



1510 - B Third Street
Tillamook, Oregon 97141
www.tillamookcounty.gov
(503) 842 - 3408

Building (503) 842-3407
Planning (503) 842-3408
On-Site Sanitation (503) 842-3409
FAX (503) 842-1819
Toll Free 1 (800) 488-8280

Land of Cheese, Trees and Ocean Breeze

**ESTUARY/FLOODWAY DEVELOPMENT PERMIT #851-26-000111-PLNG
MCCOY TIDAL RESTORATION**

*NOTICE TO MORTGAGEE, LIENHOLDER, VENDOR OR SELLER:
ORS 215 REQUIRES THAT IF YOU RECEIVE THIS NOTICE,
IT MUST BE PROMPTLY FORWARDED TO THE PURCHASER*

August 6, 2026

Dear Property Owner:

This is to confirm that the Tillamook County Department of Community Development **APPROVED WITH CONDITIONS** the above-cited request on August 6, 2026. A copy of the application, along with a map of the request area and the applicable criteria for review are available for inspection on the Tillamook County Department of Community Development website: <https://www.tillamookcounty.gov/commdev/landuseapps>. Department of Community Development office located at 1510-B Third Street, Tillamook, Oregon 97141.

Appeal of this decision. This decision may be appealed to the Tillamook County Planning Commission, who will hold a public hearing. Forms and fees must be filed in the office of this Department before **4:00pm on August 18, 2026**. This decision will become final on August 18, 2026 after 4:00pm unless an appeal is filed in accordance with Tillamook County Land Use Ordinance Article X.

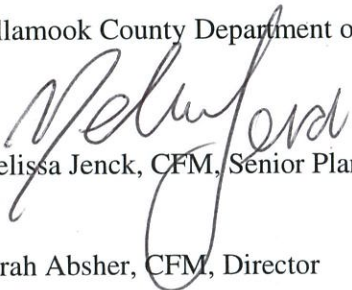
Request:	An Estuary and Floodplain Development Permit for the development of McCoy Marsh for tidal reconnection. This project includes Conditional Use review per the Shoreland Overlay.
Location:	Located off Highway 101 North, a state highway, at the northly boundary of the City of Wheeler Urban Growth Boundary (UGB). The property is designated as Tax Lot 200 in Section 35, Township 3 North, Range 10 West of the Willamette Meridian, Tillamook County, Oregon.
Zone:	Farm (F-1) and Estuary Conservation (EC1)
Applicant/ Property Owner:	Lower Nehalem Community Trust, PO Box 495, Manzanita, OR 97130

CONDITIONS OF APPROVAL

1. The Applicant/property owner shall obtain all required Federal, State, and Local permits and/or licenses and will comply with applicable rules and regulations.
2. Development shall be as described in the provided plans and descriptions.
3. Development shall comply with the applicable standards of TCLUO Section 3.106, 'Estuary Conservation One (EC1)', TCLUO Section 3.510, 'Flood Hazard Overlay (FH) Zone' and TCLUO Section 4.140, 'Requirements for Protection of Water Quality and Streambank Stabilization', TCLUO Section 3.545, 'Shoreland Overlay', and any other applicable standards.
4. The fill shall comply with all Building Code requirements for Construction Materials and Methods for a structure located in the 'AE' flood zones.
5. This approval shall be void on August 6, 2028, unless construction of approved plans has begun, or an extension is requested from, and approved by this Department.

Sincerely,

Tillamook County Department of Community Development



Melissa Jenck, CFM, Senior Planner

Sarah Absher, CFM, Director

Enc.: Vicinity, Assessor's and Zoning maps



ESTUARY DEVELOPMENT PERMIT REQUEST
851-26-000111-PLNG:
MCCOY TIDAL RESTORATION

ADMINISTRATIVE DECISION & STAFF REPORT

Decision Date: August 6, 2026

Decision: APPROVED WITH CONDITIONS
(This is not Building or Placement Permit Approval)

Report Prepared by: Melissa Jenck, CFM, Senior Planner

I. GENERAL INFORMATION:

Request: An Estuary and Floodplain Development Permit for the development of McCoy Marsh for tidal reconnection. This project includes Conditional Use review per the Shoreland Overlay.

Location: Located off Highway 101 North, a state highway, at the northly boundary of the City of Wheeler Urban Growth Boundary (UGB). The property is designated as Tax Lot 200 in Section 35, Township 3 North, Range 10 West of the Willamette Meridian, Tillamook County, Oregon.

Zone: Farm (F-1) and Estuary Conservation (EC1)

**Applicant/
Property Owner:** Lower Nehalem Community Trust, PO Box 495, Manzanita, OR 97130

Proposal Description: The Applicant is proposing to restore tidal function to McCoy Marsh by breaching existing levees and grading tidal channels through such breaches, installing large woody debris along tidal channels, and placement of marsh soils and native plants to support marsh vegetation (Exhibit B).

The area of proposed construction is depicted on the maps included in the Applicant's submittal, found in 'Exhibit B' of this report. The project area is located west of Highway 101 N, a state highway, and along the boundary of the City of Nehalem Urban Growth Boundary (UGB).

