grading, excavation, and filling of the land, which can lead to soil erosion and the sedimentation of watercourses, wetlands, riparian areas, public and private roadways. The intent of this section is to protect the water quality of surface water, improve fish habitat, and preserve top soil by developing and implementing standards to help reduce soil erosion related to land disturbing activities. In addition, these standards are to serve as guidelines to educate the public on steps to take to reduce soil erosion.

The proposed Agency Creek and Warren Slough projects are consistent with the requirements and standards Section 3.2000. An Erosion Control Plan that meets the standards and requirements listed in Section 3.2030 (1-2) Erosion Control Plan, and Section 3.2040 Design and Operation Standards and Requirements has been produced and is included in the each of the Erosion Control Plans titled Agency Creek 1200-c and Warren Slough 1200-c. The Erosion Control Plan contains all the elements listed in Section 3.2030 (C) 1-3.

**STAFF FINDINGS AND CONCLUSION:** A condition of approval will require the applicant to submit a final erosion control plan prior to commencing any land-disturbing activities. Additionally, due to the removal and fill per the *Final Design Drawings* (Exhibit 1) at the Agency Creek site [1,400 cubic yards] and Warren Slough site [800 cubic yards], a Grading, Drainage, and Erosion Control Plan Review shall be required, which also includes submitting an erosion control plan.

**This section will be satisfied with a condition of approval (Conditions #1 and #1D).**

### **ARTICLE 4. ZONES AND SPECIAL PURPOSE DISTRICTS.**

#### **SECTION 4.3300. EXCLUSIVE FARM USE ZONE (EFU)**

##### **Section 4.3320. Development and Use Permitted [Ord. 18-02]**

The following developments and their accessory uses are permitted under a Type I procedure subject to applicable development standards.

- 4) Creation of, restoration of, or enhancement of wetlands.

**STAFF FINDINGS AND CONCLUSION:** Per the *Draft Final Design Drawings* for the Warren Slough site (Exhibit 1), the applicant intends to use a gravel yard near the railroad ROW for a temporary staging and stockpiling area. This yard is currently subleased by Clatsop County Public Works for use as a gravel yard and is the only project location within the EFU zone. The site is an established gravel yard that would be used to support habitat restoration and the restoration of wetlands, an allowed use in the EFU zone. Documentation shall be provided for use of the gravel yard from Clatsop County Public Works for temporary staging and stockpiling.

**This section will be satisfied with a condition of approval (Condition #1B).**



## **SECTION 4.3500. FOREST-80 ZONE (F-80)**

### **Section 4.3510. Purpose**

The purpose of the Forest (F-80) Zone is to protect and maintain forest lands for grazing, and rangeland use and forest use, consistent with existing and future needs for agricultural and forest products. The F-80 zone is also intended to allow other uses that are compatible with agricultural and forest activities, to protect scenic resources and fish and wildlife habitat, and to maintain and improve the quality of air, water and land resources of the county.

The F-80 zone has been applied to lands designated as Forest 80 in the Comprehensive Plan. The provisions of the F-80 zone reflect the forest land policies of the Comprehensive Plan as well as the requirements of ORS Chapter 215 and OAR 660-006. The minimum parcel size and other standards established by this zone are intended to promote commercial forest operations. [Ord. 18-02]

**APPLICANT RESPONSE:** The Forest-80 Zone is only present within the Agency Creek project area only. The associated information contained within this section below is therefore only applicable to the Agency Creek project. The purpose of the Forest (F-80) Zone is to protect and maintain forest lands for grazing, and rangeland use and forest use, consistent with existing and future needs for agricultural and forest products. The F-80 zone is also intended to allow other uses that are compatible with agricultural and forest activities, to protect scenic resources and fish and wildlife habitat, and to maintain and improve the quality of air, water and land resources of the county.

The proposed Agency Creek project is consistent with the purpose and intent of the F-80 Zone in that the project seeks to protect and restore fish and wildlife habitat, maintain and improve the quality of the air, water, and land resources of the County. Furthermore, the proposed project at Agency Creek does not in any way risk the ability of forest lands use of grazing, and rangeland use and forest use consistent with existing and future needs for agriculture and forest products.

### **Section 4.3530. Development and Use Permitted**

The following uses and activities and their accessory uses may be permitted under a Type I procedure subject to applicable development standards:

- 1) Uses to conserve soil, air and water quality and to provide for wildlife and fisheries resources.

**APPLICANT RESPONSE:** The proposed Agency Creek habitat restoration project is consistent with the requirements and standards of this subsection. The restoration proposed at Agency Creek will restore and enhance hydrologic connectivity and sediment accretion processes to approximately 22 acres of off-channel floodplain wetlands, provide improved access to quality habitat for ESA-listed salmonids (possibly also benefit Columbian white-tailed deer), and restore diverse native vegetation communities through native seeding and planting. Water quality is the major benefactor of improved hydrologic connectivity, as stagnant water is reduced, the site will see an increase in dissolved oxygen and reduction in water temperature (a key limiting factor to salmonids). Additionally, the restoration will increase the flux (ingress/egress) of macrodetritus macroinvertebrates that fall-out into the water column, transporting those key nutrients and food web elements into the greater Columbia River Estuary. Collectively these elements provide a greater benefit beyond the 22 acres of improved habitat provided by the Agency Creek site.

The cumulative impact of implementing this restoration project will result in increased fish and wildlife access to quality wetland habitat that will have major, long-term benefits for both terrestrial and aquatic wildlife that currently have limited access to the project area. See section 6.3000 Columbia River Estuary Impact Assessment and Resource Capability Determination for further information describing the impacts and benefits of the proposed project.



#### **Section 4.3560. Development Standards [Ord. 18-02]**

All dwellings and structures approved pursuant to Section 4.3500 shall be sited in accordance with this Section.

- (1) Lot Size Standards. Lot size shall be consistent with the requirements of Section 4.3570.
- (2) Setbacks.
  - (A) Front Yard: All buildings or structures with the exception of fences shall be setback a minimum of 30 feet from the property line.
  - (B) Side and Rear Yard: 30 feet
- (3) Maximum building height: 45 feet

**APPLICANT RESPONSE:** The proposed project is a voluntary habitat restoration project that is consistent with the above listed requirements of this subsection. The proposed restoration effort/development will not alter the lot sizes which the applicant (CREST) assumes currently meet the standards, setbacks, and the proposed structure (bridge) will not exceed the maximum building height of 45 feet. The Agency Creek project designs do not propose to significantly raise the railroad elevation beyond its current height. Slight adjustments (approximately 0-6 inches) may be required to align the bridge girders, and ensure the low-chord of the girders provides adequate freeboard under normal tidal conditions.

**STAFF FINDINGS AND CONCLUSION:** The Agency Creek site is partially within the F-80 zone. The Warren Slough site does not include the F-80 zone, although there is F-80 zoning adjacent to the railroad ROW.

The NS zone allows restoration and mitigation as a Type II activity. Pursuant to Section 2.1110, applications are required to be processed under the highest-numbered procedure that applies to any part of the development proposal. **This report will demonstrate the proposal satisfies the applicable criteria with appropriate conditions of approval.**

#### **SECTION 4.4600. AQUATIC NATURAL ZONE (AN)**

##### **Section 4.4610. Purpose**

The purpose of the AN zone designation is to assure the preservation and protection of significant fish and wildlife habitats; continued biological productivity of the Columbia River estuarine resources; and scientific research and educational opportunities. These areas are managed to preserve natural resources in recognition of dynamic, natural, geological and evolutionary processes. The AN zone includes all tidal marshes, tidal flats, and seagrass and algae beds. AN zones may also include ecologically important subtidal areas. This designation is intended to preserve those natural aquatic resource systems existing relatively free of human influence.

**APPLICANT RESPONSE:** The Aquatic Natural Zone (AN) is present within both the Agency Creek and Warren Slough project areas. The associated information contained within this section below is therefore applicable to both the Agency Creek and Warren Slough project. These projects both have similar actions and objectives and the associated responses to the standards within this section have been combined to assist in the review process.

The purpose of the AN zone designation is to assure the preservation and protection of significant fish and wildlife habitats; continued biological productivity of the Columbia River estuarine resources; and scientific research and educational opportunities. These areas are managed to preserve natural resources in recognition of dynamic, natural, geological and evolutionary processes. The AN zone includes all tidal marshes, tidal flats, and seagrass and algae beds. AN zones may also include ecologically important subtidal areas. This designation is intended to preserve those natural aquatic resource systems existing relatively free of human influence.

The proposed projects at Agency Creek and Warren Slough are consistent with the purpose and intent of the AN zone as these projects both seek to preserve and protect significant fish and wildlife habitat through

habitat restoration and stewardship actions. The projects also seek to improve the biological productivity of the Columbia Rivers estuarine resources through restoring natural processes and functions to the project areas that have been impacted by past land use practices. Furthermore, the project will contribute to scientific research and educational opportunities through a rigorous monitoring program conducted at each of the sites for a period of 5 years post-project, with the possibility to extend this period to 10 years. Data collected will include water surface elevation and temperature, vegetation species composition and abundance, sediment accretion, and photo points. The site may also be selected for fish sampling by NOAA.

#### **Section 4.4620. Permitted Developments**

The following uses and activities, and their accessory uses and activities, are permitted in the AN zone under a Type I procedure, Section 2.1010, and subject to the provisions of Section 4.4650, Development Standards.

- (2) Passive restoration measures.
- (4) Vegetative shoreline stabilization.
- (7) Projects for the protection of habitat, nutrient, fish, wildlife and aesthetic resources
- (8) Piling in conjunction with permitted uses (1) through (7) listed above, pursuant to the applicable standards in Section 6.4080.

#### **Section 4.4630. Review Developments**

The following uses and activities, and their accessory uses and activities, may be permitted as Review Uses in the AN zone under a Type II procedure, Section 2.1020, when authorized in accordance with Sections 2.5000-2.5040 Developments and Uses Permitted and Review. These uses and activities are also subject to the provisions of sections 4.4650, Development Standards.

- 3) Bridge crossings.

It must be determined that the following review uses and activities and their accessory uses and activities, meet the resource capability of the Aquatic Natural zone, subject to the procedures in Sections 6.3060-6.3080 Resource Capability Determination.

- 8) Estuarine enhancement.
- 10) Bridge crossing support structures.
- 12) Piling in conjunction with review use (10) listed above, pursuant to the applicable standards in Section 6.4080.
- 14) Filling in conjunction with review uses (8) through (10) listed above, pursuant to the applicable standards in Section 6.4210.

**APPLICANT RESPONSE:** The projects are consistent with Section 3.4630. See Resource Capability Determination section within the narrative below and the associated responses.

#### **Section 4.4640 Conditional Developments**

The following uses and activities, and their accessory uses and activities, may be permitted as Conditional Uses in the AN zone under a Type II procedure, Section 2.1020, when authorized in accordance with Sections 2.4000-2.4050 Conditional Development and Use. These uses and activities are also subject to the provisions of Section 4.4650, Development Standards. It must also be determined if these uses and activities meet the resource capability of the Aquatic Natural zone, subject to the procedures in Sections 6.3060-6.3080 Resource Capability Determination.

- 1) Active restoration of fish and wildlife habitat or water quality.
- 2) Piling in conjunction with conditional uses (1) and (3) listed above pursuant to the applicable standards in Section 6.4080

**APPLICANT RESPONSE:** The proposed Agency Creek and Warren Slough projects are consistent with the conditional developments (under a Type II permit) as outlined in this section. The purpose of these projects is to enhance overall marsh ecosystem function including enhancing rearing habitat for



Endangered Species Act listed juvenile salmonids by restoring hydrologic connectivity, including floodplain and tidal processes between the Columbia River and the Agency Creek and Warren Slough project areas. Project efforts will directly improve fish and wildlife habitat as well as improve water quality within the project area. Pilings are a necessary component of bridge construction at each site given the geotechnical findings required to support the bridge structure and the anticipated loading.

#### **Section 4.4650 Development Standards**

- 1) All uses and activities shall satisfy applicable regional policies contained in the Comprehensive Plan, Estuarine Resources and Coastal Shorelands element.

**APPLICANT RESPONSE:** The proposed projects are consistent with this standard. The projects seek to restore Estuarine habitat that has been degraded. Restoring ecosystem functions and services has been found to provide a net benefit to the associated terrestrial aquatic resources (fish, vegetation, benthic/aquatic macro invertebrates, water quality, etc.) See section 6.3000 Columbia River Estuary Impact Assessment and Resource Capability Determination for further information describing the impacts and benefits of the proposed project.

- 1) All uses and activities shall satisfy applicable Columbia River Estuary Shoreland and Aquatic Use and Activity Standards contained in the Land and Water Development and Use Code.

**APPLICANT RESPONSE:** See above part (b) Section 2.4000 Conditional Development and Use. A-H provide information regarding how the project meets the applicable standards.

- 3) All other applicable ordinance requirements shall be adhered to.

**APPLICANT RESPONSE:** The proposed projects are believed to be consistent with this requirement.

- 4) A proposal which requires dredging, fill, in-water structures, riprap, new log storage areas, application of pesticides and herbicides, water intake or withdrawal and effluent discharge, in-water disposal of dredged material, beach nourishment or other activities which could affect the estuary's physical processes or biological resources is subject to an Impact Assessment, Sections 6.3000-6.3050.

**APPLICANT RESPONSE:** Please see section 6.3000 Columbia River Estuary Impact Assessment and Resource Capability Determination for further information describing the impacts and benefits of the proposed projects.

- 5) Uses that are water-dependent must meet the criteria in Section 6.4270(1). Uses that are water-related must meet the criteria in Section 6.4270(2).

**APPLICANT RESPONSE:** The proposed projects do not meet the criteria for a water-dependent use or water-related use as defined in Section 6.4270 (2). However, the proposed restoration projects do not conflict with existing or probable future water-dependent uses on site or within the vicinity of the project. The projects propose to restore natural tidal signatures and hydrology, providing additional fish access from the mainstem Columbia River to the existing habitat in the Agency Creek and Warren Slough project areas.

- 6) Uses and activities permitted under Section 4.4620 of this zone, Permitted Developments, are subject to the public notice provisions of Section 2.2040, if an impact assessment is required pursuant to Sections 6.3010 through 6.3050; or if a source capability determination is required pursuant to Sections 6.3060-6.3070; or if a determination of consistency with the purpose of the AN zone is required pursuant to Section 6.3080; or if the Community Development Director determines that the permit decision will require interpretation or the exercise of factual, policy, or legal judgment.



**APPLICANT RESPONSE:** The applicant acknowledges this requirement. Please see section 6.3000 Columbia River Estuary Impact Assessment and Resource Capability Determination for further information describing the impacts and benefits of the proposed Agency Creek and Warren Slough projects.

- 7) Uses and activities permitted under Section 4.4620 of this zoned, Permitted Developments, are subject to the public notice provisions of Section 2.2040, if an impact assessment is required pursuant to Sections 6.3010 through 6.3050; or if a source capability determination is required pursuant to Sections 6.3060-6.3070; or if a determination of consistency with the purpose of the AN zone is required pursuant to Section 6.3080; or if the Community Development Director determines that the permit decision will require interpretation or the exercise of factual, policy, or legal judgment.

**APPLICANT RESPONSE:** The applicant acknowledges the public notice provisions of Section 2.2040.

**STAFF FINDINGS AND CONCLUSION:** The proposed habitat restoration project would span multiple zones and the scope of work includes various uses described in those zones. The Agency Creek site is within the F-80 and AN zone, while the Warren Slough site is within the NS and AN zone. The Warren Slough site also includes a temporary sorting and staging yard within the EFU zone. The AN zone allows the project as a Type II activity. Pursuant to Section 2.1110, applications are required to be processed under the highest-numbered procedure that applies to any part of the development proposal. The relevant uses in AN zone are listed above. Because active restoration of fish and wildlife habitat is listed as a conditional use in the AN Zone, this proposal is subject to a Type II conditional use procedure. The development standards for the NS and AN zones require this proposal be subject to an Impact Assessment and Resource Capability Determination per Sections 6.3010-6.3050 and 6.3060-6.3080, which are addressed later in this report. **The proposed habitat restoration project will be reviewed under a Type II conditional use procedure, subject to an impact assessment and resource capability determination. This report will demonstrate the proposal satisfies the applicable criteria with appropriate conditions of approval.**

## **SECTION 4.4700. NATURAL SHORELANDS ZONE (NS)**

### **Section 4.4710. Purpose**

This zone is for Columbia River Estuary shoreland areas which should be managed for resource protection, preservation, restoration, and recreation, with severe restrictions on the intensity and types of uses permitted. Natural Shorelands zone includes areas of unique vegetative or wildlife habitat, and critical habitat of endangered or threatened species. This designation is intended to preserve those natural resource systems existing relatively free of human influence.

**APPLICANT RESPONSE:** The Natural Shorelands Zone (NS) is present within the Warren Slough project area only. The associated information contained within this section below is therefore only applicable to the Warren Slough project.

The Warren Slough project is consistent with the allowed uses and the purpose of the Natural Shoreland Zone, as it proposes to restore natural processes and access to critical habitats for endangered or threatened species, primarily ESA listed salmonids. The Warren Slough restoration project seeks to remove a known fish barrier within the railroad prism and replace it with a channel spanning bridge to provide unrestricted access to critical habitats for ESA listed salmonids. The efforts of the project will offset past anthropogenic influences that degraded these critical habitats, with the goal to further protect/preserve natural resource systems. The North Coast Land Conservancy is the adjacent landowners to the project area. Their mission statement closely mirrors the purpose and intent of the Natural Shorelands Zone and will help steward the project area. Furthermore, CREST will have the ability to perform supplemental planting efforts and stewardship for a period of no less than 5 years to ensure that the composition and trajectory of the native seeding and planting for all disturbed areas is restored post project.



#### **Section 4.4720. Permitted Developments**

The following uses and activities, and their accessory uses and activities, are permitted in the NS zone under a Type I procedure, Section 2.1010, and subject to the provisions of Section 4.4750, Development Standards.

- 3) Vegetative shoreline stabilization.

**APPLICANT RESPONSE:** Applicable. An extensive native seeding and planting effort is being proposed within the Warren Slough project footprint that is intended to reduce erosion and stabilize the shoreline.

- 4) Emergency repair to existing functional and serviceable dikes.

**APPLICANT RESPONSE:** Applicable. The railroad prism at Warren Slough acts as both a functional and serviceable dike. While the proposed Warren Slough project is not an emergency repair, the existing culverts the project proposes to replace with a channel spanning bridge are well past their expected lifespan. The culverts are already showing signs of failure, and the proposed project will drastically reduce that risk of failure.

- 5) Research and educational observation.

**APPLICANT RESPONSE:** Applicable. The Warren Slough project will be included as part of the Columbia Estuary Ecosystem Restoration Program (CEERP), and as a result will have funding to allow monitoring of several metrics (water temperature, vegetation, sediment accretion, and fish use\*) for a period of five to ten years.

