

Centralia Hydro Dam Fish Trap - Mitigation Plan



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Washington Department of Fish and Wildlife

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Env. Planner 3

THURSTON COUNTY
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Appendix A – Final Plan Set

Responsible Parties

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Project Location

The Centralia Hydro Dam Fish Trap Lift & Facility (Project) is located within Thurston County at the Centralia Hydro Dam along the banks of the Nisqually River approximately 4 miles south of McKenna, Washington near 20,000 Cook Rd SE, Yelm. The Project area is located in Section 01 Township 162E at approximately 46.899613 °N, -122.498117 °W. The Project area falls within Parcel 22601210100, which is owned by the City of Centralia. A vicinity map of the project area can be found in Figure 1 below.

Figure 1: Vicinity Map. Approximate Project location in red.



Project Description

Construction of an adult salmon trap within the existing fish ladder at Centralia diversion dam (parcel size 133.35 acres). This project is a key element of the Salmon Recovery Plan from the Nisqually Tribe and Washington Department of Fish and Wildlife. Trap will be made of aluminum frames with pickets with proper fish spacing of 1": two gates will block the passage up the fish ladder directing fish into the trap area. The trap area will have a floor that lifts ~5' to allow staff to capture the fish with nets and by hand and put them into a cable lift system move fish up in a cable cart system to a roofed 17' x 14' sorting facility on a cement slab. The sorting area includes fish troughs for handling, enumerating, scientific sampling, and tagging. There will be return pipes back to the fish ladder for returning fish upstream. River water will be pumped from the fish ladder area up to the sampling area to keep the fish in moving water and this water will return back to the fish ladder. A small 10' x 20' gravel pad will support a seasonal mobile office which will be present on site during the sampling season. Other existing structures are all associated with the diversion dam and are not a part of the proposal.

Wetland Description

CAMP staff conducted wetland delineations for the proposed Centralia Hydro Dam Fish Trap Lift & Facility (Project) area on February 3, 2021. Wetland delineations were conducted by qualified personnel in accordance with the *US Army Corps of Engineers (USACE) Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the applicable *Western Mountains, Valleys, and Coast Region Version 2.0* (USACE, 2010). Potential wetland areas were assessed using a three-parameter approach which includes collecting detailed information relating to vegetation, soils, and hydrology at each sample point location.

The information obtained at sampling locations was documented on data forms as per the 1987 USACE Manual protocol. Nomenclature and indicator status of vegetative species were identified using *The National Wetland Plant List* (USACE, 2018). Delineated resources were classified according to *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979).

A hand shovel was used to obtain samples from the upper soil horizons at representative plots throughout the Site. Soil colors were recorded using standard hue, value, and chroma notations provided by Munsell Soil Color Charts (Munsell, 2009). Indicators of hydric soils are described in the Regional Supplement and in *Field Indicators of Hydric Soils in the United States, Version 8.2* (NRCS, 2018).