As indicated on FEMA FIRM #41057C0209F dated September 28, 2018, the subject property is located in 'AE' and Floodway Area of Special Flood Hazard of the Nehalem River (Exhibit A). Estuary Maps

contained in Goal 16 of the Tillamook County Comprehensive Plan identify the subject property as Estuary Conservation One (EC1) zoned (Exhibit B).

The application is an Estuary and Floodplain Development Permit approval, along with a Conditional Use review for Shoreland development, for restoration and enhancement of the estuary for McCoy Marsh (Exhibit B). The criteria and standards for this review are addressed below in this Staff Report.

II. APPLICABLE ORDINANCE AND COMPREHENSIVE PLAN PROVISIONS:

The desired use is governed through the following Sections of the Tillamook County Land Use Ordinance (TCLUO). The suitability of the proposed use, in light of these criteria, is discussed in Section III of this report:

- A. TCLUO Section 3.102, 'Estuary Conservation One (EC1) Zone'
- B. TCLUO Section 3.120, 'Regulated Activities and Impacts Assessments'
- C. TCLUO Section 3.140, 'Estuary Development Standards'
- D. TCLUO Section 3.510, 'Flood Hazard Overlay (FH) Zone'
- E. TCLUO Section 3.545, 'Shoreland Overlay'
- F. TCLUO Section 4.140, 'Requirements for Protection of Water Quality and Streambank Stabilization'
- G. TCLUO Section 6.040: Conditional Use Review Criteria

III. ANALYSIS

The project is located within the regulatory floodplain (AE Zone) and Estuary zone and is subject to a Type II review per TCLUO Article X: Development Approval Procedures. TCLUO Section 10.070 requires notification of Type II applications to be mailed to landowners within 250 feet of the subject properties, to allow at least 14 days for written comment and requires staff to consider comments received in making the decision.

Findings: Notice of the request was mailed to property owners and agencies on July 12, 2024. Staff finds that notification requirements have been met. Comments were received from the Oregon Department of State Lands and are included as "Exhibit C".

A. TCLUO Section 3.106, 'Estuary Conservation One (EC1) Zone'

The purpose of the Estuary Conservation One (EC1) zone is to provide long-term utilization of areas which support or have potential to support valuable biological resources, enhancement biological productivity, and provide maintenance of aesthetic values in order to promote or enhance low intensity recreational uses of estuarine areas adjacent to agricultural shorelands.

Per TCLUO Section 3.100, 'Estuary Zones' *ESTUARY ZONES shall be applied to all estuarine waters, intertidal areas, submerged and submersible lands and tidal wetlands up to the line of non-aquatic vegetation or the Mean Higher High Water (MHHW) line, whichever is most landward.*

TCLUO Section 3.106

...
(2) *USES PERMITTED WITH STANDARDS:*

...
(i) *Active restoration and estuarine enhancement.*

...
(4) *REGULATED ACTIVITIES: The following Regulated Activities are permitted subject to the procedure of Section 3.120 and the standards in Section 3.140.*

...

(f) *Regulated Activities in conjunction with an approved active restoration or estuarine enhancement project.*

Findings: Applicant is proposing to breach existing manmade levees, install large woody debris, and place hummock and native plants for restoration of the McCoy Marsh for tidal reconnection (Exhibit B). A site plan was included in 'Exhibit B' identifies the location of the Mean Higher High-Water (MHHW) line identified upon the subject property. The site plan confirms the location of proposed activities take place estuary-ward of the MHHW line and therefore are located within the EC1 zone entirely (Exhibit B).

Staff find that the restoration and enhancement of the estuary is an outright permitted use in the Estuary Conservation One (EC1) Zone. Restoration and enhancement projects are subject to TCLUO Section 3.120 and Section 3.140, discussed below.

B. Section 3.120: Review of Regulated Activities

Findings: The purpose of this section is to provide an assessment process and criteria for local review and comment on State and Federal permit applications which could potentially alter the integrity of the estuarine ecosystem. This project includes regulated activities which are subject to State and Federal permits. Notification of the application was provided to Federal and State agencies in accordance with the provisions outlined in TCLUO Section 3.120(8).

The applicant's submittal includes project details, NOAA NEPA Analysis, Wetland delineation, USFWS Critical Habitat determinations, hydraulic and hydrodynamic analysis, and a vegetation enhancement plan (Exhibit B). Comments were received from Department of State Lands (DSL) that identifies a previous approved Wetland Delineation, and that the project is under review with DSL (Exhibit C). Comments from the Oregon Department of Fish and Wildlife (ODFW) conclude that the project is a benefit to fish habitat and supports the proposed development (Exhibit C). ODFW indicates fish passage approval is required and that the Applicant has already been working on this request with their respective agency (Exhibit C).

Resource capabilities of the management unit are identified with the Goal 16 element of the Tillamook County Comprehensive Plan. The Comprehensive Plan identifies the subject area as a priority mitigation site. The applicants materials to include the NOAA NEPA Analysis, the fish passage designs, and vegetation enhancement plan all demonstrate impacts on species and habitat, and how the project will ensure the function of the site to be consistent with the purposes of the EC1 zone (Exhibit B).

Staff find that the applicants' materials and comments from ODFW and DSL satisfies the development standards that must be addressed as part of the impact assessment outlined in TCLUO Section 3.120.