\* Not all CEERP sites are selected for fish sampling. The program selects a subset of all the restoration sites that occur in a given year for fish sampling. Every site receives at a minimum monitoring for water temperature, vegetation, and sediment accretion.

- 6) Land transportation facilities as specified in Section 4.0300

**APPLICANT RESPONSE:** Applicable. Per Section 4.0300, the proposed Warren Slough project qualifies as a permitted outright use/activity.

#### **Section 4.4730. Review Developments**

The following uses and activities, and their accessory uses and activities, may be permitted as Review Uses in the NS zone under a Type II procedure, Section 2.1020, when authorized in accordance with Sections 2.5000-2.5040 Development and Use Permitted with Review, and subject to the provisions of Section 4.4750, Development Standards:

- 1) Maintenance and repair of existing structures and facilities, including dikes.
- 2) Structural shoreline stabilization limited to riprap.

**APPLICANT RESPONSE:** The proposed Warren Slough project is consistent with the above-listed uses and activities. The proposed project proposes to repair an existing structure (the railroad), by replacing undersized and failing culverts and replacing them with a channel spanning bridge. This activity includes structural shoreline stabilization through the use of riprap necessary to protect the proposed bridge abutments.

#### **Section 4.4740. Conditional Developments**

The following uses and activities, and their accessory uses and activities, may be permitted as Conditional Uses in the NS zone under a Type II procedure, Section 2.1020, when authorized in accordance with



Sections 2.4000-2.4050 Conditional Development and Use, and subject to the provisions of Section 4.4750, Development Standards:

- 1) Marine research and/or education facilities.
- 2) Restoration, mitigation.
- 3) Landfalls and access corridors for sewer line, water line, submerged cables or other pipeline crossing.

**APPLICANT RESPONSE:** The proposed project is consistent with the conditional developments 1 of Section 4.4740. The Warren Slough habitat restoration project will contribute to marine research and/or education as part of the Columbia Estuary Ecosystem Restoration Program (CEERP). As a CEERP project, the Warren Slough site will have funding to allow monitoring of several metrics (water temperature, vegetation, sediment accretion, and fish use\*) for a period of five to ten years. Monitoring is a required component of this program. It is worth noting that not all CEERP sites are selected for fish sampling. The program selects a subset of all the restoration sites that occur in a given year for fish sampling. Every site receives at a minimum monitoring for water temperature, vegetation, and sediment accretion. This research will be analyzed and made available to the public, as well as inform future habitat restoration work in the Columbia River estuary through lessons learned.

The proposed project is also consistent with conditional development 2 of Section 4.4740, restoration, mitigation. The proposed project is a voluntary restoration project that seeks to restore access to critical habitats for ESA listed salmonids.

#### **Section 4.4750. Development Standards**

- 1) All uses and activities shall satisfy applicable regional policies contained in the Comprehensive Plan, Estuarine Resources and Coastal Shorelands element.
- 2) All uses and activities shall satisfy Columbia River Estuary Shoreland and Aquatic Use and Activity Standards contained in the Land and Water Development and Use Code.
- 3) All other applicable ordinance requirements shall be satisfied.
- 4) Shoreline setbacks shall meet the requirements of development standard 6.4220, Riparian Vegetation Protection.

#### **APPLICANT RESPONSE:**

- (1) All uses and activities shall satisfy applicable regional policies contained in the Comprehensive Plan, Estuarine Resources and Coastal Shorelands element.
- (2) All uses and activities shall satisfy Columbia River Estuary Shoreland and Aquatic Use and Activity Standards contained in the Land and Water Development and Use Code.
- (3) All other applicable ordinance requirements shall be satisfied.
- (4) Shoreline setbacks shall meet the requirements of development standard 6.4220, Riparian Vegetation Protection.

**STAFF FINDINGS AND CONCLUSION:** The Warren Slough site is partially within the NS zone. The Agency Creek site does not include the NS zone. The NS zone allows restoration and mitigation as a Type II activity. Pursuant to Section 2.1110, applications are required to be processed under the highest-numbered procedure that applies to any part of the development proposal.

The development standards for the NS zone require this proposal be subject to an Impact Assessment and Resource Capability Determination per Sections 6.3010-6.3050 and 6.3060-6.3080, which are addressed later in this report.

**This report will demonstrate the proposal satisfies the applicable criteria with appropriate conditions of approval.**



## **SECTION 5.1000. FLOOD HAZARD OVERLAY (FHO)**

### **Section 5.1010. Purpose**

The purpose of the flood hazard overlay district is to identify those areas of the County subject to the hazards of periodic flooding and establish standards and regulations to reduce flood damage or loss of life in those areas. This district shall apply to all areas of special flood hazards within the unincorporated areas of Clatsop County as identified on Flood Insurance Rate Maps (FIRM) and Flood Boundary and Floodway Maps. In advancing these principles and the general purposes of the Clatsop County Comprehensive Plan, the specific objectives are:

- 1) To promote the general health, welfare and safety of the County;
- 2) To prevent the establishment of certain structures and land uses unsuitable for human habitation because of the danger of flooding, unsanitary conditions or other hazards;
- 3) To minimize the need for rescue and relief efforts associated with flooding;
- 4) To help maintain a stable tax base by providing for sound use and development in flood-prone areas and to minimize prolonged business interruptions;
- 5) To minimize damage to public facilities and utilities located in flood hazard areas;
- 6) To ensure that potential home and business buyers are notified that property is in a flood area.

**APPLICANT RESPONSE:** The proposed Agency Creek and Warren Slough projects are within the A-100-year Flood Hazard Zone. If required, and prior to issuance of the development permit, a registered professional civil engineer can provide a no-rise memo, demonstrating through hydrologic and hydraulic analyses performed in accordance with engineering practice that the associated projects proposed developments will not result in any increase in base flood or floodway elevations when compared to pre-project conditions.

### **Section 5.1020. Definitions**

The following words and phrases shall be interpreted so as to give them the meanings they have in common usage and to give this chapter its most reasonable application:

**“ALTERATION OF A WATERCOURSE”** includes, but is not limited to, any dam, culvert, impoundment, channel relocation, change in channel alignment, channelization, or change in cross-sectional area or capacity, which may alter, impede, retard or change the direction and/or velocity of the riverine flow of water during conditions of the base flood.

**“BASE FLOOD”** means the flood having a one percent chance of being equaled or exceeded in any given year. Also referred to as the “100-year flood”. Designation on maps always includes the letters A or V.

**“BASE FLOOD ELEVATION (BFE)”** means the water surface elevation during the base flood in relation to a specified datum. The Base Flood Elevation (BFE) is depicted on the FIRM to the nearest foot and in the FIS to the nearest 0.1-foot.

**“DEVELOPMENT”** means any manmade change to improved or unimproved real property, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials located within the area of special flood hazard.

**“WATERCOURSE”** means a lake, river, creek, stream, wash, arroyo, channel or other topographic feature in, on, through, or over which water flows at least periodically.

### **Section 5.1050. Alteration of Water Courses**

- 1) The bankfull flood carrying capacity of the altered or relocated portion of the water course shall not be diminished. Prior to issuance of a floodplain development permit, the applicant must submit a description of the extent to which any water course will be altered or relocated as a result of the proposed development and submit certification by a registered professional engineer that the bankfull flood carrying capacity of the water course will not be diminished.



- 2) The applicant shall notify adjacent communities, the U.S. Army Corps of Engineers, Oregon Department of State Lands, and Oregon Department of Land Conservation and Development prior to any alteration or relocation of a water source. Evidence of notification must be submitted to the floodplain administrator and to the Federal Emergency Management Agency.
- 3) The applicant shall be responsible for providing the necessary maintenance for the altered or relocated portion of the watercourse so that the flood carrying capacity will not be diminished.
- 4) The applicant shall meet the requirements to submit technical data in Section 5.1200 when the alteration of a watercourse, including the placement of culverts, results in the relocation or elimination of the special flood hazard area.

### **Section 5.1130. Development Standards**

**APPLICANT RESPONSE:** The proposed projects are consistent with the applicable development standards as outlined in this section.

#### **General Standard**

(E) Construction Materials and Methods: The construction materials and methods have been carefully considered to ensure that the materials and equipment are resistant to flood damage. The proposed design of the Agency Creek and Warren Slough bridges utilize precast concrete spans and substructure components. Precast concrete is able to accommodate occasional wetting and drying cycles without causing excessive corrosion to the reinforcing steel since the concrete provides a chloride barrier between any water and the steel. The infrequent occurrence of the additional flood/wetting events should not cause a measurable reduction to the service life of the bridge.

(G) Anchoring: The proposed construction methods and materials will be anchored to prevent flotation, collapse, or lateral movement of the bridge structure.

(I) Foundation Protection: The project and associated structural design, specs, and plans for the foundation of the bridge (pilings and abutments) has been designed by a registered professional civil engineer. Their stamp certifies that the design and methods of construction are in accordance with accepted practices to withstand flotation, collapse, lateral movement, erosion and scour, undermining, and the effects of water and wind acting simultaneously on all building components, including during the base flood.

### **Section 5.1160. Zones Without Base Flood Elevations**

- 1) These standards apply in riverine areas of special flood hazard where no base flood elevation data have been provided (A Zones):
- 2) When base flood elevation or floodway data have not been identified by FEMA in a Flood Insurance Study and /or Flood Insurance Rate Maps, the Floodplain Administrator shall obtain, review, and reasonably utilize scientific or historic base flood elevation and floodway data available from a federal, state, or other source, in order to administer this ordinance. If data are not available from any source, only then subsection 3 shall apply.
- 3) Where the floodplain administrator has obtained base flood elevation data, applicants of proposed projects that increase the base flood elevation more than one foot shall obtain from FEMA a Conditional Letter of Map Revision (CLOMR) before the project may be permitted. Applicants must obtain a Letter of Map Revision (LOMR) no later than six months after project completion.
- 4) In special flood hazard areas without base flood elevation data, no encroachments, including structures or fill, shall be located in an Area of Special Flood Hazard within an area equal to the width of the stream or fifty feet, whichever is greater, measured from the ordinary high water mark, unless a base flood elevation is developed by a licensed professional engineer.

**APPLICANT RESPONSE:** The proposed projects are consistent with this section. FEMA documents flood risk by delineating land areas within the inundation zones from floods of one and 0.2 percent annual chance floods (100-year and 500-year events, respectively). As a means of providing a national standard



for flood risk assessment, the one-percent annual chance flood has been adopted as the base flood for floodplain management purposes. The Agency Creek and Warren Slough project areas are located within an A zone (subject to inundation from one-percent annual chance flood), as indicated in the FIRM Panel 41007C0280E, provided by FEMA.

The base flood elevation (BFE) for the project area is unknown. The nearest BFE identified in the project vicinity appears to be for Big Creek and is listed as approximately 13 feet NAVD88 (FEMA 2010). The hydraulic analyses used to demarcate the FEMA flood zones at the project site were performed by the USACE (USACE 1979; FEMA 2010). Columbia River discharges in 1955, 1964, 1971, 1972, and 1975 were used to calibrate and develop the HEC-2 computer model. This was then used to predict stages for the one-percent annual chance flood event at various locations in Clatsop County along the Columbia River (FEMA 2010)

**STAFF FINDINGS AND CONCLUSION:** Per Clatsop County Webmaps, the Agency Creek and Warren Slough sites are within the A-100-year floodplain. The *Draft Final Design Drawings* for the Agency Creek and Warren Slough sites (Exhibit 1) confirm the location of the new bridges as partially within the floodplain. Additionally, the scrapedown of the three levees at the Agency Creek site are fully within the floodplain.

As Agency Creek and Warren Slough project sites are within the A Zone of the floodplain, the applicant shall provide base flood elevation documentation and data for the Floodplain Administrator to review and analyze. **This section will be satisfied with a condition of approval (Condition #1E).**

#### **SECTION 5.4100. SHORELAND OVERLAY DISTRICT (SO)**

##### **Section 5.4110. Purpose**

The purpose of this district is to manage uses and activities in coastal shoreland areas which are not designated as a Shoreland Zone in a manner consistent with the resources and benefits of coastal shorelands and adjacent estuarine aquatic areas.

**APPLICANT RESPONSE:** The project area is not shown on the SO layer on the County Web maps because the layer is incomplete. Youngs Bay is currently the only area shown. As a result, we have to look at Section 5.4120 as well as a very old CREST resource base maps. See figure2. and figure3.photosbelow, which show the Shoreland Overlay boundary and indicates Goal 17 Significant Riparian Vegetation, which bumps this up to Category 1 Coastal Shorelands.

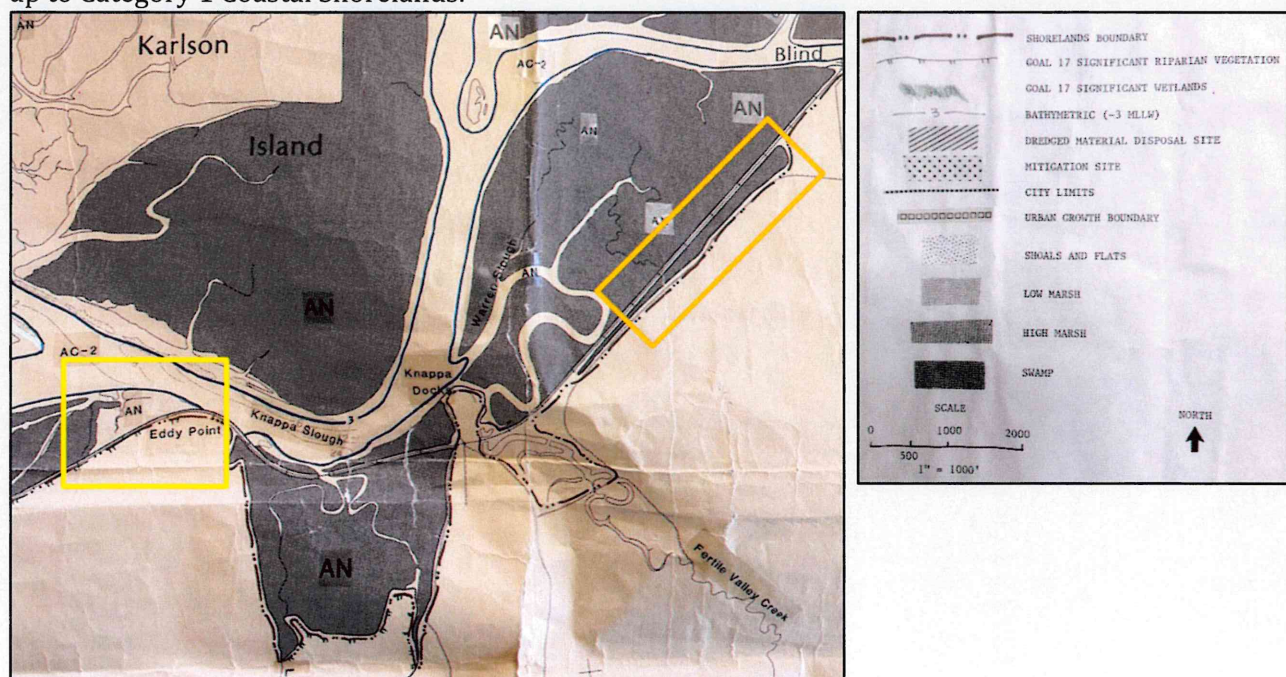




Figure 2. CREST resource base map. This map, along with the key in Figure 3. Below *[above]* illustrates the Shoreland Overlay boundary and indicates Goal 17 Significant Riparian Vegetation for the Agency Creek (Yellow Box), and Warren Slough (Orange Box) project sites.

#### **Section 5.4120. Designation of Shoreland Overlay District**

This overlay district refers to areas described on official Clatsop County Zoning Maps. It does not include shoreland areas of the Columbia River Estuary designated Marine Industrial Shoreland, Conservation Shoreland, or Natural Shoreland. Included in this overlay district are:

- a. Areas subject to ocean flooding and lands within 100 feet of the ocean shore or within 50 feet of an estuary or a coastal lake.
- b. Areas of geological instability in or adjacent to the shoreland boundary when the geologic instability is related to or will impact a coastal water body.
- c. Natural or man-made riparian resources, especially vegetation which function to stabilize the shoreline or maintain water quality and temperature necessary for the maintenance of fish habitat and spawning areas.
- d. Areas of significant shoreland and wetland biological habitats whose habitat quality is primarily derived from or related to the association with coastal and estuarine areas.
- e. Areas necessary for water-dependent and water-related uses, including uses appropriate for port facilities and navigation, dredged material disposal and mitigation sites, and areas suitable for aquaculture.
- f. Areas of exceptional aesthetic or scenic quality, where the quality is primarily derived from or associated with the coastal or estuarine areas.
- g. Areas of recreational importance or public access which utilize coastal waters or riparian resources.
- h. Locations of archaeological or historical importance associated with the estuary.
- i. Coastal headlands.
- j. Dikes and their associated inland toe drains.

#### **Section 5.4140. Categories of Coastal Shorelands**

There are two categories of Coastal Shorelands as described below:

1) Category 1:

(A) Those shorelands described in the Estuarine and Coastal Shoreland Element of the Comprehensive Plan as:

1. Significant, non-estuarine marshes;
2. Riparian resources;
3. Significant fish and wildlife habitat;
4. Exceptional aesthetic resources;
5. Historical and archaeological sites.

2) Category 2:

(A) All shorelands which do not fall within 1(A)1-5 and are not currently designated Marine Industrial Shorelands, Conservation Shorelands or Natural Shorelands are the second category of Coastal Shorelands.

**APPLICANT RESPONSE:** There are two categories of Coastal Shorelands. The Agency Creek and Warren Slough project site best fits under Category 1, (A) 1-5 based on the “significant” riparian resources(vegetation), and fish and wildlife habitat. For these projects we seek to classify the projects as “vegetative shoreline stabilization”.

#### **Section 5.4150. Developments Permitted with Category 1 Coastal Shorelands**

Only the following uses and activities are permitted under a Type I procedure (Section 2.1010) within shorelands defined in Section 5.4140(1)(A)1)-5):

- 6) Vegetative shoreline stabilization.