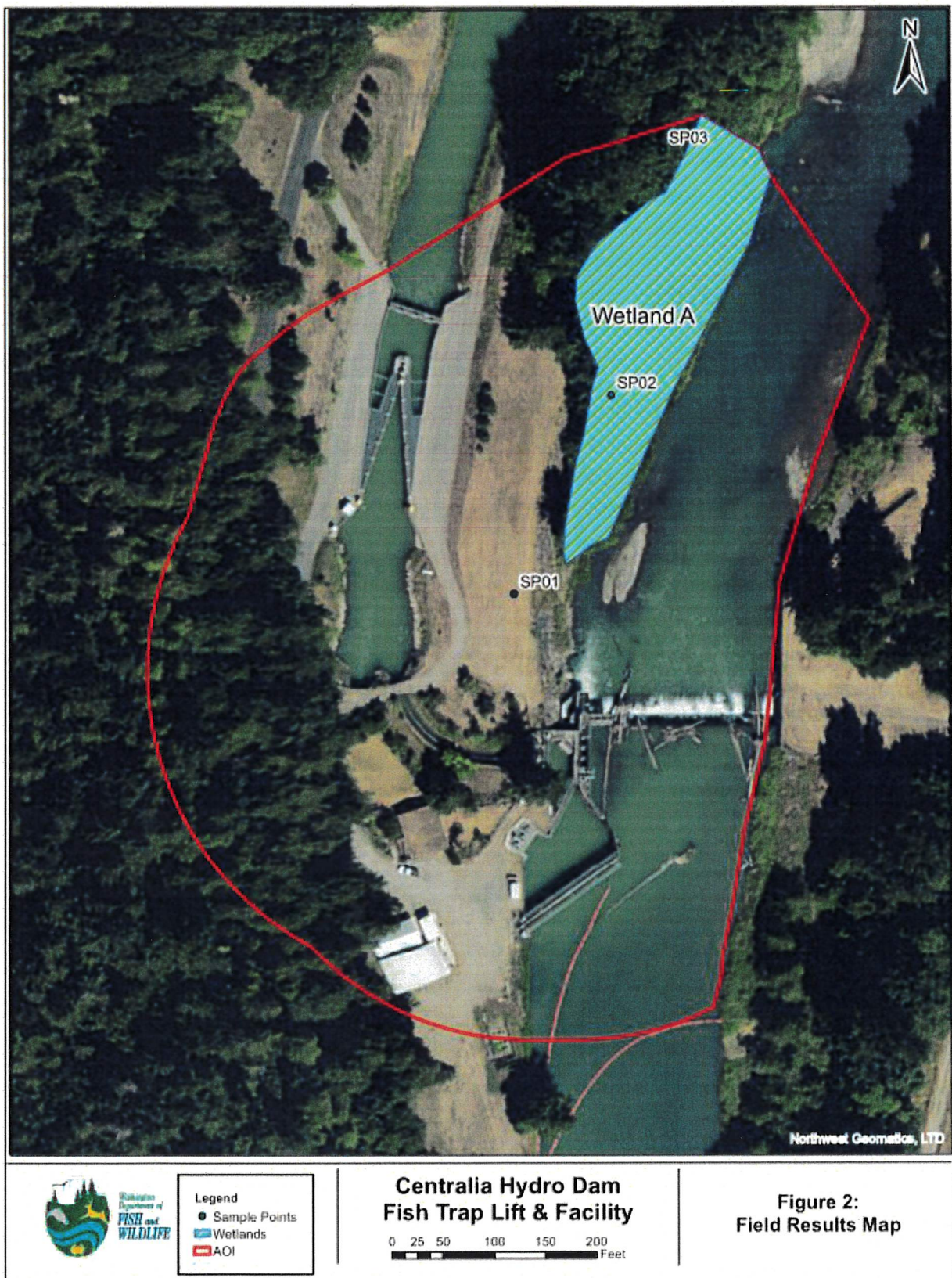
During the wetland delineation, Wetland A was identified just downstream of the hydro dam. Wetland A is a riverine wetland characterized by forested and emergent vegetation. Dominant species within this wetland include Red Alder (*Alnus rubra*), Reed Canary Grass (*Phalaris arundinacea*), Himalayan Blackberry (*Rubus armeniacus*), and Sedges (*Carex* species). Soils had a sandy texture. Hydrology indicators found in the wetland included saturation, sediment deposits, drift deposits, drainage

patterns, and the FAC-neutral test. Wetland A was rated using the *Washington State Wetlands Rating System for Western Washington* (Hruby, 2014). Wetland A was determined to be a Category II wetland with an applicable buffer of 280 ft. In general, moderate water quality and hydrologic, and high habitat functions are provided by this wetland. The improving water quality function score was based on the presence of depressions, trees and shrubs, the disturbed surrounding area and contributing basin, and the quality of the adjacent Nisqually River. The hydrologic function score was based on the ratio of the width of the wetland in relation to the width of the adjacent Nisqually river, again the presence of trees and shrubs, the absence of downcut banks adjacent to the wetland, the upgradient watershed and stream, and distance to downstream flooding. The habitat function score was based on the presence of 3 Cowardin class structures and multiple hydroperiods, relative richness of species and interspersed habitats, special habitat features, the habitat within the surrounding 1 km, and the presence of priority habitats. Additional information on wetland functions can be found in the rating form within the wetland delineation report.