C. Section 3.140: Estuary Development Standards

Applicable subsections:

- *Section 3.140(5): Dredging in Estuarine Waters, Intertidal Areas and Tidal Wetlands*
- *Section 3.140(7): Fill in Estuarine Waters, Intertidal Areas and Tidal Wetlands*
- *Section 3.140(12): Mitigation*
- *Section 3.140(15): Restoration and Enhancement*

Findings: The Applicant's narrative addresses the relevant standards and subsections of TCLUO Section 3.140 (Exhibit B). The proposed project includes the creation of and extension of tidal channels with

breaching of existing manmade levees (Exhibit B). Fill placement, in the utilization of large woody debris, is proposed to create habitat structures for restoration of the site. Activities are reviewed and proposed to comply with fish passage requirements from USFWS (Exhibit B). Placement of fill materials and their location were assessed through hydraulic analysis by Waterways Consulting included in 'Exhibit B'. Restoration activities have developed plans with USFWS, vegetation plans, and analysis with NOAA for NEPA compliance (Exhibit B). The applicant provided the required evaluation of the impact of proposed project on the area as required in Section 3.140(10)(i) and 3.140(14)(d) (Exhibit B).

Staff find the proposed development and restoration activities are compliant with the resource needs as detailed in Goal 16 of the Tillamook County Comprehensive Plan.

Staff conclude these standards have been met.

D. TCLUO Section 3.510 'Flood Hazard (FH) Overlay'

(5) GENERAL STANDARDS: In all areas of special flood hazards the following standards are required:

...

CONSTRUCTION MATERIALS AND METHODS

(d) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(e) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

(f) Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be elevated to prevent water from entering or accumulating within the components during conditions of flooding. In Flood Zones A, A1-A30, AE, V, V1-V30 or VE, such facilities shall be elevated three feet above base flood elevation. In Flood Zone AO, such facilities shall be elevated above the highest grade adjacent to the building, a minimum of one foot above the depth number specified on the FIRM (at least two feet above the highest adjacent grade if no depth number is specified).

...

(14) Development Permit Review Criteria

(1) The fill is not within a Coastal High Hazard Area.

(2) Fill placed within the Regulatory Floodway shall not result in any increase in flood levels during the occurrence of the base flood discharge.

(3) The fill is necessary for an approved use on the property.

(4) The fill is the minimum amount necessary to achieve the approved use.

(5) No feasible alternative upland locations exist on the property.

(6) The fill does not impede or alter drainage or the flow of floodwaters.

(7) If the proposal is for a new critical facility, no feasible alternative site is available.

Findings: Applicant submitted the required information on forms provided by the Community Development Department and as attachments thereto (Exhibit B). The entire property is located in an AE Area of Special Flood Hazard of the Nehalem River, with portions within mapped Floodway, and no alternative upland location exists for such restoration activities (Exhibits A and B). A no-rise analysis was prepared by Waterways Consulting dated February 24, 2026. The proposed development is not a critical facility (Exhibit B).

Staff finds that these criteria are met.

E. TCLUO Section 3.545 'Shoreland Overlay'

In the vicinity of the proposed project, the Goal 17 element of the Tillamook County Comprehensive Plan identifies all areas within 1,000 feet of estuaries and 500 feet of coastal lakes as within the Shorelands Boundary which may be subject to the provisions of TCLUO Section 3.545, 'SH Shoreland Overlay'. TCLUO Section 3.545 defines those areas within the Shorelands Boundary included within the Shoreland Overlay Zone. Relevant to the proposed development, TCLUO Section 3.545(2) identifies areas within 50 feet of estuaries as areas included in the Shorelands Overlay zone.

Findings: Staff finds that bridge placement is located within the Shorelands Boundary as identified in the Goal 17 element of the Tillamook County Comprehensive Plan. Staff has reviewed the proposed development and determined that shoreland areas on the subject property are categorized as 'Rural Shorelands' as described in TCLUO 3.545(3) and are subject to the use limitations identified in TCLUO 3.545(5)(c) and the standards identified in TCLUO 3.545(6). Staff has reviewed the significant shoreland inventory contained in the Goal 17 element of the Comprehensive Plan and has verified that there are no inventoried shorelands near the subject property.

TCLUO Section 3.545(5) CONDITIONAL USES:

...

(c) Estuarine restoration actions (as defined in Section 6.12 of the Estuarine Resources Element of the Comprehensive Plan) shall be allowed only at approved sites listed in the Comprehensive Plan, unless the restoration action is approved as part of a mitigation project. Restoration actions are subject to the standards of Section 3.140 (15).

...

TCLUO Section 3.545(6) STANDARDS: Uses within the SHORELAND OVERLAY ZONE are subject to the provisions and standards of the underlying zone and of this section. Where the standards of the SHORELANDS OVERLAY ZONE and the underlying zone conflict, the more restrictive provisions shall apply.

(a) Riparian vegetation shall be protected and retained according to the provisions outlined in Section 4.140, REQUIREMENTS FOR PROTECTION OF WATER QUALITY AND STREAMBANK STABILIZATION.

(b) Development in flood hazard areas shall meet the requirements of Section 3.510, FLOOD HAZARD OVERLAY ZONE.