**APPLICANT RESPONSE:** Vegetative shoreline stabilization is defined as, “protection from erosion and sloughing of ocean and estuary shorelines and the banks of tidal or non-tidal streams, rivers or lakes by vegetative means. Vegetative shoreline stabilization is the use of plants that anchor the soil to prevent shoreline erosion and sloughing.” The purpose of these projects are to enhance overall marsh ecosystem function including enhancing access to rearing habitat for Endangered Species Act listed juvenile salmonids by restoring hydrologic connectivity, including floodplain and tidal processes between the Columbia River and the Agency Creek and Warren Slough project areas. However, one aspect of the projects purpose that is critical to the success of the project is maintaining access to these habitats through vegetative shoreline stabilization. The projects propose to create new openings in the railroad prism, excavating new channel connections between the mainstem Columbia River and the Agency and Warren Slough sites, and creating several topographic complexity mounds to promote native wetland/scrub-shrub plant assemblages. The new mounds and channel, along with the surrounding existing channels that they tie into will be heavily planted with native species to ensure bank stability, while also providing a diverse native plant community capable of supporting a diverse community of insects that support the food web for salmonids as well as other aquatic organisms. Maintaining channel banks through vegetative shoreline stabilization is critical to ensuring salmon continue to have access to these important habitat types. See the attached plan sets and refer to the associated planting plans for further information. Pay particular attention to the Proposed Levee Shoulder Vegetation Complexity Zones (buffer planting zones). The projects will be protecting shorelines, and tidal channels (tidal streams) by vegetative means. The planting plans will be specifically using native plants to anchor the soil to prevent shoreline erosion and sloughing.

The projects will follow all applicable development standards. The projects are voluntary habitat restoration projects that will both protect and enhance riparian vegetation and wildlife habitats. The proposed projects will not cause any adverse effects to aquatic environments. Strict sediment and erosion controls will be implemented during the construction phase and the site will be stabilized upon completion. All necessary state and federal permits required to perform the work will be secured prior to implementation. There will be a net zero loss of aquatic areas. Elements have been proposed that will provide immediate habitat benefit as well as support the longer-term trajectory of functioning tidal habitat.

#### **STAFF FINDINGS AND CONCLUSION:**

##### Agency Creek Site

The proposed project area for the new channel spanning bridge is within the railroad ROW. According to the Planning Division's Goal 16/17 resource maps (see CREST resource base map below), the site of the new bridge is within the shorelands boundary. While the new bridge is within the SO, the bridge site and construction within the prism is not mapped as tidal marsh of the Columbia River estuary. The project area is classified as Category 1 Coastal Shorelands, significant fish and wildlife habitat.

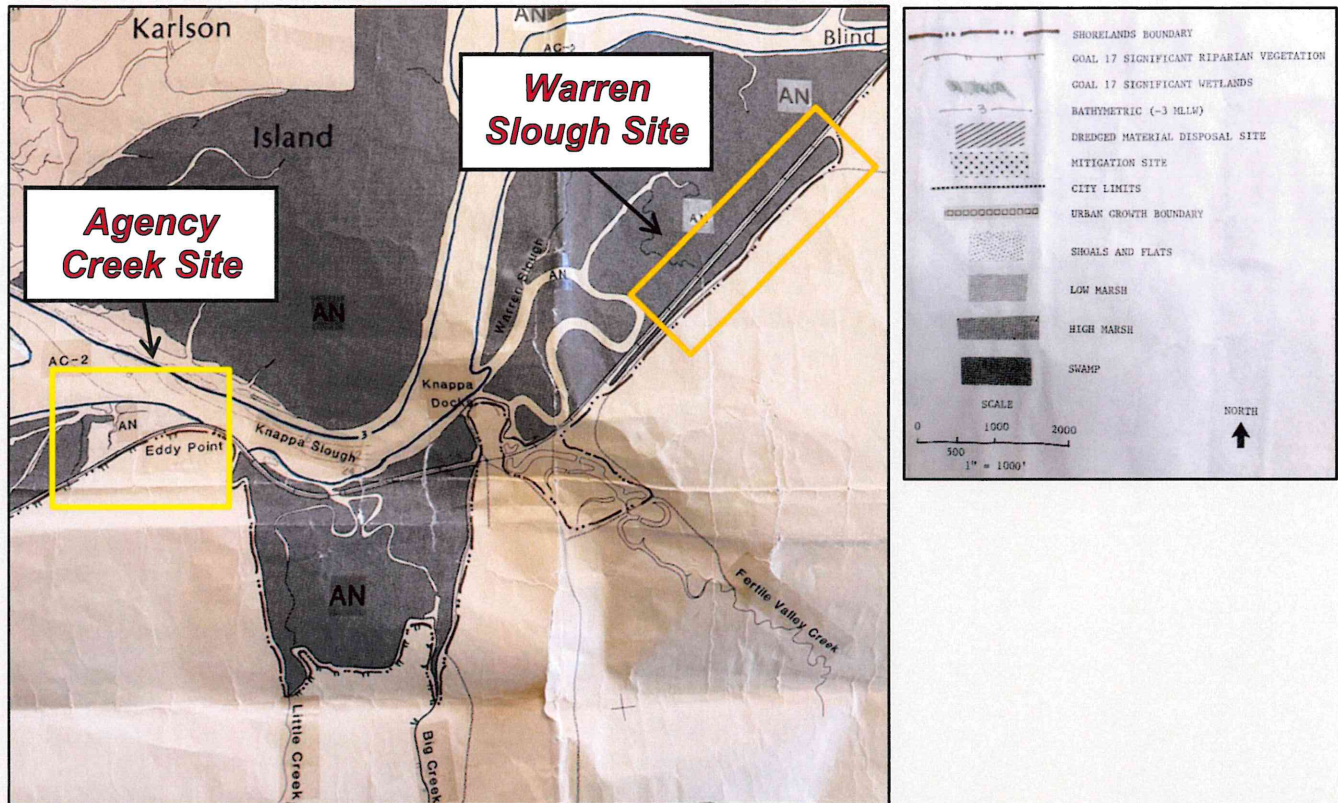
The Agency Creek site also includes the scrapedown of partially failed levees at three different points, per the *Draft Final Design Drawings* for the Agency Creek site (Exhibit 1), these points are referred to as *Levee Scrapedown A, B, and C*. The scrapedown of B and C falls within the tidal marsh of the Columbia River Estuary, while A is not within a mapped tidal marsh per the CREST resource base map. The project area of Scrapedown A, B, and C are classified as Category 1 Coastal Shorelands; significant fish and wildlife habitat and riparian vegetation.

##### Warren Slough Site

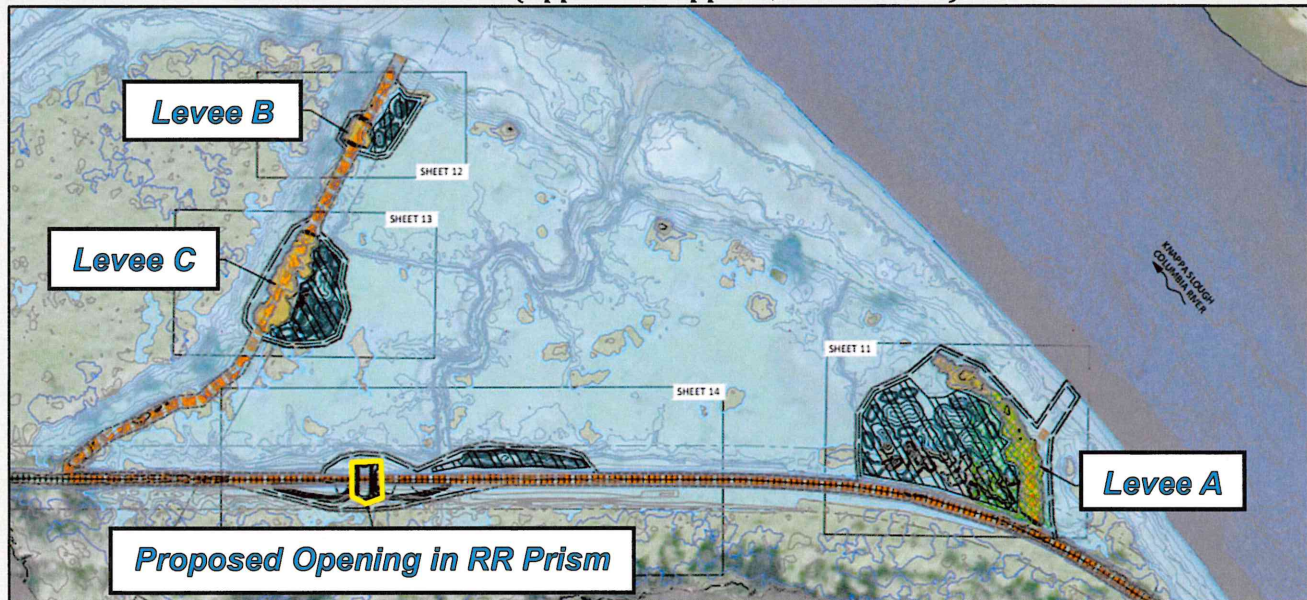
The proposed project area for the new channel spanning bridge is within the railroad ROW. According to the Planning Division's Goal 16/17 resource maps (see CREST resource base map below), the site of the new bridge is within the shorelands boundary. The bridge site within the railroad prism is mapped as tidal marsh of the Columbia River estuary. The project area is classified as Category 1 Coastal Shorelands, significant fish and wildlife habitat and riparian vegetation per the *Draft Final Design Drawings* for the Warren Slough site (Exhibit 1) and CREST maps.



## CREST RESOURCE BASE MAP



## AGENCY CREEK - LEVEE SCRAPEDOWN (Applicant Supplied, see Exhibit 1)



According to the design documents submitted with the application (Exhibit 1), it does not appear the Category 1 area would be directly affected by the proposed restoration activities, except during construction for access to the project site, temporary staging of materials and equipment, and the shavedown of three levees at the Agency Creek site (see *Draft Final Design Drawings* for the Agency Creek and Warren Slough, Exhibit 1). As noted by the applicant, "vegetative shoreline stabilization" is permitted within Category 1 shorelands. The applicant has described how the proposal would protect the site from erosion and sloughing by using plants to anchor the soil, which is important to the success of the proposed new channel connection and consistent with the definition of shoreline stabilization found in Section



1.0500. A revegetation plan can be found on pages 21-22 of the *Draft Final Design Drawings* for the Agency Creek site and pages 16-17 of the *Draft Final Design Drawings* for the Warren Slough site (Exhibit 1).

In addition to the uses allowed in Category 1 Coastal Shorelands, “projects for the protection of fish and habitat resources” are allowed in Category 2 shorelands. As described throughout this report, the purpose of the project is to improve and protect fish habitat. Overall, the proposal is consistent with the purpose of the Shoreland Overlay because it would restore the resources and benefits of a shoreland and aquatic areas that were degraded following construction of the railroad. Section 5.4170 requires the proposal to be evaluated for compliance with the Columbia River Estuary Shoreland and Aquatic Area Use and Activity Standards, Section 6.4000, which are addressed later in this report. The proposal will be found to meet the applicable standards with appropriate conditions of approval.

**The Agency Creek and Warren Slough project sites are within the Shoreland Overlay and the proposal can be permitted subject to the criteria in Section 6.4000, which are addressed later in this report.**

## **SECTION 6.3000. COLUMBIA RIVER ESTUARY IMPACT ASSESSMENT AND RESOURCE CAPABILITY DETERMINATION**

### **Section 6.3010. Impact Assessment**

The purpose of this section is to provide an assessment process for development alterations which could potentially alter the estuarine ecosystem. Oregon Statewide Planning Goal 16, Estuarine Resources, requires that actions which would potentially alter the Columbia River estuarine ecosystem be preceded by an assessment of potential impacts. The Impact Assessment need not be lengthy and complex, but it should enable reviewers to gain a clear understanding of the impacts expected.

### **Section 6.3020. Impact Assessment Requirements**

The following uses and activities, in addition to those so indicated in the aquatic zones, all require an Impact Assessment at the time a permit is reviewed:

- 2) Aquatic area fill
- 3) In-water structures
- 4) Riprap
- 7) Water intake or withdrawal
- 11) Other uses or activities which could affect estuarine physical or biological resources
- 12) Uses or activities that require a Resource Capability Determination

**APPLICANT RESPONSE:** The following uses and activities are applicable to the project:

- 2) Aquatic area fill
- 3) In-water structures
- 4) Riprap
- 11) Other uses or activities which could affect estuarine physical or biological resources
- 12) Uses or activities that require a Resource Capability Determination

**STAFF FINDING AND CONCLUSION:** The applicant’s response confirms the proposal includes activities that require an impact assessment.

### **Section 6.3030. Use of Impact Assessment**

Information contained in an Impact Assessment shall be used during the evaluation of a use or activity's significant impacts on the estuarine ecosystem; in determining whether potential impacts can be avoided or minimized; and for providing a factual base of information needed to address applicable standards in Section 6.4000 through 6.4270. Where a use or activity requires a Resource Capability Determination, information in the impact assessment can be used to satisfy the requirements of Section 6.3070.



#### **Section 6.3040. Information to be Provided in the Impact Assessment**

Information needed to complete the Impact Assessment should be obtained from sources other than the permit application (i.e. environmental impact statements, Columbia River Estuary Data Development Program data, other reports or data applicable to the Columbia River Estuary). An assessment of impacts of aquatic area pesticide and herbicide application may be provided by the Oregon Department of Agriculture and the Oregon Department of Environmental Quality. An assessment of the impacts of new point-source waste water discharges into the Columbia River Estuary may be provided through the National Pollution Discharge Elimination System (NPDES) permit program.

A complete Impact Assessment includes the following information:

- 1) Aquatic life forms and habitat, including information on both the extent of and impacts on: habitat type and use, species present (including threatened or endangered species), seasonal abundance, sediments, and vegetation.

**APPLICANT RESPONSE:** Proposed restoration measures include removal of approximately 36 LF of railroad levee segment (one 36 LF opening with a bridge) at Agency Creek, and one 60 LF of railroad levee segment (one 60 LF opening with a bridge) at Warren Slough, excavation of approximately 120 LF of tidal channel (approximately 60 LF at Agency and 60 LF at Warren) connecting into existing tidal channel networks, excavation of three (3) abandoned levee breaches at Agency Creek (outlined as Levee Scrape down A-C in the plan set), and the placement of all native soils (rock will be re-used on the rail prism or hauled off-site if unsuitable for re-use) generated from these excavations over approximately 1.1 AC at Agency Creek and 0.5 AC at Warren Slough to create topographic complexity mounds to promote re-establishment of a diverse riparian community. The projects will restore and enhance hydrologic connectivity and sediment accretion processes to 44 acres, provide improved access to quality habitat for ESA-listed salmonids (possibly also benefit Columbian white-tailed deer), and to restore diverse native vegetation communities through nearly an acre of native seeding and planting.

The anadromous fish that are present or anticipated to be present, at the site are described below:

#### **Coho Salmon (*Oncorhynchus kisutch*)**

- Lower Columbia River ESU Coho salmon (Endangered)
- Oregon Coast ESU Coho salmon (Threatened)

#### **Chinook Salmon (*Oncorhynchus tshawytscha*)**

- Snake River ESU, fall run Chinook salmon (Threatened)
- Snake River ESU, spring/summer run Chinook salmon (Threatened)
- Upper Columbia River ESU summer run Chinook salmon (Endangered)
- Lower Columbia River ESU, fall run Chinook salmon (Threatened)
- Upper Willamette River ESU, spring run Chinook salmon (Threatened)

#### **Steelhead Trout (*Oncorhynchus mykiss*)**

- Lower Columbia River, summer run Steelhead (Threatened)
- Lower Columbia River ESU, winter run Steelhead (Threatened)
- Middle Columbia River ESU, winter run Steelhead (Threatened)
- Upper Willamette River ESU, winter run Steelhead (Threatened)
- Oregon Coast ESU, winter run Steelhead (Species of Concern)
- Snake River Basin ESU Steelhead (Threatened)

#### **Chum Salmon (*Oncorhynchus keta*)**

- Columbia River ESU Chum salmon (Endangered)



The purpose of these projects is to enhance overall tidal marsh ecosystem function and rearing habitat for ESA listed juvenile salmonids, including all of the species listed above. These projects seek to increase tidal marsh habitat for each of these species in the Agency Creek and Warren Slough project areas and associated watershed where past and present infrastructure has limited hydrologic connectivity and fish access. Potential minor, short-term adverse effects will be mitigated through implementation of erosion control methods and adherence to in-water work recommendations provided by regulatory agencies.

In a regional planning context, through the restoration of hydrologic connectivity, this project will work towards recovery goals of the 2014 Opinion of Federal Columbia River Power System Operations Biological Opinion (BiOp) and Lower Columbia Fish Recovery Board Subbasin Plan biological and physical objectives (NOAA 2014, LCFRB 2010). Further, the project will seek to address habitat and food web limiting factors for estuary habitat as listed in the 2011 Columbia River Estuary ESA Recovery Plan Module for Salmon and Steelhead (Estuary Partnership and PC Trask 2011). These limiting factors are outlined below.

*Habitat and Food Web Limiting Factors for Juvenile Salmonids in the Columbia River Estuary (CRE):*

- Reduced in-channel habitat opportunity: flow related habitat changes and altered sediment and nutrient conditions/cycling.
- Reduced off channel habitat opportunity: flow changes reduce access to off channel habitat, changes in bankfull elevations
- Elevated water temperatures
- Food source changes; characterized by reduced macrodetrital inputs and increased microdetrital inputs
- Competition and predation issues

Juvenile fish sampling in the area has indicated that juvenile salmonids were generally abundant from March through July, and fish use of these tidal habitats can vary from year to year (Sagar et al. 2010, Roegner et al. 2010). This data informs the fish use timing, and consequently the types of habitats required in the project area. The two life histories observed in the project vicinity, Ocean type and Stream type salmonids, inform the desired habitat types for restoration within the project area. Ocean type salmonids, here fall Chinook and chum salmon, migrate downstream within days to months of emergence from gravel, and are typically associated with low velocity, nearshore habitats such as marshes and riparian/wetland habitats in the estuary (LCFRB 2010). Stream type salmonids, here Chinook, are typically associated with water column habitats within 18 feet from the top of the water column and avoid low velocity areas (LCFRB 2010). Above each project area and the larger Agency and Warren Slough sites, the small ephemeral streams are not actively used by salmonids due to the existing undersized culverts within the railroad prism. In the case of Warren Slough Ziak-Gnat Creek Lane does not provide suitable passage to upstream habitats (Streamnet 2016).

The preferred temperature range for Chinook in nearby tidal sites appears to be between 11-15° C, while peak chum abundance is between 9-12° C, and peak Coho abundance is between 16-18° C. The upper thermal limit where Chinook and coho at were found is 23°C, and chum salmon were found up to 16° C (Roegner et al 2010). The Warren Slough restoration project area has been monitored for water temperature dating back as far as 2016. The average temperatures observed during that timeframe were found to be within the above-mentioned preferred temperature ranges for Chinook, Coho, and chum salmon.

Estuary habitats produce large amounts of food for juvenile fish that migrate through the estuary. Even if estuary wetland habitats are not actively used by juveniles, these wetlands often are home to species that become future prey to juvenile salmonids. Juvenile fish have relatively empty stomachs when they are passing through the John Day and Bonneville Dams on the Columbia River, indicating that only a small proportion of these fish are actively feeding. Juvenile fish in the CRE, however, are actively feeding with high stomach fullness containing significant amounts of insects associated with floodplain wetlands. It has been demonstrated that restored estuary habitats are highly productive environments and export prey



items (dipterans and amphipods) that are consumed by migrating juveniles in the mainstem Columbia River (Diefenderfer et al.2012). Fish at restoration sites typically have high stomach fullness and are in better condition compared to those in unrestored areas (USACE and BPA 2013). Restoration of estuary habitats can have positive impacts for all juvenile salmonids that migrate through the CRE and not just ocean types that use these habitats directly.