According to the Washington State Department of Ecology's Water Quality Atlas, the reach of the Nisqually River adjacent to Wetland A is not listed on the 303(d) list. The Project area is located in the 171100150301 – Murray Creek – Nisqually River HUC 12 watershed. Nearby Harts Lake is also located within this watershed and is listed on the 303(d) list for Total Phosphorus. There are no approved or in development water quality improvement projects located within this watershed. The closest water quality improvement project is the Deschutes, Percival, and Budd Inlet Watersheds Total Maximum Daily Load (TMDL).

Wetland A is not listed as a wetland of high conservation value on the Washington State Department of Natural Resources (DNR) Wetlands of High Conservation Value Map Viewer. The adjacent Nisqually River is listed on the DNR Forest Practices Water Typing Mapper as Type S, a shoreline of the state. The adjacent Centralia Canal is listed on the DNR Forest Practices Water Typing Mapper as Type N, a non-fish bearing stream. According to the WDFW Priority Habitat and Species database, the Project area is mapped as priority habitat due to the presence of freshwater forested/shrub wetland, riverine aquatic habitat, and terrestrial habitat biodiversity areas and corridors. According to the WDFW SalmonScape fish distribution database, Fall Chinook Salmon, Coho Salmon, Winter Chum Salmon, Sockeye Salmon, Dolly Varden/Bull Trout, Resident Coastal Cutthroat Trout, Winter Steelhead, and Pink Odd Year Salmon are listed as documented in the adjacent Nisqually River. According to the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) database, the Nisqually River is mapped as essential fish habitat for Chinook Salmon, Coho Salmon, and Puget Sound Pink Salmon. The Nisqually River is designated as critical habitat by the NOAA Fisheries Protected Resources App for Chinook and Steelhead. Figure 2 shows the location of the wetland.