Findings: Staff find the project is necessary and cannot be accommodated at an upload location, and the project is subject to a Conditional Use review process for estuarine restoration actions (Exhibit B). The requirements of TCLUO Section 4.140 and 3.510 are addressed in this report.

Staff find these criteria are subject to Conditional Use review process. Contained in Subsection G below.

F. TCLUO Section 4.140, 'Requirements for Protection of Water Quality and Streambank Stabilization'

1) The following areas of riparian vegetation are defined:

(a) Fifty (50) feet from lakes and reservoirs of one acre or more, estuaries, and the main stems of the following rivers where the river channel is more than 15 feet in width; Nestucca, Little Nestucca, Three Rivers, Tillamook, Trask, Wilson, Kilchis, Miami, Nehalem and North and South Fork Nehalem River.

...

For estuaries, all measurements are horizontal and perpendicular from the mean high water line or the line of non-aquatic vegetation, whichever is most landward. Setbacks for rivers, streams, and coastal lakes shall be measured horizontal and perpendicular from the ordinary high water line.

- (2) *All development shall be located outside of areas listed in (1) above, unless:*
(b) *Direct water access is required in conjunction with a water dependent use; or*

Findings: The proposal is for estuarine restoration, which is an allowed outright use in the EC1 zone (Exhibit B). The Applicant describes measures taken for erosion control timing of construction activities to address the site, along with a vegetation plan for post construction (Exhibit B).

Staff find that these standards have been met.

G. TCLUO SECTION 6.040: CONDITIONAL USE REVIEW CRITERIA

Any CONDITIONAL USE authorized according to this Article shall be subject to the following criteria, where applicable:

- (1) *The use is listed as a CONDITIONAL USE in the underlying zone, or in an applicable overlying zone.*

Findings: The proposed use is listed as a conditional use in the underlying zone (TCLUO 3.106(2)(i)). This criterion has been met.

- (2) *The use is consistent with the applicable goals and policies of the Comprehensive Plan.*

Findings: The Tillamook County Land Use Ordinance is an implementing document of the Comprehensive Plan. In the absence of evidence to the contrary, uses allowed conditionally in the Land Use Ordinance are presumed to be consistent with the Comprehensive Plan.

The subject property is recognized as a priority mitigation site per Goal 16 of the Tillamook County Comprehensive Plan. Goal 17 supports enhancement activities in the estuary.

The subject property is zoned Estuary Conservation One (EC1), which allows outright for estuarine restoration (Exhibit B).

This criterion has been met.

- (3) *The parcel is suitable for the proposed use considering its size, shape, location, topography, existence of improvements and natural features.*

Findings: The Applicant states the site is an ideal candidate for restoration as it maintains connectivity to tidal functions of the Nehalem River (Exhibit B). The proposed activity will reconnect form tidal channels by the proposed breaching of manmade levees (Exhibit B).

The subject property is irregular in shape, approximately 9.34 acres (Exhibit A). In review of the proposed site plan included in "Exhibit B", staff finds the following:

- Subject property is a corner lot located along the Nehalem River, with existing delineated wetlands and contained within the FEMA Special Flood Hazard Area (SFHA).
- The subject property is bordered by Highway 101, a state highway, to the east and Nehalem River to the west (Exhibit A & B).
- Comments from the Oregon Department of Fish and Wildlife support the proposed project for its benefit to fish and habitat (Exhibit C).
- Comments from Oregon Department of State Lands (DSL) detail the site maintains an existing wetland delineation and is under review for the restoration activities (Exhibit C).

- The proposed activities take place estuary-ward of the Mean Higher High-Water (MHHW) line and are located entirely within the Estuary Conservation One (EC1) zone (Exhibit A & B).

Based upon the findings outlined above and other relevant findings contained in this report, staff find the subject property is suitable for the proposed use considering its size, shape, location, existence of improvements and natural features. This criterion is met and can be met through the conditions of approval.

- (4) *The proposed use will not alter the character of the surrounding area in a manner which substantially limits, impairs or prevents the use of surrounding properties for the permitted uses listed in the underlying zone.*

Findings: Applicant states the surrounding properties will not affect their land uses and is suited for the surrounding area (Exhibit B).

The subject property is zoned Estuary Conservation One (EC1) at the boundary of the City of Wheeler Urban Growth Boundary (UGB) (Exhibit A). The subject property borders adjacent estuarine areas, also owned by the Lower Nehalem Community Trust (Exhibit A). Properties to the east are zoned Farm (F-1), Rural Industrial (RI), Rural Residential 2-Acre (RR-2) and Forest (F) (Exhibit A & B).

The subject property is west of Highway 101, a state highway, which separates it from the non-estuarine and tidally influenced lands (Exhibit A & B). Goal 16 of the Tillamook County Comprehensive Plan identifies the site as a priority mitigation site for habitat.

No comments were received from adjacent properties during the comment period of this request (Exhibit C).

Staff conclude this criterion is met and can be met through the conditions of approval.

- (5) *The proposed use will not have detrimental effect on existing solar energy systems, wind energy conversion systems or wind mills.*

Findings: Staff find no record of such facilities and improvements on the subject properties or within the vicinity (Exhibit A). Staff find that this criterion is met.