- 2) Shoreland life forms and habitat, including information on both the extent of and impacts on: habitat type and use, species present (including threatened or endangered species), seasonal abundance, soil types and characteristics, and vegetation present.

**APPLICANT RESPONSE:** In addition to aquatic fish species listed above, the wetlands in the Agency Creek and Warren Slough project sites likely provide habitat for a variety of terrestrial and amphibian wild life currently. While there is no known wildlife surveys available for the project area, mammals likely inhabiting this wetland area include raccoons, elk, deer, coyotes, weasels, river otters, muskrats, and bats. A large number of birds and water fowl have also been observed in and around the project areas. Birds commonly observed in the area include several species of waterfowl, marsh wrens, kinglets, red wing black birds, and jays. Eagles and several species of hawks are also commonly observed within this area of the Columbia River. Amphibian species likely inhabiting the area and associated wetland areas include Northern red-legged frog, Pacific chorus frog, rough-skinned newt, and Northwestern salamander. ODFW, USFWS, and NOAA have all been consulted as part of the two previous phases of this restoration project (including Wolf Bay and Aldrich Point) to determine the appropriate work-window to minimize potential impact to shoreland life forms.

CREST consulted with USFWS about these railroad projects for the two previous phases at Wolf Bay and Aldrich Point. USFWS does not anticipate that the projects will have adverse effects on the ESA listed Columbian white-tailed deer (CWTD). In the pre-project condition, nearly all the project area at both the Agency Creek and Warren Slough sites is currently tidal. The only areas within the project sites that are not currently inundated at MHHW are located on the abandon end levee and railroad prism at Agency Creek, and on the Ziak-Gnat Creek Lane, the southwest hillside, and the railroad prism at Warren Slough. These areas currently provide some upland habitat, but they are densely vegetated and covered with non-native blackberry, which likely acts as a deterrent to CWTD.

The projects have been designed in a manner that will result in a balanced cut/fill. Balanced cut/fill will be achieved through the excavation (cut) of levees and channel creation, and the creation (fill) of topographic complexity/habitat mounding. Topographic complexity/habitat mounding is intended to offset site subsidence and simplification resulting from past diking, ditching, and draining. Additionally, topographic complexity/habitat mounding is intended to help regain some of the spruce swamp that historically occurred in the area. These mounds are designed in a clustered fashion and with a range of elevations, to promote a more diverse scrub/shrub and spruce community which will out-compete the current near monoculture of non-native reed canary grass.

As a result of the existing conditions and the balanced cut/fill approach, the projects are not expected to cause additional and/or excessive flooding of CWTD habitat; nor is it expected to flood out individual CWTD fawns. Overall, ODFW and USFWS did not think that the projects will have any negative impacts because the site is already fully tidal and really wet. In fact, the projects are likely to result in an improvement to CWTD habitat over the long term, because of the proposed balanced cut/fill to recover topographic diversity and the associated historic spruce swamp habitat. To further reduce the projects impacts, construction is planned to take place outside of the CWTD fawning season.

There is a potential for minor, short-term fish and wildlife displacement during the implementation phase of these projects. Precautionary measures such as fish exclusion/salvage and completing all work elements during the period recommended by the Oregon Department of Fish and Wildlife (ODFW) and other state agencies would further ensure that the least amount of terrestrial and aquatic wildlife will be displaced.



The cumulative impact of implementing these restoration projects will result in increased fish and wildlife access to quality wetland habitat that will have major, long-term benefits for terrestrial and aquatic wildlife that currently have limited access to the project areas.

The majority of the soils within the tidally influenced portion of the study areas are mapped by the NRCS as Coquille-Clatsop complex, hydric poorly drained. Soils will experience both temporary and long-term impacts. The main impact from treatment actions is the creation of habitat features using material placement. This will change the soil. Relief and roughness have both been shown to slow water velocity. The plant communities present are typical for the wetland type and location, dominated by Reed canary grass and *Myosotis* with percent cover depending on microtopographic changes in the marsh surface. The majority of the existing site elevations are too low for Sitka spruce (*Picea sitchensis*) establishment but does facilitate small shrub/scrub zones on the edges as elevation starts to increase. This is mostly due to the fact that spruce have historically been cleared from the project areas to create the abandoned levee at Agency Creek and the railroad prism at both the Agency Creek and Warren Slough project areas. Clearing spruce has interrupted successional process, and in the case of tidal spruce swamp, fallen spruce create nurse logs for the next generation of spruce. Patches of cattail (*Typha latifolia*) offer structural habitat for amphibians and egg laying. The existing channel networks are naturally winding, with a delay in water transport resulting from the railroad. Non-native blackberry and other invasive shrubs exist along the railroad and abandoned levee embankment at Agency Creek and along the Ziak-Gnat Creek Lane road embankment and railroad prism at Warren Slough.

Vegetation cover will be decreased short term during construction activities at each site. Habitat features are being focused near the railroad (and adjacent to the abandoned levee at Agency Creek) to limit driving heavy equipment over wetland soils and plants. This will prevent unnecessary compaction and further short-term vegetation loss. Short term vegetation impacts can result in long term adverse conditions in allowing invasives to establish in disturbed areas. Keeping treatment actions as close to the railroad (and abandoned levee at Agency Creek) as possible reduces short- and long-term adverse impacts.

Long term the areas where material is placed will undergo a favorable change in native vegetation cover and species composition. Topographic diversity on the micro scale (elevation differences of approximately  $\leq 6$  inches) is believed to increase plant species evenness resulting in numerous generalists as opposed to niche wetland species (Moser et al 2007). Unfortunately, this will prove true of invasives like *Phalaris arundinacea* and *Lythrum salicaria*, as well as natives such as *Carex obnupta* and *Myosotis scorpioides*. In an attempt to reduce the percent cover of *P. arundinacea* we propose heavily replanting habitat features with *Spirea douglasii* and specifically using *C. obnupta* as an understory for *Salix* species; *S. douglasii* would be planted around the toe of slope or in lower elevations, with sedges planted thickly beneath the willows as is often seen at undisturbed sites. While willow species will be heavily utilized in revegetation, we also aim to increase the diversity of native woody species on site at both the Agency Creek and Warren Slough sites.

- 3) Water quality, including information on: sedimentation and turbidity, dissolved oxygen, biochemical oxygen demand, contaminated sediments, salinity, water temperatures, and expected changes due to the proposed use or activity.

#### **APPLICANT RESPONSE:**

##### Sedimentation and Turbidity

Within the project areas today, the elevated railroad prism (and abandoned levee at Agency Creek) interrupts the connection between the project areas tidal marsh habitat and the Columbia River. The railroad and the existing culverts represent a major constriction, which greatly impacts hydrologic connectivity and tidal channel development within the disconnected marsh areas at each site. The reduced hydrologic connectivity impacts sediment and nutrient exchange as well as fish access to the sites. Overtime, reduced hydrologic connectivity (like that caused by the presence of the railroad prism) results in once complex tidal channels becoming filled in with sediment, becoming simplified and straightened



over time, drastically simplifying the sites. The proposed projects will result in short-term limited duration events of turbidity that are contained within the local site using the designated Erosion and Sediment Control BMP's listed in the Agency Creek and Warren Slough 1200c Erosion and Sediment Control Plans. However, once completed the projects will restore each site's hydrologic connectivity to a more natural state, carving out complex tidal channels, and restoring natural sediment transport processes beneficial to the sites and the greater Columbia River Estuary. The projects will each have DEQ 401 WQC and a 1200-c permits. Those permits, along with US Army Corps 404 permit an DSL's fill removal permit will all have language and guidelines intended to regulate and minimizes dimentation and turbidity.

#### Dissolved Oxygen

Dissolved oxygen (DO) is a measurement of the amount of oxygen dissolved in water as a result of the mixing of atmospheric oxygen with waters through wind and stream current actions. Water temperature levels are instrumental to and have many fundamental effects on water chemistry. For instance, warmer water cannot hold as much dissolved oxygen as colder water. An incredibly important water quality parameter, DO is essential to fish and other aquatic life forms. DO is a critical component to the characterization of the health of an aquatic system.

The optimal DO level for salmonids is 9mg/l. A level of 7-8 mg/l is generally considered acceptable, while 3.5-6 mg/l is considered poor. Levels below 3.5 mg/l are likely fatal to salmon. A level below 3 mg/l is stressful to most vertebrates and other forms of aquatic life (Bjornn).

Dissolved Oxygen is not one of the metrics that our water loggers capture in the planning and design phase, nor is it a metric that we monitor post restoration. The loggers capable of collecting continuous DO data are significantly more expensive, and therefore prohibitive to leave out at the project area for any extended periods of time. The lack of continuous DO data set previous to and post restoration represses our ability to analyze the result of restoration on the channels DO levels. However, we know anecdotally (based on the current literature) that the decline in water temperature (cooler water) resulting from restoring hydrologic connectivity would translate to higher levels of DO at the site.

There is a lot of literature available supporting water temperature as a key indicator of DO. Water temperature, a critical component influencing fish fitness and utilization of shallow-water areas, reacts to the re-establishment of natural tidal hydrodynamics. CREST as part of the project design process installed a temperature sensor inside the Warren Slough site, as well as a second outside (on the Columbia River side) of the railroad prism. The temperatures inside Agency Creek and Warren Slough were generally warmer than those in mainstem previous to restoration, which indicated restricted connection with water from the Columbia River. Higher water temperatures indicate that the water held in the Warren Slough site probably was stagnant at times because of the disrupted connection. Dissolved oxygen (DO) was not accurately measured before restoration but we suspect that stagnation would result in lower DO levels at times. And this will be reversed once the sites hydrology is restored through the channel excavation and new bridges.

#### Biochemical Oxygen Demand

The sites cumulative Biochemical Oxygen Demand is unknown. But in general, the greater the BOD, the more rapidly oxygen is depleted in the stream, and vice versa. This means less oxygen is available to higher forms of aquatic life. The consequences of high BOD are the same as those for low dissolved oxygen: aquatic organisms become stressed, suffocate, and die. To my knowledge, none of the federal permits regulate BOD, nor do they require monitoring and/or reporting on the sites BOD. That being said, there are Best Management Practices that can limit a projects impact on BOD. For the Agency Creek and Warren Slough projects, all project actions are anticipated to occur in the dry, isolated from adjacent waterways, or occurring at low tide only. As a result, we anticipate temporary impacts to biochemical oxygen demand to be minimal. There will be some vegetation removal in the footprint of the channel excavation to tie the new bridges/connection into existing channel networks. Removing vegetation may have short term impacts on the biochemical oxygen levels, however the proposed planting efforts will at a minimum return conditions back to normal, and likely better than existing "normal" conditions within a year post-construction after the



vegetation has become established at each site.

#### Contaminated Sediments

There are currently no known contaminated sediments at the location of the proposed Agency Creek and Warren Slough restoration sites. However, there is language within the plan sets that includes the Habitat Improvement Programmatic (HIP) general conservation measures applicable to each of the projects proposed elements. The activities covered under the HIP are intended to protect and restore fish and wildlife habitat with long-term benefits to ESA-listed species. As part of BPA's environmental compliance programmatic review, they conduct a site assessment to evaluate the condition of the property, and identify any areas used for various industrial processes. They also search available records, such as former site use, building plans, and records of any prior contamination events. Conduct interviews with knowledgeable people, such as site owners, operators, occupants, neighbors, or local government officials; and investigate the type, quantity and extent of any potential contaminant sources.

#### Salinity

The Agency Creek and Warren Slough site is well above the maximum salinity intrusion point of the Columbia River mainstem. As a result, the proposed project will not have any impact on the existing or proposed conditions salinity levels.

#### Water temperatures

See Dissolved Oxygen above for additional information. Water temperature has been collected at each site pre-construction. In general water temperatures were cooler outside (on the mainstem Columbia) than those observed within the Agency Creek and Warren Slough sites. This is likely attributed to the decreased hydrologic connectivity resulting from the railroad prism and the undersized existing culverts. Decreased connectivity causes stagnant water that is typically warmer as it has more opportunity for solarization and development of emergent aquatic vegetation. For each project site, all project actions are anticipated to occur in the dry, isolated from adjacent waterways, or at low tide only, and therefore will have minimal impacts on the sites water temperature, if any during construction. Post construction, the increased hydrologic connectivity should result in improved water temperature conditions or at a minimum will return water temperatures back to normal immediately after the projects are complete.

#### Summary

The Proposed Actions at the Agency Creek and Warren Slough restoration project sites are designed to have a long-term beneficial effect on water quality. The railroad breaching, bridge placements, abandoned levee breaching (at Agency only) and channel connections would allow for improved water quality as well as nutrient and detritus exchange due to improved interchange between the sites floodplains and water with the Columbia River.

The railroad breaches at Agency Creek and Warren Slough, and additional openings in the abandoned levee at Agency Creek only, are intended to allow for improved sediment and nutrient exchange. No long-term sediment quality effects are anticipated because no new sediments are being introduced to the site. Existing on-site sediments are expected to be scoured in the area of the additional openings during ebb tides, exposing previously accumulated coarse-grained native sediments. The Proposed Actions would not introduce sources of contaminated sediment nor expose contaminated sediment. Under the Proposed Action Alternative, sediment quality would likely improve or remain unchanged.



- 4) Hydraulic characteristics, including information on: water circulation, shoaling patterns, potential for erosion or accretion in adjacent areas, changes in flood levels, flushing capacity, and water flow rates.

**APPLICANT RESPONSE:** A total of two HOBO U-20 pressure sensors were deployed at each of the project areas. One HOBO sensor was placed inside (south of the railroad prism) each of the Agency Creek and Warren Slough sites within the floodplain wetlands isolated behind the railroad prism and the southern hillsides. A second sensor was placed outside (north) of the railroad prism on the Columbia Riverside of each project site to capture unimpaired hydrologic conditions of the Columbia River Estuary. A fifth hobo was placed in a tree within the project area to collect atmospheric pressure data, allowing for the correction of the water pressure sensors for atmospheric pressure. These data were used to calibrate the hydraulic model, to establish baseline hydrologic conditions, and to establish a relationship with the NOAA gage at Tongue Point to apply long term Tongue Point tidal datums to the project area.

Flows and stage at the project areas are subject to diurnal and season tidal fluctuations, as well as some small levels of discharge from two ephemeral creeks that flow off the hillsides and into the project area. Tidal gauges used for hydrologic analysis are located on the Columbia River at Tongue Point, Astoria OR (NOAA #9439040). This data was used to assist hydrologic and hydraulic analyses. The verified stage record for the Tongue Point Gauge extends from February 1925 through present, with a gap between 1945 and 1946. The tide cycle at the project sites was interpolated from this gauge's tidal datum. For both the Agency Creek and Warren Slough sites, the tidal datums are approximately as follows: Mean higher high water (MHHW) is 8.89 feet, mean lower low water (MLLW) is 0.86 feet, and mean tide level (MTL) is 5.04 feet. High water can occasionally reach above 12 feet, while extreme low water can drop below -2 feet. All water levels discussed are relative to NAVD88 vertical datum. The Columbia River tidal cycle dominates hydrology at both Agency Creek and Warren Slough.

The impacts of restoration actions on hydrologic conditions within the project areas have been investigated using unique two-dimensional (2D) hydraulic models for each project site. While changes to the patterns and depths of inundation within the sites are expected, no changes in maximum water surface elevations upstream or downstream of the projects are expected post-construction. Based on the hydraulic model results and the minimal amount of net fill within the 100-year floodplain, it is not expected that proposed restoration efforts will result in a rise in water surface elevations that will impact existing infrastructure.

Hydrology won't be significantly impacted in the short term, with the only changes occurring over the long term as the railroad breaches (with bridges), and associated channel connections are increased at each site post project. Hydrology is currently restricted at each of the two sites by severely undersized and perched culverts as the only connections to the mainstem Columbia River. The result is a delay in water transport in and out of each site, and high velocity during seasonal and tidal high-water events. This creates pass ability issues for juvenile salmonids and develops deep unnatural scour holes around the existing culverts. The new proposed openings/bridges have been designed to slow water velocity based on juvenile salmon passage criteria. Slowing water velocity will positively impact soil and organic matter transport and deposition; this is expected in both the channel with reduced scour holes at the existing openings and with the larger floodplain wetlands receiving an influx of nutrients and sediment while also contributing detrital matter to the larger estuary system. Establishing appropriately sized hydrologic connections through the railroad prism will change how water moves in and out of the site, which in turn will alter the way sediment, detritus, and nutrients are transported and deposited at each site. Historically the sites would have had numerous tidal sloughs, as opposed to these constricted culverts as the only openings, allowing more of the wetland surface to interact with tidal hydrology. This will increase the amount of organic material that the wetland contributes to the overall estuarine food web.



- 5) Air quality, including information on quantities of particulates and expected airborne pollutants.

**APPLICANT RESPONSE:** The Oregon Department of Environmental Quality (DEQ) regulates air quality related concerns in this state. The proposed restoration projects would have no long-term effect on air quality or noise. Project construction may result in a localized increase of regulated air pollutants and may result in increased noise generation. The construction of the projects would not exceed National Ambient Air Quality Standards (NAAQS) standards. There would be a temporary and localized reduction in air quality during construction due to emissions from equipment used at the project site; however, these emissions will not exceed the standards set by NAAQS. There also would be temporary and localized increases in noise levels from this equipment. These impacts would be minor and temporary in nature and would cease once the projects are completed.

- 6) Public access to the estuary and shoreline, including information on: proximity to publicly-owned shorelands and public street ends; effect of public boat launches, marinas and docks; and impact on inventoried public access opportunities.

**APPLICANT RESPONSE:** The Proposed Action Alternative would have no effect on public access to the estuary and shoreline. Agency Creek and Warren Slough construction would not change uses on the railroad, Columbia River waterway, or in the case of Warren Slough on the adjacent public road (Ziak-Gnat Creek Lane). Limited access currently exists to each of the project areas. Access via kayak through the current PNWR Astoria-Line railroad culverts is not feasible for the public, as the openings are too small. The new openings and reduced velocities through the proposed bridge/opening resulting from the projects may increase recreational access into the project area in the long-term.

- 7) Navigation, including information on: distance from navigation channels, turning basins and anchorages; proximity to range markers.

**APPLICANT RESPONSE:** The Agency Creek and Warren Slough projects will not affect navigation channels, turning basins, and anchorage locations. No range markers are within the vicinity of the project site.

- 8) Demonstration that proposed structures or devices are properly engineered.