Figure 2: Field Results Map



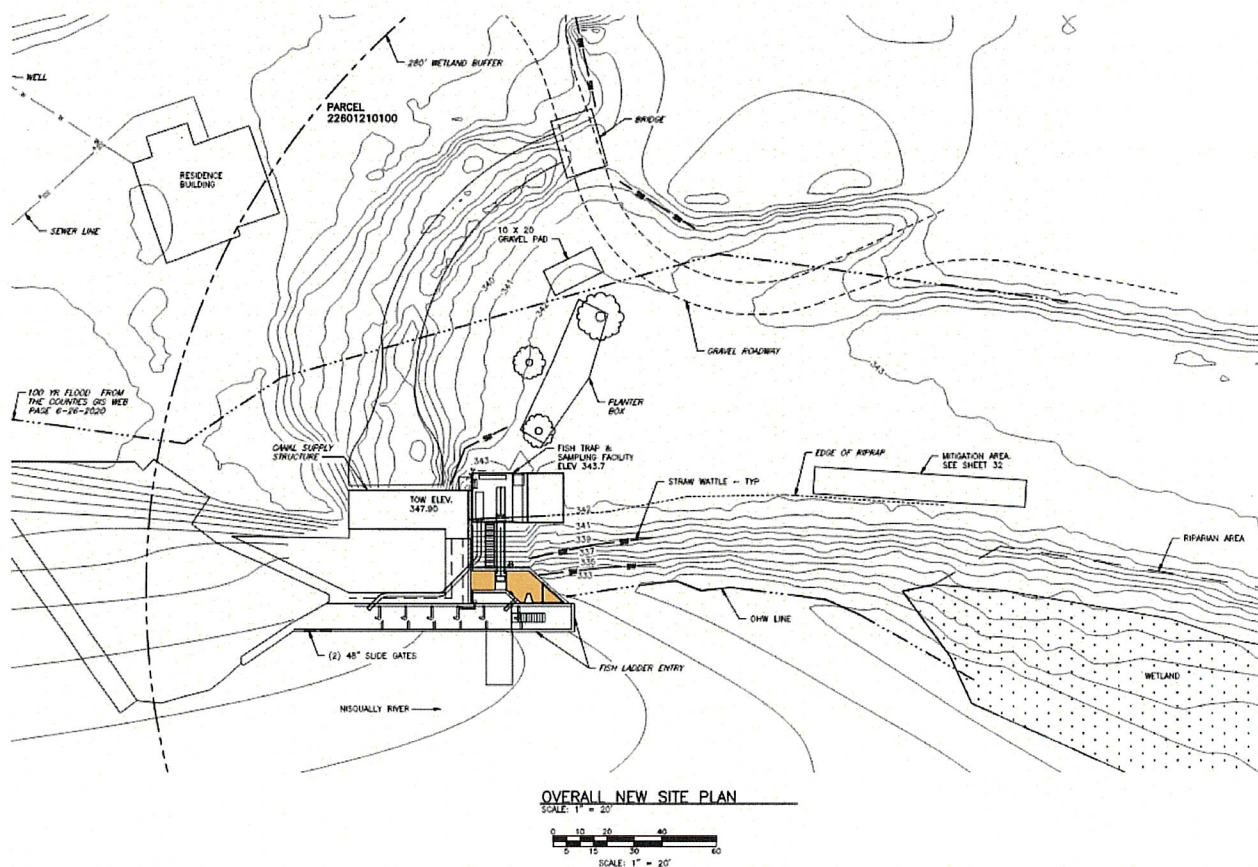
Proposed Mitigation Site

The City of Centralia owns the property where the Project will be constructed. CAMP staff conducted a site visit on July 12, 2022, to review the Project area and determine an ideal location for on-site plantings.

A large portion of the site consists of a previous temporary gravel storage area, of which some minor gravel can be seen on the ground surface. Outside of this area, the site exists as maintained lawns surrounded by existing hydro dam and canal infrastructure.

An approximately 790 sq ft area adjacent to the Project area was selected for plantings, as it is located within the wetland buffer and will be visible to maintenance staff for upkeep and to ensure the area is avoided during mowing activities. The proposed planting location can be seen in Figure 3 below.

Figure 3: Proposed Planting Location and Site Plan



Estimated Future Conditions

This portion of the wetland buffer is currently maintained grass that is routinely mowed by the City of Centralia. Plantings will improve the vegetative diversity in this area.

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey, the soils at the proposed mitigation site are Puyallup silt loam. Fauna that may be impacted temporarily as a result of the construction of the project include small mammals, migratory birds, waterfowl, and songbirds. According to the WDFW Priority Habitat and Species database, the proposed mitigation area is mapped as priority habitat due to the presence of adjacent freshwater forested/shrub wetland and terrestrial habitat biodiversity areas and corridors.

Figure 4: Photo of proposed mitigation site facing north.



Impact Summary

Proposed Impacts

The proposed project includes the installation of a 10 ft x 20 ft gravel pad and an open-walled sampling facility within the wetland buffer. The gravel pad will result in 200 sq ft of new impervious surface and will be situated in an open grassy area. The sampling facility has been designed to have the least impact possible and a portion of it is located on large riprap which

has been placed along the banks of the Nisqually River throughout the project area. There will be an elevated fish rail system connecting the sampling facility to the infrastructure within the adjacent hydro dam. The sampling facility itself, including associated stairs and gravel loading area, will result in approximately 590 sq ft of new impervious surface within the wetland buffer. A total of 790 sq ft of impact will result to the wetland buffer from the construction of this proposed Project. Using a 1:1 mitigation ratio for wetland buffer impacts will require the planting of a 790 sq ft area located within the existing wetland buffer. This planting area can be seen on the updated plan set attached to this document.

Expected Conditions

The mitigation planting area consists of a 10' x 79' flat area located at the top of the bank of the Nisqually River. A total of 49 plants (8 Douglas Fir and 41 Nootka rose) will be planted as outlined in the planting table below. This area is located within the wetland buffer and will provide additional benefit to the wetland by increasing forest cover within the buffer. Planting of the shrubs and trees will occur in the fall following construction of the Project when there is adequate rain to provide water.

MITIGATION PLANTING TABLE			
PLANT NAME	SPACING	SIZE	#
DOUGLAS FIR (PSEUDOTSUGA MENZIESII)	10' OC	1 GALLON	8
NOOTKA ROSE (ROSA NUTKANA)	4' OC	PLUG	41

PLANTING NOTES:

1. ORDER SPECIES WITH A PROVENANCE OR SEED SOURCE FROM PUGET LOWLANDS OR THURSTON.
2. OBTAIN TREES IN ONE GALLON CONTAINERS WHEN POSSIBLE
3. SUBSTITUTE SIMILAR SPECIES IF RECOMMENDED ONES ARE NOT AVAILABLE.
4. SCARIFY GROUND SURFACE PRIOR TO PLANTING.
5. MULCH GROUND SURFACE WHEN PLANTING IS COMPLETE.