- (6) *The proposed use is timely, considering the adequacy of public facilities and services existing or planned for the area affected by the use.*

Findings: Applicant states the site is not suitable for dredge disposal (Exhibit B). Comments were received from the Oregon Department of State Lands identifying the site maintaining delineated wetlands (Exhibit C). Oregon Department of Fish and Wildlife (ODFW) support the proposed activities for fish and habitat improvement (Exhibit C). Staff find no new buildings are proposed, or utility services for the proposed restoration activities (Exhibit B).

Staff find the following:

- The property is accessed via Highway 101 North, a state highway (Exhibit B).
- The property does not maintain any current utilities, nor proposes any utilities or facilities as part of the proposed project (Exhibit B).
- No comments were received from ODOT during this review (Exhibit C).

Staff find that the proposed conditional uses are timely and that there are adequate public facilities and services existing for the area affected by the proposed uses. This criterion is met and can be met through the conditions of approval.

V. DECISION: APPROVED WITH CONDITIONS

Based on the findings shown above, Staff concludes that the Applicant has satisfied the review criteria, and can meet all applicable ordinance requirements at the time of application. Therefore, the Department approves Estuary Development Permit 851-26-000111-PLNG subject to the Conditions of Approval in section VI of this report.

Appeal of this decision. This decision may be appealed to the Tillamook County Planning Commission, who will hold a public hearing. The forms and fees must be filed in the office of this Department before **4:00 PM on August 18, 2026.**

VI. CONDITIONS OF APPROVAL:

1. The Applicant/property owner shall obtain all required Federal, State, and Local permits and/or licenses and will comply with applicable rules and regulations.
2. Development shall be as described in the provided plans and descriptions.
3. Development shall comply with the applicable standards of TCLUO Section 3.106, 'Estuary Conservation One (EC1)', TCLUO Section 3.510, 'Flood Hazard Overlay (FH) Zone' and TCLUO Section 4.140, 'Requirements for Protection of Water Quality and Streambank Stabilization', TCLUO Section 3.545, 'Shoreland Overlay', and any other applicable standards.
4. The fill shall comply with all Building Code requirements for Construction Materials and Methods for a structure located in the 'AE' flood zones.
5. This approval shall be void on August 6, 2028, unless construction of approved plans has begun, or an extension is requested from, and approved by this Department.