**APPLICANT RESPONSE:** The proposed projects (removal and fill) designs have been designed by a registered professional engineer employed by InterFluve Incorporated. Additionally, a hydraulic analysis and modeling has been conducted by InterFluve Incorporated to determine the impacts of the proposed projects on adjacent areas. The results of the modeling are described in Section 3 of the Basis of Design Reports.

- 9) Demonstration that the project's potential public benefits will equal or exceed expected adverse impacts.

**APPLICANT RESPONSE:** The proposed Agency Creek and Warren Slough restoration projects will result in overall positive impact to the public by providing increased access for fish and wildlife to quality estuarine wetland within the Columbia River Estuary Ecosystem. Fish and wildlife fuel local economies, ecosystems, provide recreational opportunities, and nourishment.

As a result of the proposed projects there will be minor short-term/temporary impacts such as increased noise during construction. These impacts will be short term during the designated work window and will have no overall adverse impact to the public.



10) Demonstration that non-water dependent uses will not preempt existing or future water-dependent utilization of the area.

**APPLICANT RESPONSE:** The proposed projects will not affect non-water dependent uses, nor will they affect future water-dependent utilization within the project vicinity. The project sites are currently surrounded bisected by a defunct/inactive railroad line/berm that separates the Agency Creek and Warren Slough project areas and their tidal wetlands from the larger Columbia River Estuary. The project seeks to reconnect the floodplain wetlands to provide access to salmonids and other species. No change in use of the sites will result with the completion of this project. These sites are currently tidal, but site conditions (the railroad at both sites, and the abandoned/failed levee at Agency) limit fish access and natural hydrology to some extent.

11) Determination of methods for mitigation and accommodation of the proposed development, based on items (1) through (10) above, in order to avoid or minimize preventable adverse impacts.

**APPLICANT RESPONSE:** The Agency Creek and Warren Slough projects are voluntary restoration projects and are not anticipated to require mitigation based on our conversations with regulatory agencies. Best Management Practices will be implemented during the construction of these projects to minimize impacts to the waterway. Impacts resulting from construction will be limited by operating during the in-water work window and operating on a relatively small scale. This includes but is not limited to utilizing the ODFW approved in-water work window, as well as an approved DEQ Erosion and Sediment Control Plan. The projects have been specifically designed to avoid and minimize adverse impacts while providing the greatest benefit to migrating juvenile salmonids, and wildlife in the Columbia River Estuary. Design considerations focused on maximizing the habitat benefits while minimizing the overall project footprints.

Any existing resources that are temporarily disturbed will be restored to their original condition, or better, than they were before completion of the project. The Agency Creek and Warren Slough project will involve temporary short-term disturbance that will ultimately improve the natural hydrology to 44-acres (approximately 22-acres per site), improve native plant diversity, and vastly expand ingress/egress points for fish access.

CREST proposes to achieve these goals by removing one section of existing railroad prism at each site, placing a 36-foot bridge at the Agency Creek site, and a 60-foot bridge within the opening at the Warren Slough site. Each site will strategically be excavating a channel to connect through each of the new openings, connecting into existing tidal channel networks. Unique to the Agency Creek site, CREST proposes to create three (3) additional breaches (termed Levee Scrape down Areas A-C in the Agency Creek Plan set) in an abandoned and failed levee structure to further increase floodplain connectivity and fish access. At each site CREST will be implementing a large native planting and seeding plan. As a result, natural hydrology and channel forming processes will return to the site. Fish access will be enhanced by creating a new opening and increasing the available edge habitat. Greater food web connectivity and nutrient exchange will occur as natural hydrology, topographic diversity, and native plant diversity is restored to the marsh plain at the Agency Creek and Warren Slough sites.

The Agency Creek and Warren Slough sites have experienced significant changes since the placement of the railroad in the late 1800's that are contributing to habitat loss. Each of the proposed restoration elements are designed to reduce the past anthropogenic impacts to the maximum extent feasible to help recover and restore the degraded habitat.

Habitat loss associated with increased development in the coastal zones is one of the most significant threats to estuarine health from a future perspective. Anthropogenic activities associated with estuarine habitat loss specific to the project area include diking, dredging, filling, industrial, commercial, and residential development, agriculture, and deforestation, among others. Habitat losses in the range of 68%-70% have been noted for vegetated tidal wetlands in the Columbia River Estuary. While a majority of the



losses in vegetated tidal wetlands are not recoverable, the tidal spruce swamp and shrub/scrub habitat that once existed at each of the project sites is recoverable.

All work will be completed in the dry (during low tides) to reduce impacts to wetlands. Best Management Practices will be implemented to minimize the impacts to the waterway and associated riparian habitat. Unique erosion control plans for each site will be installed prior to any earthwork taking place. The erosion control plans have been developed in accordance with the regulations specified by the Oregon Department of Environmental Quality (DEQ). Clearing and grading will be limited to minimum practicable extent. Erosion control measures will be installed around the breach locations to isolate turbidity and minimize sediment transport during construction. All proposed excavation will be completed strictly during the low tide cycle, to minimize risk of turbidity, and to allow earth work to be accomplished during dry conditions. All disturbed areas will be immediately seeded and revegetated with native wetland and riparian plants upon completion of each work element.

Equipment will be selected, operated, and maintained in a manner that minimizes adverse effects on the environment. Equipment will be minimally sized, using low ground pressure tracks. Access routes have been minimized to the maximum extent practicable and are mostly on top of existing roadways or railroads. At the Agency Creek site access will also be required along the existing abandoned/failed levee. Where equipment must leave the roads/railroad prism, they will utilize temporary wood mats or plates within wet areas or on sensitive soils. All equipment operating within and around the wetlands will be fitted with biodegradable lubricants and fluids and inspected daily.

All construction activities will be phased to the maximum extent possible, so each area within the project footprint is completed before the next phase is started. Phasing is intended to minimize the duration of impact to the least amount of time necessary to complete the given phase of the project.

Short term stabilization measures may include the use of sterile seed mix, weed-free certified straw, jute matting, hydro-seeding/tackifier and other similar techniques during any periods of inactivity or between phases until the planting and seeding plan is implemented.

Native woody species such as Willows, sedge and rush mats, that currently exist on or adjacent to the railroad prism and the marsh plain within the construction footprint will be avoided and/or salvaged to the maximum extent possible and re-planted on site. CREST has had a lot of success salvaging and "hot planting" (quickly transplanting) existing high quality native vegetation during the construction of several restoration projects in the past.

Immediately following project construction, all affected resources will be restored to original condition or better. The entirety of each project area will be heavily seeded and replanted with native vegetation. Monitoring of the sites will occur for five years following construction to ensure successful restoration of the resources. Parameters monitored will include water temperature and water surface elevation, sediment accretion, photo points, and vegetation composition and planting survival. Follow-up planting efforts will occur in the event that the planting effort doesn't achieve 80% survival at the Agency Creek and Warren Slough sites.

**STAFF FINDINGS AND CONCLUSION:** This information is also part of the applicant's DEQ/DSL/USACE Joint Permit Application and will be reviewed by technical experts within those agencies. Condition #1A requires the applicant to provide the Planning Division with final copies of all state and/or federal permits.

#### **Section 6.3050. Impact Assessment Conclusion**

Based on the information and analysis in Section 6.3040, one of the following four conclusions shall be reached:

- 1) The proposed uses and activities do not represent a potential degradation or reduction of estuarine resource.



- 2) The proposed uses and activities represent a potential degradation or reduction of estuarine resources. The Impact Assessment identifies reasonable alterations or conditions that will eliminate or minimize to an acceptable level expected adverse impacts.
- 3) The proposed uses and activities will result in unacceptable losses. The proposed development represents irreversible changes and actions and unacceptable degradation or reduction of estuarine resource properties will result.
- 4) Available information is insufficient for predicting and evaluating potential impacts. More information is needed before the project can be approved.

**APPLICANT RESPONSE:** CREST anticipates that conclusion 1 will be determined, as the each of the projects have been specifically designed to offset past degradation of estuarine resources through direct habitat restoration measures that seek to restore natural estuarine processes and functions.

**STAFF FINDINGS AND CONCLUSION:** Based on information provided by the applicant to address the items in Section 6.3040, the applicant has demonstrated the proposed habitat restoration project would have a net benefit for estuarine resources, especially fish and wildlife, native vegetation, and water quality and hydraulics. Any potential negative impacts would be temporary, during construction, and would be minimized to the greatest extent possible by using best management practices. The project is subject to state and federal permit approvals, including a DSL/DEQ/USACE Joint Permit, and the applicant will be required to provide the Planning Division with copies of those permits prior to starting work (Condition #1A). Considering these factors, the proposal meets Section 6.3050(1).

**The proposed uses and activities do not represent a potential degradation or reduction of estuarine resources.**

#### **Section 6.3060. Resource Capability Determination**

Some uses and activities in Columbia River Estuary Natural and Conservation Aquatic zones are allowed only if determined to meet the resource capabilities of the area and if determined to be consistent with the purpose of the affected zone. Some uses and activities in Development Aquatic zones are allowed only if determined to be consistent with the purpose of the zone.

#### **Section 6.3070. Resource Capability Procedure**

A completed Resource Capability Determination consists of the following elements:

- 1) Identification of the affected area's zone, and its purpose.
- 2) Identification of the types and extent of estuarine resources present and expected adverse impacts. This information is included in the Impact Assessment, Section 6.3040.
- 3) A determination of whether the use or activity is consistent with the resource capabilities of the affected zone. A use or activity is consistent with the resource capabilities of the area when either:
  - (A) Impacts on estuarine resources are not significant; or
  - (B) Resources of the area will be able to assimilate the use and activity and their affects and continue to function in a manner which:
    1. In Aquatic Natural designations, protects significant fish and wildlife habitats, natural biological productivity, and values for scientific research and education; or
    2. In Aquatic Conservation designations, conserves long term use of renewable resources, natural biological productivity, recreation and aesthetic values and aquaculture.
  - (C) For temporary alterations, the Resource Capability Determination must also include:
  - (D) Determination that potential short term damage to estuary and shoreland resources is consistent with the resource capabilities of the area; and
  - (E) Determination that the area and affected resources can be restored to their original condition.



**APPLICANT RESPONSE:** (1) The Agency Creek project will take place in the following zones: F-80, and AN zones. The Warren Slough project will take place in the following zones: NS, and AN zones. These projects are being considered as a consolidated application.

The purpose of the Natural Shorelands (NS) zone is for Columbia River Estuary shoreland areas which should be managed for resource protection, preservation, restoration, and recreation, with severe restrictions on the intensity and types of uses permitted. Natural Shorelands zone includes areas of unique vegetative or wildlife habitat, and critical habitat of endangered or threatened species. This designation is intended to preserve those natural resource systems existing relatively free of human influence.

*NS Zone (Warren Slough only):* The Warren Slough project is consistent with the allowed uses and the purpose of the Natural Shoreland Zone, as it proposes to restore natural processes and access to critical habitats for endangered or threatened species, primarily ESA listed salmonids. The Warren Slough restoration project seeks to remove a known fish barrier within the railroad prism and replace it with a channel spanning bridge to provide unrestricted access to critical habitats for ESA listed salmonids. The efforts of the project will offset past anthropogenic influences that degraded these critical habitats, with the goal to further protect/preserve natural resource systems. The North Coast Land Conservancy is the adjacent landowners to the project area. Their mission statement closely mirrors the purpose and intent of the Natural Shorelands Zone and will help steward the project area. Furthermore, CREST will have the ability to perform supplemental planting efforts and stewardship for a period of no less than 5 years to ensure that the composition and trajectory of the native seeding and planting for all disturbed areas is off to a great start before handing everything over to NCLC for further stewardship needs.

The purpose of the AN zone designation is to assure the preservation and protection of significant fish and wildlife habitats; continued biological productivity of the Columbia River estuarine resources; and scientific research and educational opportunities.

The purpose of the AN zone designation is to assure the preservation and protection of significant fish and wildlife habitats; continued biological productivity of the Columbia River estuarine resources; and scientific research and educational opportunities. These areas are managed to preserve natural resources in recognition of dynamic, natural, geological and evolutionary processes. The AN zone includes all tidal marshes, tidal flats, and seagrass and algae beds. AN zones may also include ecologically important subtidal areas. This designation is intended to preserve those natural aquatic resource systems existing relatively free of human influence.

The proposed projects at Agency Creek and Warren Slough are consistent with the purpose and intent of the AN zone as these projects both seek to preserve and protect significant fish and wildlife habitat through habitat restoration and stewardship actions. The projects also seek to improve the biological productivity of the Columbia Rivers estuarine resources through restoring natural processes and functions to the project areas that have been impacted by past land use practices. Furthermore, the project will contribute to scientific research and educational opportunities through a rigorous monitoring program conducted at each of the sites for a period of 5 years post-project, with the possibility to extend this period to 10 years. Data collected will include water surface elevation and temperature, vegetation species composition and abundance, sediment accretion, and photo points. The sites may also be selected for fish sampling by NOAA.

The purpose of the Forest-80 (F-80) Zone is to protect and maintain forest lands for grazing, and rangeland use and forest use, consistent with existing and future needs for agricultural and forest products. The F-80 zone is also intended to allow other uses that are compatible with agricultural and forest activities, to protect scenic resources and fish and wildlife habitat, and to maintain and improve the quality of air, water and land resources of the county.

*F-80 Zone (Agency Creek only):* The proposed Agency Creek project is consistent with the purpose and intent of the F-80 Zone in that the project seeks to protect and restore fish and wildlife habitat, maintain



and improve the quality of the air, water, and land resources of the County. Furthermore, the proposed project at Agency Creek does not in any way risk the ability of forest lands use of grazing, and rangeland use and forest use consistent with existing and future needs for agriculture and forest products.

(2) Reference the Impact Assessment for a complete description of types and extent of estuarine resources present. Examples of resources that will be impacted include: anadromous fish; wetland habitat; Columbia white-tailed deer, which may utilize the area; soil and shoreline vegetation; and increased water quality.

(3)(A) Long-term impacts on estuarine resources are not significant. The Agency Creek and Warren Slough projects will have short-term limited duration impacts to estuarine resources during the construction period, but will immediately result in long-term improvements to estuarine resources that will have result in significant improvements to natural processes and functions. Restored natural hydrology, improved native vegetation composition and species diversity, improved access for fish and wildlife, improved food web dynamics, improved sediment and nutrient exchange, and improved connectivity of the Columbia River to its floodplain.

(3)(B) The purpose of this project is to enhance overall marsh ecosystem function to promote habitat, nutrient, fish, wildlife, and aesthetic resources. This project will protect and enhance estuarine resources. Research conducted at the project site will be low-impact and align with the Action Effectiveness Monitoring and Research (AEMR) program as directed by the Bonneville Power Administration (BPA).

(3) (C-E) Any existing resources that are temporarily disturbed will be restored to their original condition before completion of the project. The Warren Slough project will involve temporary short-term disturbance that will ultimately improve the natural hydrology to 22-acres, improve native plant diversity, and vastly expand ingress/egress points for fish access.

CREST proposes to achieve these goals by removing a section of railroad prism at each of the project sites, placing a channel spanning bridge overreach proposed breach/removals, and strategically excavating channels to connect existing tidal channel through the new railroad opening, and implementing a large native planting and seeding plan. Unique to the Agency Creek site is an abandoned and failed levee, the project proposes to remove three (3) sections of the failed levee (referred to a levee scrape down areas A-C in the plan set), to further improve floodplain connectivity, natural hydrology, and fish access to the site. Cumulatively, project actions will result in natural hydrology and channel forming processes returning to the site. Fish access will be enhanced by creating multiple new openings and increasing the available edge habitat. Greater food web connectivity and nutrient exchange will occur as natural hydrology, topographic diversity, and native plant diversity is restored to the marsh plain at Agency Creek and Warren Slough.

The Agency Creek and Warren Slough sites have experienced significant changes since the placement of the railroad in the late 1800's that are contributing to habitat loss. Each of the proposed restoration elements are designed to reduce the past anthropogenic impacts to the maximum extent feasible to help recover and restore the degraded habitat.

Habitat loss associated with increased development in the coastal zones is one of the most significant threats to estuarine health from a future perspective. Anthropogenic activities associated with estuarine habitat loss specific to the project area include diking, dredging, filling, industrial, commercial, and residential development, agriculture, and deforestation, among others. Habitat losses in the range of 68%-70% have been noted for vegetated tidal wetlands in the Columbia River Estuary. While a majority of the losses in vegetated tidal wetlands are not recoverable, the tidal spruce swamp and shrub/scrub habitat that once existed at the Agency Creek and Warren Slough project sites is recoverable.

All work will be completed in the dry (during low tides) to reduce impacts to wetlands. Best Management Practices will be implemented to minimize the impacts to the waterway and associated riparian habitat. An erosion control plan will be installed prior to any earth work taking place. The erosion control plan will be



developed in accordance with the regulations specified by the Oregon Department of Environmental Quality (DEQ). Clearing and grading will be limited to minimum practicable extent. Erosion control measures will be installed around the breach locations to isolate turbidity and minimize sediment transport during construction. Excavation will be completed strictly during the low tide cycle, to minimize risk of turbidity, and to allow earth work to be accomplished during dry conditions. All disturbed areas will be immediately seeded and revegetated with native wetland and riparian plants upon completion of each work element.

Equipment will be selected, operated, and maintained in a manner that minimizes adverse effects on the environment. Equipment will be minimally sized, using low ground pressure tracks. Access routes have been minimized to the maximum extent practicable and are mostly on top of existing roadways, railroads, or in the case of Agency Creek also on the top of the abandoned levee. Where equipment must leave the roads/railroad prism (or abandoned levee), they will be required to utilize temporary wood mats or plates within wet areas or on sensitive soils. Areas of sensitive native vegetation will be flagged in the field and avoided to the maximum extent practicable to minimize impacts. All equipment operating within and around the wetlands will be fitted with biodegradable lubricants and fluids and inspected daily.

All construction activities will be phased to the maximum extent possible, so each area within the project footprint is completed before the next phase is started. Phasing is intended to minimize the duration of impact to the least amount of time necessary to complete the given phase of each project.

Short term stabilization measures may include the use of sterile seed mix, weed-free certified straw, jute matting, hydro-seeding/tackifier and other similar techniques during any periods of inactivity or between phases until the planting and seeding plan is implemented.

Native woody species such as Willows, sedge and rush mats, that currently exist on or adjacent to the railroad prism and the marsh plain within the construction footprint will be avoided and/or salvaged to the maximum extent possible and re-planted on site. CREST has had a lot of success salvaging and "hot planting" (quickly transplanting) existing high quality native vegetation during the construction of several restoration projects in the past.

Immediately following project construction at each site, all affected resources will be restored to original condition or better. The entire project area will be heavily seeded and replanted with native vegetation. Monitoring of the site will occur for five years following construction to ensure successful restoration of the resources. Parameters monitored will include water temperature and water surface elevation, sediment accretion, photo points, and vegetation composition and planting survival. Follow-up planting efforts will occur for a period of up to five years in the event that the planting effort at either site doesn't achieve 80% survival.