Site Specific Goals, Objectives and Performance Standards

Goals

To mitigate for 790 sq ft of direct impacts to the wetland buffer.

Objectives

To provide compensatory mitigation at a 1:1 replacement ratio by planting a 790 sq ft area within the wetland buffer.

Performance Standards

1. Planted Trees and Shrubs: For the first year of monitoring the planted tree and shrub species, individual plant survival will be noted. The standard is set at 100% the first year, 90% in Year 2, 80% in Year 3, 70% in Year 4, and 70% in Year 5. It is likely that volunteer species will help propagate the area, and while these plants may not be able to be monitored individually, it will be noted if they are observed.

2. Invasive species: Non-native invasive species such as reed canarygrass (*Phalaris arundinacea*), blackberry (*Rubus armeniacus* and *R. laciniatus*), scotch broom (*Cytisus scoparius*), and thistle (*Cirsium arvense* and *C. vulgare*) will not exceed 20% of the cover within the mitigation area in any year.

Monitoring Plan

The mitigation site will be monitored for five years with monitoring reports prepared and submitted yearly to Thurston County. The goal of the monitoring report is to document compliance with the ecological performance standards. Monitoring data will be collected sometime from May through September of each year. The monitoring data collected for the planted species will consist of individual counts in each year and an evaluation of percent cover of invasive species to document compliance with the ecological performance standards. The monitoring report will consist of a brief summary of the monitoring data collected, a statement as to whether the site is meeting the ecological performance standards, and photographs as needed. Permanent photo points will be established to document pictures from the same orientation each year. The monitoring report will also provide a chronology and summary of maintenance/management actions that have occurred, and any recommended corrective or adaptive management actions proposed.

Site Protection Instrument

The site is owned by City of Centralia and is covered by their active FERC license to operate the hydro dam. This mitigation plan has been provided to City of Centralia for their review and inclusion into their FERC document record. No additional deed restrictions are being imposed at this time. The mitigation area will be maintained by the Nisqually tribe as described in this document.

Maintenance Plan

WOODY/SHRUB SPECIES:

- 1) Visually inspect and assess individual plants and percent cover as set forth in the performance standards throughout planting area.
- 2) If performance standards are not met, new plants of the same species will be replanted adjacent to the old plants, allowing the necessary spacing between other plants.

NON-NATIVE INVASIVE SPECIES:

- 1) Integrated pest management will be used to incorporate hand pulling, chemical application of herbicides, and/or mowing based on recommended treatment for each non-native invasive species.
- 2) Hand pulling may be used where appropriate to physically extract non-native invasive plant from mitigation site.

- 3) Chemical application of herbicides may occur in the mitigation site to target non-native invasive species establishing within the mitigation site. Timing of application will be based on plant phenology.

Contingency Plan

The Nisqually Tribe is committed to the success of the plan. However, unforeseen circumstances may prevent performance standards from being met. These circumstances may include, but are not limited to, natural disasters, predation, disease, and/or human impact. If a situation arises and the standards cannot be met, the Nisqually Tribe will consult with Thurston County to reach a solution to continue the support of on-site wetland buffer mitigation.

Implementation Schedule

Construction of the fish trap is scheduled to begin in Fall 2022. The mitigation site will be created when construction activities are complete. Planting of the mitigation site will occur the spring or fall following the completion of Project and approval of this plan. The planted shrubs will have adequate water supply if they are planted and established in the early spring or late fall.

Long-term Management Plan

The site will remain a functioning hydro dam. A copy of this mitigation plan will remain on site and will be included with FERC documents covering the site. Monitoring of the site will continue with scheduled maintenance for the records of the Nisqually Tribe and Thurston County.

Adaptive Management

The Nisqually tribe is responsible for the site conditions and components of this project in full. If unforeseen changes were to occur on the site, the Nisqually tribe would assess the changes and remedy any issues on the site. Any changes would be discussed with all permitting agencies to address any potential concerns and receive approval for changes.

Financial Assurances

The Nisqually tribe has committed to providing the funding for the construction of this Project and mitigation plan. A surety agreement can be provided to Thurston County if it is deemed necessary.

References

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Appendix A

Final Plan Set