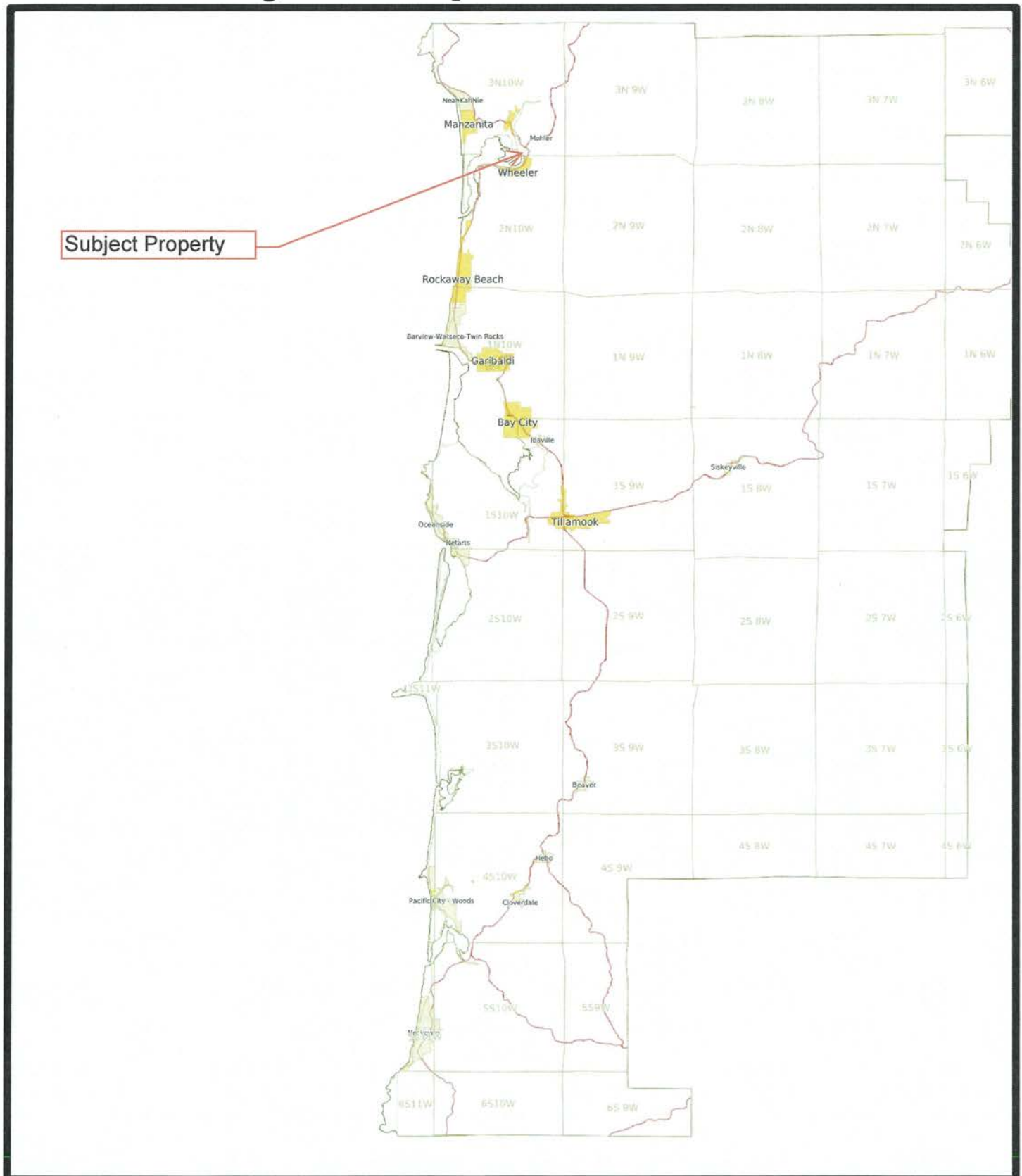
VII. EXHIBITS

All Exhibits referred to herein are, by this reference, made a part hereof:

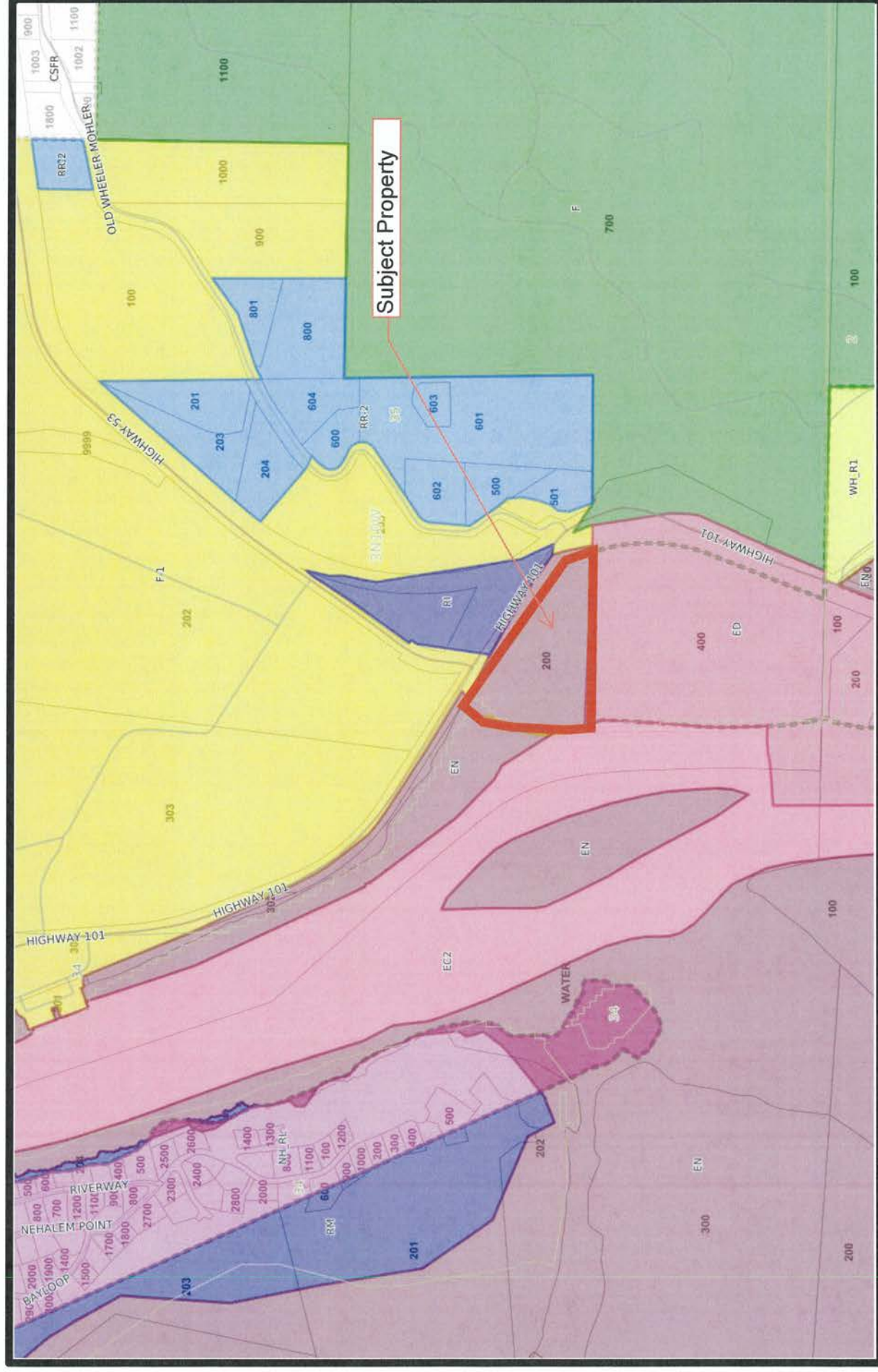
- A. Location map, Assessor map, Zoning map, FEMA FIRM, NWI Wetlands map
- B. Applicant's submittal
- C. Public Comments