#### **Section 6.3080. Determining Consistency with the Purpose of the Zone**

Certain uses in Aquatic Development, Aquatic Conservation and Aquatic Natural zones may be permitted only if they are consistent with the purpose of the aquatic zone in which they occur. A Consistency Determination consists of the following elements:

- 1) Identification of the affected zone and its purpose.
  - 2) Description of the proposed project's potential impact on the purposes of the affected zone.
- Determination that the proposal is either:
- (A) Consistent with the purpose of the affected zone;
  - (B) Conditionally consistent with the purpose of the affected zone; or
  - (C) Inconsistent with the purpose of the affected zone.

**APPLICANT RESPONSE:** Habitat restoration is a conditionally permitted activity within the NS, AN and F-80 zones; the Agency Creek and Warren Slough projects are conditionally consistent with the purpose of the affected zones.



**STAFF FINDING AND CONCLUSION:** As described by the applicant, above and in the Impact Assessment, the proposed habitat restoration project is consistent with the purpose and resource capabilities of the affected zones. The applicant's responses indicate the impact of the project on resources present in the vicinity will be temporary (during construction) and limited to the greatest practical extent by using best management practices; and that the resources will be restored to their original condition or better following completion of the project.

**The proposed use is consistent with the resource capabilities of the affected area.**

## **SECTION 6.4000. COLUMBIA RIVER ESTUARY SHORELAND AND AQUATIC USE AND ACTIVITY STANDARDS**

### **Section 6.4010. Purpose**

Columbia River Estuary shoreland and aquatic area standards are requirements which apply to development uses and activities proposed in one or more of the following management designations: Marine Industrial Shorelands Zone (MI); Conservation Shorelands Zone (CS); Natural Shorelands Zone (NS); Aquatic Development Zone (AD); Aquatic Conservation Two Zone (AC-2); Aquatic Conservation One Zone (AC-1); Aquatic Natural Zone (AN); and those areas included in the Shorelands Overlay District (/SO). These standards are intended to protect the unique economic, social, and environmental values of the Columbia River Estuary.

### **Section 6.4020. General Standard**

Proposed uses and activities in the Columbia River Estuary shoreland and aquatic areas may only be approved when it is determined that such uses or activities are consistent with the purposes of the Columbia River Estuary management areas in which they are proposed and satisfy all applicable Comprehensive Plan policies and Columbia River Estuary Shoreland and Aquatic Activity and Use Standards. In addition, some uses and activities in the Columbia River Estuary which could potentially alter the estuarine ecosystem are also subject to an Impact Assessment and Resource Capability Determination.

### **Section 6.4030. General Development Zone Standards**

The standards in this subsection apply to all development activities and uses in Columbia River Estuary shoreland and aquatic development zones, where appropriate.

- 1) Shoreland and aquatic area uses and activities that are not water-dependent shall not preclude or unduly conflict with existing, proposed or potential future water-dependent uses or activities on the site or in the vicinity.

**APPLICANT RESPONSE:** The proposed wetland restoration project does not unduly conflict with existing, proposed or potential future water-dependent uses or activities on site or within the vicinity of the project. The proposed project will improve the environmental values of the Columbia River Estuary, through restoring fish access, natural hydrology, and native plant diversity. This project will either not result in any change nor hinder the ability to protect the unique economic and social values of the Columbia River Estuary. As a result, the project is consistent with this requirement.

**STAFF FINDING AND CONCLUSION:** There are no water-dependent uses on the site or in the vicinity that would be affected by the proposed habitat restoration project. The proposed scope of work does not include activities that are anticipated to preclude or conflict with future water-dependent uses.

**This criterion is satisfied.**

- 2) Uses will be designed and located so as not to unduly interfere with adjacent uses (particularly adjacent historic structures). Appropriate landscaping, fencing, and/or other buffering techniques shall be used to protect the character of adjacent uses.

**APPLICANT RESPONSE:** A railroad (PNWR Astoria-Bradburyline) exists on each site, but it will not be adversely impacted by this project. The railroad must be returned in as good or better condition, which is a



direct requirement from the landowner to allow these restoration efforts to occur. A full Archaeological Survey and report has been completed for each site in order to comply with Section 106 of the National Historic Preservation Act (See the attached Agency Creek and Warren Slough Cultural Resources Reports). An archaeological monitor will be on site during construction to document any discoveries found during the project. Of particular interest to archaeologists is any information that could further inform how the railroad was built.

No structures will be impacted by the construction of this project. The proposed use has been designed and located so that it will not interfere with adjacent uses. As a result, no landscaping, fencing, and/or other buffering techniques are proposed for this project. The proposed projects are consistent with this requirement.

**STAFF FINDING AND CONCLUSION:** The adjacent properties to the Agency Creek site are zoned AN and F-80. These properties do not feature structures near the Agency Creek site. The Warren Slough site includes low-density residential development on Agriculture Forestry (AF) and F-80 zoning east of Ziak-Gnat Creek Lane. Additionally, both sites include the rail line infrastructure within the railroad prism. The proposed habitat restoration project involves the installation of two new channel spanning bridges; these bridges have been engineered to allow for the rail line to be used in the future. The proposal would not affect upland the management of resource lands. **This criterion is satisfied.**

- 3) Waterfront access for the public, such as walkways, trails, waterfront seating or landscaped areas, shall be provided except when proven to be inconsistent with security and safety factors. Industrial and port facilities should designate public viewing points, for viewing waterfront and/or port operations in areas which would not interfere with operations. Provisions of public access shall not result in enlargement of development areas requiring dredge or fill activities or other alteration of estuarine resources.

**APPLICANT RESPONSE:** The projects do not propose to place walkways, trails, waterfront seating or landscaping within the project site as these elements would not be consistent with the project goals (restoring fish and wildlife habitat, through restoration of hydrology and vegetation), nor would it be allowed by the landowners (primarily the railroad) due to safety concerns. Additionally, to accomplish additional waterfront access for the public it would require fill activities or other alteration of estuarine resources which item 3 specifically precludes.

The Agency Creek and Warren Slough sites are located within relatively hard-to-access areas. The railroad prism is entirely overgrown with vegetation, most of which is non-native blackberry in areas of high sun exposure, so walking along the railroad is difficult. The nearest access point to Agency Creek is from the Knappa Dock Road, or by boat. The nearest access point to Warren Slough is from Ziak-Gnat Creek road, and it would require access across private property to access the railroad (which is also not accessible to the public without a Right of Entry Permit). Public boat ramps in the vicinity of the project area are limited. From the Columbia River, you would be able to access and view the majority of the proposed work at Agency Creek and Warren Slough during a high tide. The bridges, failed levee breaching (at Agency only), and the associated channel connection will connect the interior of each site to the adjacent Columbia River estuary through the new bridge openings. The new channels will be passable via a small watercraft (like a kayak), but it is not designed nor intended to provide additional public access. Fish access is the main goal. The new channels and the bridges will be passable by kayak during mean high tide or higher. The project does require some filling activity for the benefit of fish habitat and native marsh plain vegetation establishment. Alteration of estuarine resources will not be negatively affected as a result of this project, they will improve beyond existing conditions.

**STAFF FINDING AND CONCLUSION:** The Agency Creek and Warren Slough sites include the replacement of channel spanning bridges within the railroad ROW. Both sites currently have very limited opportunity



for public access. As a majority of the work is taking place within the railroad ROW and the sites are not safe for public access. As such, the railroad does not have plans to allow public access to the sites in the future. However, boaters and kayakers may be able to view the project sites from the Columbia River. Public access amenities such as walkways and trails would not be feasible or safe considering the terrain, marsh plain, and sensitive estuarine resources, including Goal 17 Significant Riparian Vegetation. As the railroad ROW and infrastructure is within the railroad prism, the sites are not easily accessed. Adding provisions for public access are not feasible for this project and would require additional fill or alteration to the marsh surrounding the ROW.

**This criterion is satisfied.**

- 4) Joint use of parking, moorage and other commercial support facility is encouraged where feasible and where consistent with local ordinance requirements.

**APPLICANT RESPONSE:** Parking, moorage or other commercial support facilities are not feasible for the project, nor are they consistent with the goals of the project.

**STAFF FINDING AND CONCLUSION:** The proposed habitat restoration project does not require parking, moorage, or other commercial support facilities. **This criterion does not apply.**

- 5) In some locations, maintenance, placement or replacement of riparian vegetation may be required to enhance visual attractiveness or assist in bank stabilization.

**APPLICANT RESPONSE:** Some existing riparian areas (on top of the railroad prism and abandoned levee) will be impacted to establish access to work areas; however, existing mature riparian vegetation will be salvaged and "hot planted" (transplanted in a timely manner) to the maximum extent practicable. Project designs were carefully considered to minimize the impact to native and mature vegetation as much as possible. All riparian areas disturbed will be heavily seeded and replanted with native species appropriate for the area and associated elevation and tidal regimes. Planting efforts will be closely monitored for a period of five years to ensure that the survivorship of native plantings is high. If additional planting is needed CREST has funding secured.

**STAFF FINDING AND CONCLUSION:** As described by the applicant, the proposal includes replanting any affected riparian vegetation. The applicant's revegetation plan can be found on pages 21-22 of the *Draft Final Design Drawings* for the Agency Creek site and pages 16-17 of the *Draft Final Design Drawings* for the Warren Slough site (Exhibit 1). **This criterion is satisfied.**

#### **Section 6.4080. Estuarine Construction**

Piling and Dolphin Installation, Shoreline Stabilization, and Navigational Structures. The standards in this subsection apply to over-the-water and in-water structures such as docks, bulkheads, moorages, boat ramps, boat houses, jetties, pile dikes, breakwaters and other structures involving installation of piling or placement of riprap in Columbia River Estuary aquatic areas. This subsection not apply to structures located entirely on shorelands or uplands, but does apply to structures, such as boat ramps, that are in both aquatic and shoreland designations. Standards in this subsection also apply to excavation for creation of new water surface area.

- 1) When land use management practices and vegetative shoreline stabilization are shown to be infeasible (in terms of cost, effectiveness or other factors), structural means may be approved subject to applicable policies, standards and designation use restrictions.

**APPLICANT RESPONSE:** There will be no new structural bank protection in areas that haven't had bank protection in the past. The locations of the new bridges will each have an element of shoreline stabilization to protect the bridge abutments, however this will be within the footprint of the current railroad berm (which already has bank armoring) and will re-use a lot of that rock material if suitable (as determined by



the engineering team). There will be vegetative shoreline stabilization in each of the areas where channel excavation and topographic complexity mounding occurs. This seeding vegetation will ensure that the channels remain present, minimizing risk of erosion/scour, while providing hydrologic connections between the Agency Creek and Warren Slough embayments and the Columbia River, and will also help provide shade, nutrients, and support the food web.

**STAFF FINDING AND CONCLUSION:** As described by the applicant, the proposed scope of work includes shoreline stabilization to protect the new bridge abutments. The new bridge abutments will be fully within the footprint of the existing railroad berm, which already has bank armoring. As such, additional structural stabilization is proposed, per the applicant's *Draft Final Design Drawings* for Agency Creek and Warren Slough (Exhibit 1). Design documents refers to this as "Type 1" riprap. The applicant's project design has been prepared by a registered engineer in accordance with best management practices and the requirements of the railroad operator. Applicable policies and standards for structural stabilization can be found in the following subsections. **This criterion is satisfied.**

- 2) Where structural shoreline stabilization is shown to be necessary because of the infeasibility of vegetative means, the choice among various structural means shall be made on a case by case basis.

Factors to be considered include, but are not limited to:

- (A) Hydraulic features;
- (B) Shoreland habitat;
- (C) Adjacent land and water uses;
- (D) Aquatic habitat;
- (E) Water quality;
- (F) Engineering feasibility;
- (G) Navigation;
- (H) Impacts on public shoreline access.

**APPLICANT RESPONSE:**

(A) Hydraulic features:

The consulting engineers analyzed potential hydraulic impacts associated with this project. This hydraulic analysis confirmed that the project will not result in undesirable hydraulic conditions. Please refer to sections 3.3 and 3.5 of the basis of design report for further information regarding the hydraulic analysis of the proposed project. Section 6.3040. Information to be Provided in the Impact Assessment, part 4 describes the impacts identified during the hydraulic analysis.

The bridge placed as part of this project will improve the sites hydrology, reducing overall velocities to improve fish passage to critical habitat types. To maintain structural integrity, shoreline stabilization of the bridge and channels is required. The bridge will be stabilized by re-using and possibly importing additional riprap as needed. There will be a net loss of riprap, as the abutments only require armoring whereas the existing conditions have riprap along the entire bank. The channel excavation will have vegetative shoreline stabilization, plantings. See the project plan set and basis of design report for justifications and methodology.

(F) Engineering feasibility:

A feasibility analysis was completed for this project. A key component of this analysis included constructability considerations. Additionally, several options were analyzed including locations of breaches, size of openings, structures to be placed within the openings (bridge, open cut, culverts), etc. The analysis found that a bridge would be feasible to construct at this site, and would be similar cost to that of culverts, while providing a greater benefit (larger opening). The bridge placed as part of this project will improve the sites hydrology, reducing overall velocities to improve fish passage to critical habitat types. To maintain structural integrity, shoreline stabilization of the bridge abutments is required. See the project plan set and basis of design report for justifications and methodology.



(G) Navigation:

The project is outside of any navigation channels; therefore, navigation will not be impacted by this project.

**STAFF FINDING AND CONCLUSION:** The applicant's responses demonstrate that the proposed structural stabilization is necessary to stabilize the bank of the rail line and would not result in negative impacts to the factors listed in this subsection. As the applicant previously described, the proposed structural stabilization would be located within the footprint of the existing railroad berm, which has been historically structurally stabilized. **This criteria is satisfied.**

- 5) Piling or dolphin installation, structural shoreline stabilization, and other structures not involving a dredge or fill, but which could alter the estuary may be allowed only if the following criteria are met:
- (A) If a need (i.e. a substantial public benefit) is demonstrated; and
  - (B) The proposed use does not unreasonably interfere with public trust rights; and
  - (C) Feasible alternative upland locations do not exist; and
  - (D) Potential adverse impacts, as identified in the impact assessment, are minimized.

**APPLICANT RESPONSE:** The project is proposing to take out one relatively large sections of derelict railroad, and replacing it with a channel spanning bridge (a 60-foot bridge) to improve hydrologic connectivity and fish passage between the Columbia River mainstem and the Warren Slough project area. Pre-railroad, this site would have had several channels connecting the site from various locations allowing unrestricted hydrology and fish access. The new bridge will re-use some of the material removed from the railroad prism to provide and return the riprap armoring to protect the railroad and the new bridge abutments. The imported materials will be the bridge itself, the pilings, and the bridge abutments (which will be pre-cast), and copious amounts of native seed and plants.

The project meets the following criteria:

(A) If a need (i.e. a substantial public benefit) is demonstrated.

The proposed Warren Slough restoration project will result in overall positive impact to the public by providing increased access for fish and wildlife to quality estuarine wetland within the Columbia River Estuary Ecosystem. Fish and wildlife fuel local economies, ecosystems, provide recreational opportunities, and nourishment.

As a result of the proposed project there will be minor short-term/temporary impacts such as increased noise during construction. These impacts will be short term during the designated work window and will have no overall adverse impact to the public.

(B) The proposed use does not unreasonably interfere with public trust rights.

The proposed use will not unreasonably interfere with public trust rights.

(C) Feasible alternative upland locations do not exist.

Feasible alternative upland locations were investigated, and they are not feasible. The only uplands within the project footprint is the railroad itself, and some adjacent hillsides with private landowners. The railroad owners would not allow materials to be placed on the railroad tracks, and nearby landowners were not particularly interested in taking material. Even though the railroad is inactive, they strive to maintain a contiguous rail line, that could be made accessible if the need arose.

The project is specifically designed to benefit ESA listed salmonids by increasing access to critical habitats. These habitats are in aquatic and floodplain environments. As a result, there are no feasible alternative upland locations existing that could provide the same benefits. The bridges placed as part of this project will improve the sites hydrology, reducing overall velocities to improve fish passage to critical habitat



types. To maintain structural integrity, shoreline stabilization of the bridge abutments is required. See the project plan set and basis of design report for justifications and methodology.

*(D) Potential adverse impacts, as identified in the impact assessment, are minimized.*

All efforts have been made during the design process to minimize adverse impacts. The locations of the breaches have been strategically selected to minimize the need for additional channel excavation to “connect” these new bridges to adjacent channel networks. Sensitive vegetation communities have been identified and will be avoided throughout construction, and the timing and duration of the project has been strategically selected to minimize impacts to aquatic and terrestrial fish and wildlife. An Erosion and Sediment Control plan has been produced and will be followed to ensure that all Best Management Practices are implemented.

**STAFF FINDING AND CONCLUSION:** The proposed habitat restoration project consists of installing two new channel spanning bridges to replace undersized culverts through the railroad prism. The new bridges will help reestablish the hydrologic connectivity of a tidal marsh (marsh plain) to the mainstem Columbia River. The proposal would restore the function of the marsh as valuable habitat for ESA-listed fish, which the applicant describes is a substantial public benefit. The proposal does not affect public trust rights, and, as the applicant has described, fish habitat restoration cannot be achieved in an upland location. Any adverse impacts associated with the proposed scope of work would be minimized to the greatest extent possible by implementing best management practices and the project site would be restored to its original condition or better following construction.

**These criteria are satisfied.**

- 7) Proposals for bulkheads may be approved only if it is demonstrated that sloped riprap will not adequately fulfill the project's objectives.

**APPLICANT RESPONSE:** There will be no bulkheads installed.

- 8) Proposals for new bulkheads or for new riprap bank line slopes steeper than 1.5 to 1 (horizontal to vertical) must demonstrate that adequate shallow areas will be available for juvenile fish shelter, or that the area is not typically used for juvenile fish shelter.

**APPLICANT RESPONSE:** There will be no bulkheads installed. Riprap will be installed around the bridge abutments to ensure structural integrity, however there is already rip rap present and there will be no net gain in rip rap embankment (there will be a reduction as there will not be riprap were the bridge openings will be). The slope of the railroad prism/bank will not be greater than 1.5:1. Rip rap in the vicinity of the channel under the bridge will be buried in native material to not adversely impact juvenile fish per plans (See sheet 12 and 14 of 34 for examples).

- 9) Plant species utilized for vegetative stabilization shall be selected on the basis of potential sediment containment and fish and wildlife habitat values. Trees, shrubs and grasses native to the region should be considered for vegetative stabilization; however, plant species and vegetation stabilization techniques approved by the Soil Conservation Service, the U.S. Army Corps of Engineers and other participating federal and state resource agencies are also appropriate. Stabilization of dike slopes must not include vegetation (particularly trees) which jeopardize the dike.

**APPLICANT RESPONSE:** Native riparian vegetation will be planted as part of this project. Invasive plants will be removed from the site. The planting plan is provided on Sheets 20 and 21 of the attached plan set. Species include: Sitka Spruce, Pacific Willow, Sitka Willow, Red osier dogwood, Douglas spirea, Pacific ninebark, and Twinberry. Grasses include Quick Guard Sterile Triticale, Native grasses American Slough grass, Tufted Hairgrass, Meadow Barley, and Western Mannagrass. These species will serve to stabilize the soils (the seed mix has some rapid colonizers such as the sterile triticale) and mimic the surrounding



reference site native vegetation communities. Providing a diverse dense native population of plantings will allow the site to compete against non-native colonization in both the short and long-term. Once established the plantings will serve provide additional benefits beyond soil stabilization, such as shade (for cooler water temperatures), and host a variety of prey species that will benefit the larger food web.

**STAFF FINDING AND CONCLUSION:** As described by the applicant, the proposed vegetative stabilization plan consists of plants that are native to the project area and which will benefit fish and wildlife habitat. A revegetation plan can be found on pages 21-22 of the *Draft Final Design Drawings* for the Agency Creek site and pages 16-17 of the *Draft Final Design Drawings* for the Warren Slough site (Exhibit 1).  
**This criterion is satisfied.**

- 10) Riprap bank protection must be appropriately designed with respect to slope, rock size, placement, underlying material and expected hydraulic conditions. Project design by a licensed engineer shall meet this requirement. Riprap projects designed by other individuals, such as experienced contractors, soil conservation service personnel or others, may meet this standard.

**APPLICANT RESPONSE:** The project has been designed by a licensed engineer and has been reviewed by ODFW. Sheets 12, 14, 16, and 18 of the attached plan set provide details on where the riprap is proposed to be placed. Sheet 12 and 16 specifically notes the placement details for riprap.

**STAFF FINDING AND CONCLUSION:** As described by the applicant, the proposed vegetative stabilization plan consists of plants that are native to the project area and which will benefit fish and wildlife habitat.  
**This criterion is satisfied.**

- 11) New shoreline stabilization projects shall not restrict existing public access to public shorelines.

**APPLICANT RESPONSE:** Vegetative shoreline stabilization is defined as, "protection from erosion and sloughing of ocean and estuary shorelines and the banks of tidal or non-tidal streams, rivers or lakes by vegetative means. Vegetative shoreline stabilization is the use of plants that anchor the soil to prevent shoreline erosion and sloughing."

The purpose of this project is to enhance overall marsh ecosystem function including enhancing access to rearing habitat for Endangered Species Act listed juvenile salmonids by restoring hydrologic connectivity, including floodplain and tidal processes between the Columbia River and the Warren Slough project area. However, one aspect of the projects purpose that is critical to the success of the project is maintaining access to these habitats through vegetative shoreline stabilization. The project proposes to create one new opening in the railroad prism, and excavate a new channel connection between the Columbia River estuary and the Warren Slough site. This newly excavated channel, and the surrounding channels that they will tie into will be heavily planted with native species to ensure bank stability, while also providing a diverse native plant community capable of supporting a diverse community of insects that support the foodweb for salmonids as well as other aquatic organisms. Maintaining channel banks through vegetative shoreline stabilization is critical to ensuring salmon continue to have access to these important habitat types. See the attached plan set and refer to the planting plan on Sheets 20 and 21 for further information. Pay particular attention to the Riparian Buffer Planting zone on sheet 20. The project will be protecting estuary shorelines, and tidal channels (tidal streams) by vegetative means. The planting plan will be specifically using plants to anchor the soil to prevent shoreline erosion and sloughing. The topographic complexity mounding will offset some of the subsidence and simplification that the site has experienced.

The project will follow all applicable development standards. The project is a voluntary habitat restoration project that will both protect and enhance riparian vegetation and wildlife habitat. The proposed project will not cause any adverse effects to aquatic environments. Strict sediment and erosion controls will be implemented during the construction phase and the site will be stabilized upon completion. All necessary



state and federal permits required to perform the work will be secured prior to implementation. There will be a net zero loss of aquatic areas. Elements have been proposed that will provide immediate habitat benefit as well as support the longer-term trajectory of functioning tidal habitat.

While there is shoreline stabilization that will occur as part of the project, the stabilization will not impact or restrict public access to the site.

**STAFF FINDING AND CONCLUSION:** The Agency Creek and Warren Slough sites are within the railroad ROW and prism. As such, these sites are not currently readably accessible to the public via a Ziak-Gnat Creek Lane or Waterhouse Road. The sites are accessible from the water via the Columbia River. **This criterion is satisfied.**

- 12) Shoreline stabilization shall not be used to increase land surface area. Where an avulsion has occurred, fill may be used to restore the previous bankline, so long as the corrective action is initiated within one year of the date of the avulsion. Any other extension of the bankline into aquatic areas shall be subject to the policies and standards for fill.

**APPLICANT RESPONSE:** The bankline will not be extended as a result of the project.

**STAFF FINDING AND CONCLUSION:** The proposal does not include extension of banklines or increased land surface area. **This criterion is satisfied.**

- 13) Structural shoreline stabilization measures shall be coordinated with state and federal agencies to minimize adverse effects on aquatic and shoreland resources and habitats.

**APPLICANT RESPONSE:** No shoreline stabilization measures are proposed for the project beyond the channel excavation plantings, and the rip rap for bridge abutments themselves which will be located in a location that currently has shoreline stabilization measures. If additional shoreline stabilization is necessary, all measures will be done within permit conditions of state and federal agencies as applicable.

**STAFF FINDING AND CONCLUSION:** The proposal is subject to review by state and federal permitting agencies, including DEQ, DSL, ODFW, and USACE. Condition #1A requires the applicant to provide the Planning Division with copies of all required state and/or federal permits prior to starting work. **This criterion is satisfied by Condition #1A.**

- 14) Bulkheads installed as a shoreland stabilization and protective measure shall be designed and constructed to minimize adverse physical effects (i.e. erosion, shoaling, reflection of wave energy or interferences with sediment transport in adjacent shoreline areas) resulting from their placement.

**APPLICANT RESPONSE:** No bulkheads are proposed for this project.

- 20) With regard to excavation of shorelands to create new estuarine aquatic surface area, the following provisions are applicable. The maximum feasible amount of the new water surface area shall be excavated as an upland site, behind protective berms. The new aquatic area shall be connected to adjacent water areas as the excavation is completed. Excavation in this manner shall not result in channelization of the waterway.

**APPLICANT RESPONSE:** The railroad levee structure currently acts as a hydraulic barrier that partially separates the Warren Slough project area from natural tidal and riverine influence, but due to an existing set of culverts, the levee is permeable to hydraulic influences. As a result, the levee interrupts the movement of water but does not totally exclude the exchange between the adjacent river and the floodplain



making it impossible for the project to operate behind a protective berm. With this in mind, project design was formulated to minimize impacts with existing wetlands and the associated aquatic resources by requiring all excavation activities to occur out of water, during low tidal cycles.

**STAFF FINDING AND CONCLUSION:** The proposed habitat restoration project involves installing two new channel spanning bridges to replace undersized culverts through the railroad prism. The purpose of the project is to increase hydrologic connectivity between the Columbia River and adjacent tidal marsh habitat. In order to accomplish the desired results, there would be excavations on each side of the bridges. The proposed excavation would emulate the size and shape of the tidal channels that would have been present in the area prior to construction of the railroad, restoring the connectivity of the marsh to the main waterway. According to the applicant, a specialist in this type of work, the excavations would not channelize the main waterway. **This criterion is satisfied.**

- 21) Sediments and materials generated by the excavation to create new estuarine water surface area shall be deposited on land in an appropriate manner.

**APPLICANT RESPONSE:** Excavated material will be placed on-site to create topographic diversity in an effort to counteract subsidence and simplification of the project area that has resulted due to the railroad interrupting natural processes (sediment, and hydrology). The topographic mounds are designed to add complexity to the landscape and will help restore native riparian vegetative communities and improve the foodweb function. No new uplands will be created; all material will be placed below the two-year flood elevation to ensure that it is still has hydric soils and other wetland characteristics (vegetation).

**STAFF FINDING AND CONCLUSION:** As described by the applicant, excavated material will be deposited onsite to create a "topographic complexity zone" which will be planted with native vegetation. The applicant's revegetation plan can be found on pages 20-22 of the *Draft Final Design Drawings* for the Agency Creek site and pages 16-17 of the *Draft Final Design Drawings* for the Warren Slough site (Exhibit 1). The removal/fill activities are regulated by DSL. Condition #1A requires the applicant to provide copies of all state and/or federal permits to the Planning Division prior to starting construction. **This criterion is satisfied by Condition #1A.**

- 22) Water quality degradation due to excavation to create new estuarine water surface area shall be minimized. Adverse effects on water circulation and exchange, increase in erosion and shoaling conditions, and introduction of contaminants to adjacent aquatic areas resulting from excavation of the area and presence of the new aquatic area will be minimized to the extent feasible.

**APPLICANT RESPONSE:** The railroad breaches and bridge placement are intended to allow for improved sediment and nutrient exchange in addition to improved fish passage. No long-term sediment quality effects are anticipated because no new sediments are being introduced to the site. Existing on-site sediments are expected to be scoured in the area of the additional openings during ebb tides, exposing previously accumulated coarse-grained native sediments. The Proposed Action would not introduce sources of contaminated sediment nor expose contaminated sediment. Under the Proposed Action Alternative, sediment quality would likely remain unchanged.

Strict sediment and erosion controls will be implemented during the construction phase and the site will be stabilized upon completion. All necessary state and federal permits required to perform the work will be secured prior to implementation.

**STAFF FINDING AND CONCLUSION:** As described by the applicant, any adverse effects to water quality and circulation would be temporary and, after construction is complete, water quality and circulation are expected to improve. The proposed construction activities are regulated by DEQ, DSL, and USACE, including a DEQ 1200-C and WQC for erosion control and water quality. Condition #1A requires the applicant to



provide copies of all state and/or federal permits to the Planning Division prior to starting construction. **This criterion is satisfied by Condition #1A.**

#### **Section 6.4100. Land Transportation Systems**

Standards in this subsection are applicable to the maintenance and construction of railroads, roads and bridges in Columbia River Estuary shoreland and aquatic areas. Public, as well as private facilities are covered under this section. Forest roads, however, are excluded.

- 2) Maintenance and repair of roads and railroads and maintenance and replacement of bridges shall be permitted regardless of the plan designation through which the road or railroad passes, provided:
  - (A) The same alignment is maintained; and
  - (B) The same width is maintained, except that necessary enlargements to meet current safety and engineering standards may be permitted; and
  - (C) The number of travel lanes is not increased.
- 3) Fill-supported causeways or bridge approach fills across significant non-tidal wetlands in shoreland areas shall not be permitted; bridge abutments may, however, be approved.

**STAFF FINDING AND CONCLUSION:** The two new channel spanning bridges replace undersized culverts through the railroad prism. As proposed, the new bridges at the Agency Creek and Warren Slough sites will maintain the same alignment, width, and number of rail lines. Additionally, the proposed scope of work includes shoreline stabilization to protect the new bridge abutments. The new bridge abutments will be fully within the footprint of the existing railroad berm, which already has bank armoring, meeting the requirements of Section 6.4100(3). **This criterion is satisfied.**

#### **Section 6.4150. Mitigation and Restoration**

Standards in this subsection are applicable to estuarine restoration and mitigation projects in Columbia River Estuary aquatic areas and adjacent shorelands.

- 1) Any fill activities that are permitted in estuarine aquatic areas or dredging activities in intertidal and shallow to medium depth estuarine subtidal areas shall be mitigated through project design and/or compensatory mitigation (creation, restoration or enhancement of another area) to ensure that the integrity of the estuary ecosystem is maintained. The Comprehensive Plan shall designate and protect specific sites for mitigation which generally correspond to the types and quantity of aquatic area proposed for dredging or filling.
- 25) Significant Goal 17 resource areas (major marshes, significant wildlife habitat, and exceptional aesthetic resources) can only be used for restoration subject to a finding that the use of the site for restoration will be consistent with protection of its natural values.

**APPLICANT RESPONSE:** We are not proposing a compensatory mitigation plan. Since the project will be restoring natural tidal processes, enhancing fish access to the site, and enhancing existing adjacent floodplain habitat, it should not require any mitigation plans. The work, as proposed, will provide a net lift in habitat function by restoring habitat forming processes (tidal action), and allowing aquatic species such as salmon to access the site for refuge or feeding. There will be no permanent loss of wetland area or function. The project will expand access to critical wetland habitats.

Standards 2–25 are not applicable as this project does not result in any impacts which require mitigation. This restoration project increases fish access to quality wetland habitat, will improve water quality by increasing circulation in and out of the basins and is consistent with the protection of the site's natural values.

**STAFF FINDINGS AND CONCLUSION:** The proposed habitat restoration project involves improving hydrologic connectivity between the Columbia River and the adjacent tidal marsh. The new openings in the railroad prism emulate the size and shape of the tidal channels that would have been present on the site prior to construction of the railroad. The material excavated to create the channels will be deposited elsewhere on the site to create a "topographic complexity zone," then planted with native vegetation.



The project design was developed specifically to protect the natural values of the site and improve the estuary ecosystem, which is substantiated by the applicant responses and staff findings contained in the Impact Assessment and Resource Capability Determination earlier in this report. **This criterion is satisfied.**

#### **Section 6.4180. Bankline and Streambed Alteration**

Standards in this subsection are applicable to an alteration of a stream bank or streambed in the Columbia River Estuary, either within or outside of its normal high-water boundary.

- 1) Alterations to stream banks or streambeds shall:
  - (A) Maintain stream surface area where feasible; and

**APPLICANT RESPONSE:** Stream surface area will be maintained under the scope of this project.

- (B) Make maximum use of natural or existing deep-water channels; and

**APPLICANT RESPONSE:** Deep water channels will not be affected as a result of this project.

- (C) Avoid creation of undesirable hydraulic conditions; and

**APPLICANT RESPONSE:** The consulting engineers analyzed potential hydraulic impacts associated with this project. This hydraulic analysis confirmed that the project will not result in undesirable hydraulic conditions. See sections 3.3 and 3.5 of the basis of design report.

- (D) Minimize impacts on estuarine aquatic and shoreland resources.

**APPLICANT RESPONSE:** Impacts with this project on estuarine aquatic and Shoreland resources will be controlled to the maximum extent feasible. Any negative impacts will be of a limited duration and restored to a better state than pre-project. Post-restoration results will be a net gain, returning the site closer to a natural state.

**STAFF FINDINGS AND CONCLUSION:** The proposed habitat restoration project involves excavation below the normal high-water boundary of the Columbia River. The applicant has demonstrated the proposal will meet satisfy Subsections (A) through (D), above, as well as in the Impact Assessment and Resource Capability Determination earlier in this report. **These criteria are satisfied.**

- 2) Excavation activities in stream bankline areas resulting in expansion of existing aquatic area shall comply with standards regulating excavation of shorelands for the creation of new water surface area in Estuarine Construction, Section 6.4080.

**APPLICANT RESPONSE:** See Section 6.4080

**STAFF FINDINGS AND CONCLUSION:** Section 6.4080 is addressed earlier in this report. The applicable criteria are found to be satisfied with conditions of approval as appropriate. **This criterion is satisfied.**

#### **Section 6.4210. Filling of Aquatic Areas and Non-Tidal Wetlands**

This subsection applies to the placement of fill material in tidal wetlands and waters of the Columbia River Estuary. These standards also apply to fill in non-tidal wetlands in shoreland designations that are identified as "significant" wetlands under Statewide Planning Goal 17.



- 1) Fill in estuarine aquatic areas may be permitted only if all of the following criteria are met:
  - (A) If required for navigation or for other water-dependent uses requiring an estuarine location, or if specifically allowed under the applicable aquatic zone; and
  - (B) If a need (i.e. a substantial public benefit) is demonstrated; and
  - (C) The proposed fill does not unreasonably interfere with public trust rights; and
  - (D) Feasible alternative upland locations do not exist; and
  - (E) Adverse impacts, as identified in the impact assessment, are minimized.
- 2) A fill shall cover no more than the minimum necessary to accomplish the proposed use

**APPLICANT RESPONSE:** This is expected to result in no net gain or loss in overall aquatic habitat. The proposed project would have both immediate and long-term beneficial effects on aquatic areas.

#### **Section 6.4220. Riparian Vegetation Protection**

The standards in this subsection apply to any development use and activity affecting vegetation adjacent to and bordering Columbia River estuarine aquatic areas.

- 1) Riparian vegetation resources are described in the County's Comprehensive Plan and identified on Columbia River Estuary Resource Base Maps. These resources shall be maintained through the use of protective setbacks, except where direct water access is required for water-dependent and water-related uses. Development shall be setback 50 feet from all identified significant wetland and biological habitat and from the shoreline.  
Pasture land, land managed for agricultural crops, landscaped area or unvegetated areas which do not function as riparian vegetation may, in particular locations, be included as part of the 50-foot protection buffer. Upon request, the County may undertake a site investigation to establish the extent of riparian vegetation requiring protection in a particular location.
- 2) Temporary removal of riparian vegetation due to construction or landscaping may be permitted subject to revegetation plan approved by the County specifying: (a) temporary stabilization measures and (b) methods and timing of restoration of riparian vegetation. Native plant species should be considered for revegetation; however, plant species and revegetation techniques approved by the Soil Conservation Service, the US Army Corps of Engineers, and other participating federal and state agencies are appropriate

**APPLICANT RESPONSE:** The proposed wetland restoration project does not have long term negative effects on riparian vegetation within the project site. Minimal native riparian vegetation will be removed within the riparian zone. Any riparian vegetation removed will be salvaged and "hot planted" to the maximum extent practicable. All disturbed areas will be heavily seeded and replanted with native vegetation immediately following project completion. The project is consistent with this section and does not propose a use that would require a 50 feet setback from identified wetlands or shoreline habitats.

**STAFF FINDINGS AND CONCLUSION:** The Columbia River Estuary Resource Base Maps identify "Goal 17 Significant Riparian Vegetation" along the edge of the tidal marsh area. The "limit of disturbance" delineated on the applicant's design documents (Exhibit 1) for the Agency Creek and Warren Slough sites do not appear to overlap with the mapped Significant Riparian Vegetation. As the applicant has described, other vegetation within the riparian zone would be removed to accommodate construction of the proposed bridge crossings. The removed vegetation would be salvaged and replanted, along with additional native riparian vegetation. The applicant's revegetation plan can be found on pages 20-22 of the *Draft Final Design Drawings* for the Agency Creek site and pages 16-17 of the *Draft Final Design Drawings* for the Warren Slough site (Exhibit 1). **These criteria are satisfied.**

#### **Section 6.4230. Fish and Wildlife Habitat**

This subsection applies to uses and activities with potential adverse impacts on fish or wildlife habitat in Columbia River Estuary aquatic and shoreland areas.