EXHIBIT A

Vicinity Map



MOOSEMAPPING



Tillamook County
2025 Real Property Assessment Report
Account 95266

Map 3N10350000200
Code - Tax ID 5606 - 95266

Tax Status Non-Assessable
Account Status Active
Subtype NORMAL

Legal Descr See Record

Mailing LOWER NEHALEM COMMUNITY TRUST
PO BOX 496
MANZANITA OR 97130

Deed Reference # 2021-3991
Sales Date/Price 05-05-2021 / \$34,000
Appraiser KARI FLEISHER

Property Class 980 **MA** **SA** **NH**
RMV Class 020 07 TD 101

Site Situs Address	City
---------------------------	-------------

Value Summary					
Code Area		RMV	MAV	AV	RMV Exception CPR %
5606	Land	12,240		Land	0
	Impr	0		Impr	0
Code Area Total		12,240	0	0	0
Grand Total		12,240	0	0	0

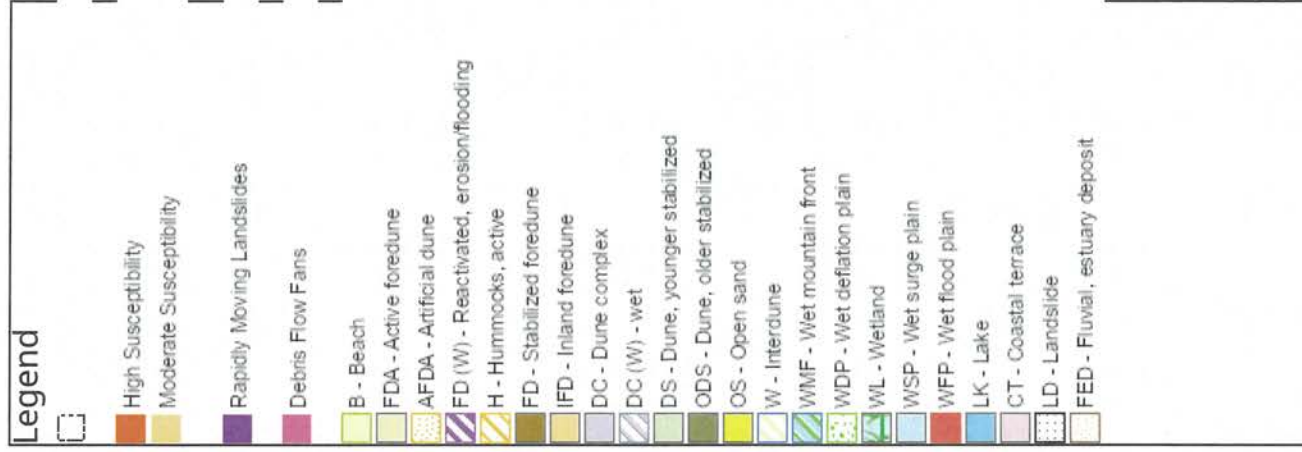
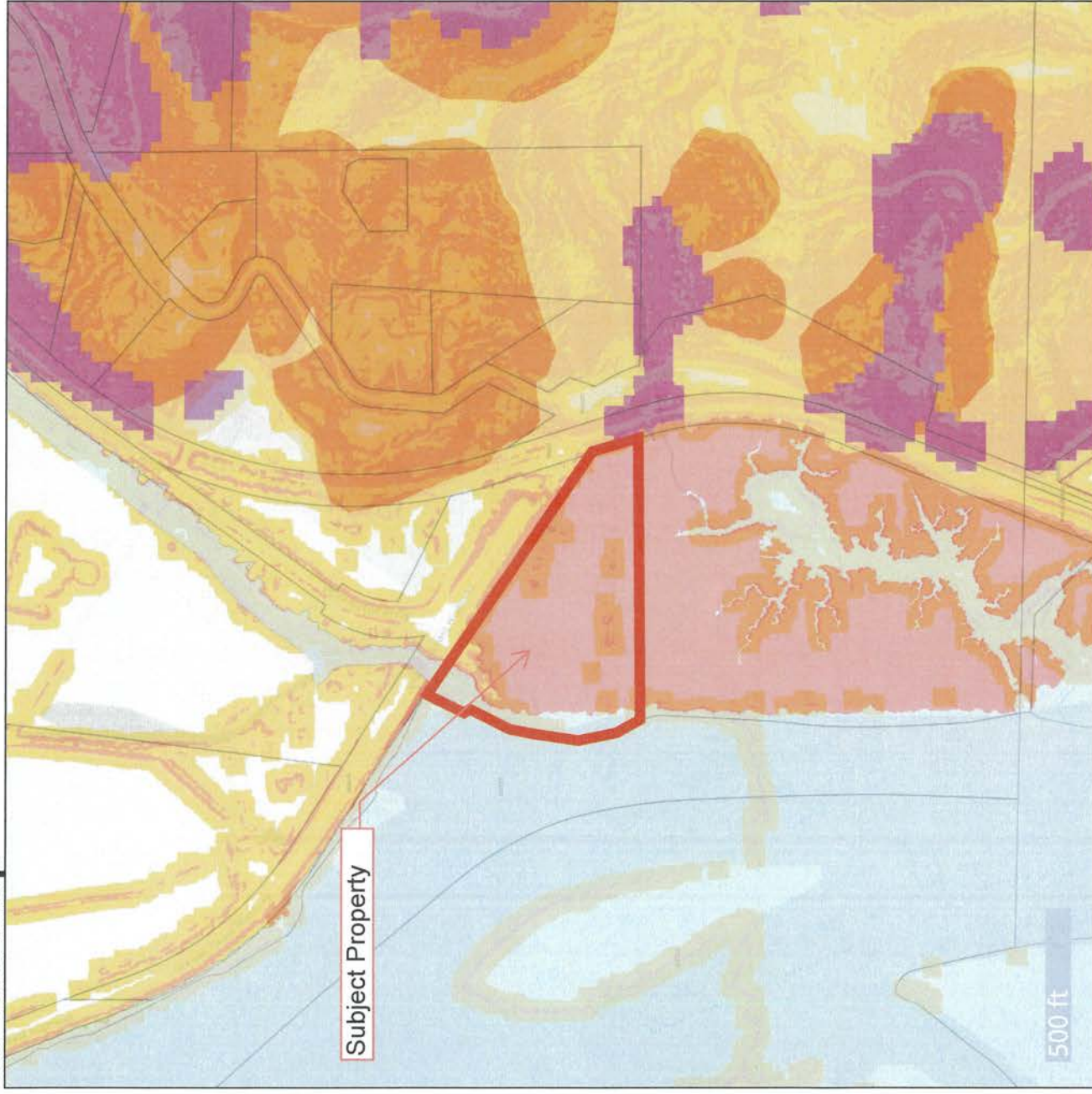
Land Breakdown									
Code Area	ID #	RFPD	Ex	Plan Zone	Value Source	Trend %	Size	Land Class	Trended RMV
5606	0	☒		EN	Tidelands	100	9.34 AC		12,240
Code Area Total							9.34 AC		12,240