- 1) Projects affecting endangered, threatened or sensitive species habitat, as identified by the US Fish and Wildlife Service or Oregon Department of Fish and Wildlife, shall be designed to minimize potential adverse impacts. This shall be accomplished by one or more of the following:
  - (A) Soliciting and incorporating agency recommendations into local permit reviews;
  - (B) Dedicating and setting aside undeveloped on-site areas for habitat;
  - (C) Providing on or off-site compensation for lost or degraded habitat;
  - (D) Retaining key habitat features (for example: roosting trees, riparian vegetation, feeding areas).

**APPLICANT RESPONSE:** The project will result in immediate and long-term net benefits as access to quality wetland habitat will increase with the installation of one new bridge (opening in the railroad levee). The project will enhance approximately 22 acres of habitat on the Columbia River. This project is compliant with all local, state, and federal requirements.

**STAFF FINDINGS AND CONCLUSION:** The proposed restoration project is specifically designed to improve fish habitat, including threatened and endangered salmon species. Notice of the application was provided to ODFW but there was no response. The proposal would preserve undeveloped onsite areas for habitat, restore degraded habitat onsite, and retain key habitat features including riparian vegetation. **This criterion is satisfied.**

- 2) In-water construction activity in aquatic areas shall follow the recommendation of state and federal fisheries agencies with respect to project timing to avoid unnecessary impacts on migratory fish.

**APPLICANT RESPONSE:** DSL and ODFW have provided a conditional approval that the project may be constructed during the summer in-water work window (July 15- September 30, 2022) in order to avoid impacts to fish and wildlife species during construction.

**STAFF FINDINGS AND CONCLUSION:** As described by the applicant, the project will be carried out during an in-water work window established by DSL and ODFW. **This criterion is satisfied.**

- 3) Uses and activities with the potential for adversely affecting fish and wildlife habitat may be approved only if the following impact mitigation actions are incorporated into the permit where feasible. These impact mitigation actions are listed from highest to lowest priority:
  - (A) Avoiding the impact altogether by not taking a certain action or parts of an action;
  - (B) Minimizing impacts by limiting the degree or magnitude of an action and its implementation;
  - (C) Rectifying the impact by repairing, rehabilitating, restoring the affected environment (this may include removing wetland fills, rehabilitation of a resource use and/or extraction site when its economic life is terminated, etc.);
  - (D) Reducing or eliminating the impact over time by preservation and maintenance operations.

**APPLICANT RESPONSE:** Impacts to fish and wildlife habitat have been avoided and/or minimized to the maximum extent feasible for the project. Short term/temporary impacts to subtidal habitats are anticipated but have been minimized through the design process so that the project has a minimum footprint while providing a maximum lift in habitat quantity and quality. The locations in which excavated materials being placed in topographic complexity mounds have been selected to avoid native vegetation and to bury patches of non-native/invasive Reed canary grass. While these habitats will be temporarily impacted, this is a relatively small area (<0.5acres total) while the benefits of the project will provide increased access for fish and wildlife species and improve the quality/function of approximately 22-acres of quality intertidal and subtidal habitat.



**STAFF FINDINGS AND CONCLUSION:** The proposal is specifically designed to restore degraded fish and wildlife habitat. As described by the applicant, short-term temporary impacts to fish and wildlife habitat are anticipated during construction but will be minimized to the greatest extent possible. Once construction is complete, the project site will be monitored by the applicant to confirm the effectiveness of restoration measures. **This criterion is satisfied.**

- 4) Projects involving subtidal or intertidal aquatic area fill or intertidal aquatic dredging with the potential for adversely affecting aquatic habitat must provide compensatory mitigation, consistent with Mitigation and Restoration Standards (subsection 6.4150).

**APPLICANT RESPONSE:** Impacts are the result of the construction of a restoration project that will increase fish access into the Warren Slough project area (floodplain wetlands). As a result, the project mitigates for these impacts through its own project design. The project design also has minimized the footprint to approximately <1 acres.

**STAFF FINDINGS AND CONCLUSION:** The proposal involves excavating two channels to allow water to flow between the Columbia River and an adjacent tidal marsh that has been degraded since the construction of the railroad prism and associated infrastructure. Excavated material would be reused throughout the project site to create “topographic complexity zones” which would be planted with native vegetation. As described by the applicant, the project may have short-term temporary impacts to aquatic habitat during construction, which would be minimized to the greatest extent possible. Once construction is complete, the net effect to aquatic habitat is anticipated to be a significant improvement over existing conditions; therefore, no mitigation is required. **This criterion is satisfied.**

#### **Section 6.4250. Significant Areas**

The standards in this subsection are intended to protect certain Columbia River shoreland and aquatic resources with estuary-wide significance. Significant shoreland and aquatic resources are identified as such in the Estuarine Resources and Coastal Shoreland Elements of the Comprehensive Plan. Significant aquatic resources are found in Natural Aquatic areas. This section applies only to activities and uses that potentially affect significant shoreland or aquatic resources. Other resources without estuary-wide significance are not covered by this section. Only those resources identified as significant under Statewide Planning Goal 17 are covered by these standards.

**APPLICANT RESPONSE:** The project site is not listed as being “Significant” under Planning Goal 17. This section is not applicable.

**STAFF FINDINGS AND CONCLUSION:** Goal 17 does not specifically list significant areas that overlap with the project site; however, the Columbia River Estuary Resource Base Maps do identify “Goal 17 Significant Riparian Vegetation” along the edge of the tidal marsh area. The proposal does not involve any activities above the Ordinary High Water (OHW) line adjacent to the mapped Goal 17 vegetation, so the project is not subject to the criteria in this section. **This section does not apply.**

#### **Section 6.4260. Water Quality Maintenance**

The standards in this subsection are intended to help protect and enhance the quality of water in the Columbia River Estuary. Impacts on water quality in aquatic areas and in tidewater sloughs in shoreland areas are covered.

- 3) The potential adverse impacts on water quality from dredging, fill, in-water dredged material disposal, in-water log storage, water intake or withdrawal, and slip or marina development will be assessed during permit review. Parameters to be addressed include:
  - (A) Turbidity
  - (B) Dissolved oxygen
  - (C) Biochemical oxygen demand



- (D) Contaminated sediments
- (E) Salinity
- (F) Water temperature
- (G) Flushing

**APPLICANT RESPONSE:** The proposed project is consistent with the applicable general standards of this section. Potential water quality impacts associated with the project are minimal, localized and temporary. Potential impacts can be managed using erosion control methods during implementation of the project. Unavoidable impacts, such as turbidity. Turbidity generated as a result of the construction may not be discernible when compared to surrounding conditions. Turbidity will be isolated to the site using straw wattles, silt fencing, and silt curtains and is expected to return to ambient conditions before leaving the project site. Localized turbidity is expected to return to ambient conditions when final site stabilization occurs.

**STAFF FINDINGS AND CONCLUSION:** As described by the applicant, any adverse impacts on water quality associated with the project would be temporary and minimized to the greatest extent possible through best management practices for erosion control and work area isolation. Once construction is complete, water quality is expected to return to normal, and may actually improve as the project will increase the exchange of water between the river and tidal marsh. The project is also subject to DEQ permits regulating specific water quality metrics. Condition #1A requires the applicant to provide the Land Use Planning Division with copies of all state and/or federal permits prior to construction.  
**This section will be satisfied with a condition of approval (Condition #1A).**

## **SECTION 6.5000. PROTECTION OF RIPARIAN VEGETATION**

### **Section 6.5010. Purpose and Areas Included**

Riparian vegetation is important for maintaining water temperature and quality, providing bank stabilization, thus minimizing erosion, providing habitat for the feeding, breeding, and nesting of aquatic and terrestrial wildlife species, and protecting and buffering the aquatic ecosystem from human disturbances. This section establishes standards to protect riparian vegetation on lands not subject to the requirements of the Oregon Forest Practices Act.

Areas of riparian vegetation are identified as follows:

- 1) Estuarine and Coastal Shoreland rivers and sloughs: a riparian vegetation zone of 50 feet wide shall be maintained except where shown on the County's estuarine resource base maps.

### **Section 6.5020. Development Standards**

- 1) All development, as defined by LWDUO section 1.0500, shall be located outside of the zone of riparian vegetation areas defined in 6.5000 above, unless direct water access is required in conjunction with a water dependent or water-related use or as otherwise provided by this Ordinance.

**APPLICANT RESPONSE:** The project area includes areas of riparian vegetation. Channel excavation to tie in the new railroad breach (opening with a bridge), and placement of topographic complexity mounds will be the only project elements that will take place off of the railroad prism itself and within areas that have riparian vegetation. These project elements have been specifically designed to avoid and protect areas of sensitive native emergent and riparian vegetation. Channel excavation at the Warren Slough project area is minimal, connecting existing channels on the Columbia River(north) side of the railroad with existing channels on the Warren Slough site(south) side of the railroad. The channel excavation required will occur in areas dominated by non-native Reed canary grass (*Phalaris arundinacea*) and will avoid areas with native riparian vegetation. The channel excavation alignment will be staked out by a Professional Land Surveyor, and afterwards CREST will walk the staked-out channel footprint and flag off any sensitive areas with native vegetation. If necessary the channel connection will be realigned to avoid sensitive native



vegetation communities. Similarly, topographic complexity mounds will be placed on the northside of the railroad prism in areas currently dominated by non-native vegetation (mostly Reed canary grass). Prior to construction, this area will be staked out by a Professional Land Surveyor and CREST and the contractor will walk the work area and identify areas of sensitive vegetation that needs to be avoided. The North Coast Land Conservancy will also be assisting in this area as they have been managing the site for over a decade and have a lot of familiarity with the site. Once identified, sensitive vegetation areas will be flagged off and all construction activities will be excluded from those areas. Post restoration, all areas will be heavily planted with native emergent and riparian vegetation.

The proposed wetland restoration project does not have long term negative effects on riparian vegetation within the project site. Minimal native riparian vegetation will be removed within the riparian zone. Any riparian vegetation removed will be salvaged and "hot planted" to the maximum extent practicable. All disturbed areas will be heavily seeded and replanted with native vegetation immediately following project completion. The project is consistent with this section and does not propose a use that would require a 50 foot setback from identified wetlands or shoreline habitats.

**STAFF FINDINGS AND CONCLUSION:** The purpose of this proposal is to restore fish habitat in a tidal marsh that was degraded by the construction of a rail prism, which effectively functions as a levee (except for one small culverts) between the marsh and Columbia River. The project would involve installing two new channel spanning bridges to increase hydrologic connectivity, mimicking the tidal channels that would have existed prior to construction of the rail prism and associated infrastructure. Installation of the bridges and excavation of the channels would require the removal of vegetation. As the applicant has described, the channel excavation required will occur in areas dominated by non-native reed canary grass and will avoid areas with native riparian vegetation to the greatest extent possible. The proposal also involves the use of excavated sediments to create "topographic complexity zone" areas that would be planted with native vegetation. The applicant's revegetation plan can be found on pages 20-22 of the *Draft Final Design Drawings* for the Agency Creek site and pages 16-17 of the *Draft Final Design Drawings* for the Warren Slough site (Exhibit 1). The net effect of the proposal would be an increase in the amount of riparian vegetation and an enhanced habitat for that vegetation to thrive. **These criteria are satisfied.**

## **SECTION 6.7000. DEVELOPMENT OF HISTORIC AND/OR ARCHEOLOGICAL SITES**

### **Section 6.7010. Development of Historic and/or Archeological Sites**

- 1) No development shall be allowed on land which has been identified as a historical- archeological site without review and approval by the Director and appropriate agencies. Development adjacent to lands identified as historical- archeological sites shall be subject to the Director's review and shall not adversely impact the adjacent historical- archeological site.
- 2) The County shall work with the local Historical Advisory Committee and other organizations to identify and protect important local historical and archeological sites. Compatible uses and designs of uses should be encouraged for property adjacent to important historical or archeological sites.
- 3) Clatsop County shall protect significant historical resources by:
  - (A) encouraging those programs that make preservation economically possible;
  - (B) implementing measures for preservation when possible;
  - (C) recognizing such areas in public and private land use determinations subject to County review.

### **Section 6.7030. Archeological Site Protection**

- 1) The Community Development Director and Building Official shall review building permits, excavation permits or other land use actions that may affect known archeological sites. If it is determined that a proposed building permit, excavation permit or other land use action may affect the integrity of an archeological site, the Community Development Director shall consult with the State Historic Preservation Office on appropriate measures to preserve or protect the site and its contents. No permit shall be issued until either the State Historic Preservation Office determines



that the proposed activity will not adversely affect the archeological site, or the State Historic Preservation Office has developed a program for the preservation or excavation of the site.

- 2) Indian cairns, graves and other significant archeological resources uncovered during construction or excavation shall be preserved intact until a plan for their excavation or reinternment has been developed by the State Historic Preservation Office.

**APPLICANT RESPONSE:** The Bonneville Power Administration is the lead federal agency directing the environmental and cultural compliance effort. CREST being the project sponsor put out a request for proposal for archaeological services and reporting for the Warren Slough Restoration Project to comply with Section 106 of the National Historic Preservation Act. CREST contracted with Harris Environmental Group (HEG) to perform the following tasks: literature review and research, securing a SHPO permit to work on properties of the state, conducting a field investigation, and reporting. HEG authored a technical report that included, the following sections: project introduction and background, including an explanation of the federal nexus; an environmental, ethnographic, historic and archaeological context statement; a summary of the survey, inventory and documentation methodology, results of the fieldwork, and recommendations on NRHP eligibility for all resources identified, and recommendations about the effect of the proposed project on those resources.

Harris Environmental conducted the survey for CREST in February of 2022. The investigations consisted of a pedestrian survey and shovel test excavations of selected high-probability areas of the APE. The project area was examined and no new cultural resources were identified. The existing railroad track and berm within the project area were surveyed and evaluated for inclusion on the National Register of Historic Places (NRHP). The railroad as a whole is locally significant under Criterion A, for its association with the history of railroad expansion in the north coastal area, and, by extension, with the history and development of Astoria, and it is the opinion of Harris Environmental the portion within the project area is eligible for listing on the NRHP. While there is always a possibility of buried cultural materials that were not observed during a survey, Harris Environmental recommends that the proposed Agency Creek and Warren Slough Restoration projects will have No Adverse Effect on historic properties listed on, or eligible for listing on the NRHP. While no further subsurface testing work is recommended for the Agency Creek and Warren Slough Habitat Restoration Projects, Harris Environmental does recommend an archaeological monitor be on-call in case historic pilings are identified during construction.

Bonneville Power Administration as the Lead Federal Agency has agreed with HEG's recommendation and has submitted HEG's Cultural Resource Report(attached) to the Oregon State Historical Preservation Office (SHPO). The SHPO review period is currently underway.

**STAFF FINDINGS AND CONCLUSION:** The project area is not a known historic or archaeological site. As the applicant has described, a field investigation and report were completed to determine whether the project area does contain any historic and/or archaeological resources and whether those resources would be affected by the proposal. The conclusion of the report was that the proposal will have no adverse effect on listed historic resources, but recommended an archaeological monitor be on-call in case resources are identified during construction. This recommendation will be incorporated as a condition of approval, in addition to a requirement that any archaeological resources be preserved intact until a plan for the excavation or reinternment has been developed by the State Historic Preservation Office (SHPO) (Condition #2). **This section is satisfied with a condition of approval (Condition #2).**



### III. COMMENTS RECEIVED

**Jerry & Noreen Lebo, 41090 Ziak-Gnat Creek Lane:** Michael Autio, attorney on behalf of Jerry and Noreen Lebo, commented via email, "(t)he Lebos own a parcel located at 41090 Ziak-Gnat Creek Lane, Account 18990, Map TL 807080000600. Approximately 7 acres of TL 807080000600 lie northwesterly of Ziak-Gnat Creek Lane and directly abut the PNWR railroad infrastructure. My clients are concerned that the proposed actions will most probably result in flooding of their property. They object to the application on that basis."

**Staff Response:** As proposed, the applicant's do not believe the proposed habit restoration project will increase flooding. In a follow-up email after receiving Mr. Autio's comment on behalf of the Lebos, Jason Smith of CREST mentions that he is in contact with the engineering team to put together a no rise memo, or similar. Once complete, Jason will provide documentation to the County and the Lebos.

As described in the project narrative, there are no tide gates present at the Agency Creek or Warren Slough sites, thus there is no barriers to excess flooding. The new channel spanning bridges replace undersized culverts that didn't allow natural hydrologic connectivity between the Columbia River and the adjacent tidal marsh. The new bridges should allow for water to evacuate the area quicker than then undersized culverts present at the Agency Creek or Warren Slough sites.

### IV. CONCLUSION AND DECISION

Based on the application materials received staff finds that the criteria relevant to this request have been met, or can be met through conditions of approval. The application is hereby **APPROVED, SUBJECT TO THE FOLLOWING CONDITIONS OF APPROVAL:**

1. Prior to construction, the applicant shall obtain a Type I Floodplain Development Permit, Development Permit, and a Grading, Drainage, and Erosion Control Plan Review from the Planning Division.

The applications shall include the following items:

- a. Copies of all state and/or federal permit approvals;
  - b. If a Clatsop County road (Waterhouse Road and/or Ziak Gnat Creek Lane) right-of-way is to be used for contractor parking or staging materials and/or equipment, the applicant shall first obtain a Perform Operations Permit from Clatsop County Public Works. Additionally, documentation shall be provided for the gravel yard off Ziak-Gnat Creek Lane from Clatsop County Public Works for temporary staging and stockpiling.
  - c. Final design and construction authorization from the railroad owners. This may be established by the owners signing the application form and/or providing separate written authorization;
  - d. A final erosion control plan per Section 3.2000.
  - e. The applicant shall provide base flood elevation documentation and data for the Floodplain Administrator to review and analyze per Section 5.1160.
2. An archaeological monitor shall be retained on call in case historic and/or archaeological artifacts are discovered. Any discovered resources shall be preserved intact until a plan for their excavation or reinternment has been developed by the State Historic Preservation Office (SHPO).



***Other regulations also apply, including, but not limited to, the following:***

1. Development shall comply with all applicable state, federal and local laws and regulations. Copies of all required state and/or federal permits shall be provided to the Planning Division.
2. This conditional use dwelling permit is valid for a period of two (2) years from the date of approval. This authorization is void after two (2) years from the date of approval unless substantial construction has begun per Section 1.0500. The Community Development Director has the discretion to authorize extension of this approval for an additional one (1) year upon request, provided the request is submitted in writing at least 10 days before and no more than 30 days prior to expiration of the permit.
3. Authorization of a review use shall be void after two (2) years unless substantial construction or action pursuant thereto has taken place per Section 2.5000. However, the County may, at the discretion of the Community Development Director, extend authorization for an additional one year upon request, provided such request is submitted in writing at least 10 days and not more than 30 days prior to expiration of the permit.