Improvement Breakdown									
Code Area	ID #	Year Built	Stat Class	Description	Trend %	Total Sqft	Ex%	MS Acct	Trended RMV

Exemptions / Special Assessments / Notations									
Exemptions (RMV)									
■ ORS 307.130 - Charitable, Literary, Scientific, Museums and Volunteer Fire Depts.									

Comments 01/23/15 Reappraised land; tabled land. Updated size per GIS calculations. RBB 9/1/15 Reappraised RMV for 2015/16. Moved to MA:7 NH 101. KF
3/5/20 Code Change due to Fire Patrol Removal. LM
12/16/21 Due to a property tax exemption approval under ORS 307.130, made account non-assessable and set MAV to \$0. KF
0/23/23 Moved exemption to a RMV exemption. KF

Hazard Map

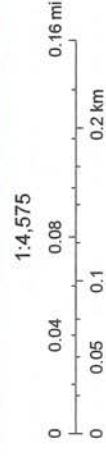


Statewide Wetlands Inventory



5/21/2026, 4:24:11 PM

- Sections
 Large Scale
 Perennial
 Intermittent
 Artificial Path
 Canal Ditch
 NHD Waterbody
 USFWS National Wetlands Inventory NWI
 Estuarine and Marine Deepwater
 Estuarine and Marine Wetland
 Freshwater Emergent Wetland
 Freshwater Forested/Shrub Wetland
 Riverine
 SWI Predominantly Hydric Map Units



 Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, OpenStreetMap contributors, and the GIS User Community. USGS TNM – National Hydrography Dataset, Data Refreshed April, 2026. Source: Esri, Vantor, Earthstar Geographics, and the GIS User

National Flood Hazard Layer FIRMette

123°53'4"W 45°42'1"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE)
Zone A, V, A99
- With BFE or Depth
Zone AE, AO, AH, VE, AR
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Area of 1% annual chance flood with average depth less than one foot or with draining areas of less than one square mile
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Flood Risk due to Levee. See Notes.
- Area with Flood Risk due to Levee

OTHER AREAS

- NO SCREEN
- Area of Minimal Flood Hazard
- Effective LOMRs
- Area of Undetermined Flood Hazard

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

Cross Sections with 1% Annual Chance Water Surface Elevation

- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

OTHER FEATURES

- Digital Data Available
- No Digital Data Available
- Unmapped

MAP PANELS

- The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/21/2026 at 11:24 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



EXHIBIT B



PLANNING APPLICATION

Applicant ☒ (Check Box if Same as Property Owner)

Name: Emily Akdedian Phone: 503-368-3203

Address: 532 Landeda Ave

City: Manzanita State: OR Zip: 97130

Email: emilyakdedian@nehalemtrust.org

Property Owner

Name: LOWER NEHALEM COMMUNITY Phone: 503-368-3203

Address: PO Box 496 TRUST

City: MANZANITA State: OR Zip: 97130

Email: emilyakdedian@nehalemtrust.org

OFFICE USE ONLY	
Date Stamp	
☒ Approved ☐ Denied	
Received by:	
Receipt #:	
Fees: 1800 + 90 (tech) = 1890	
Permit No: 851-26-000111-PLNG	

Request: Estuary Development Permit to allow grading work to breach existing levees/berms at 3 locations, excavate tidal channels and create shallow mounds for planting, and the installation of anchored log structures.

Type II

- ☐ Farm/Forest Review
- ☐ Conditional Use Review
- ☐ Variance
- ☐ Exception to Resource or Riparian Setback
- ☐ Nonconforming Review (Major or Minor)
- ☒ Development Permit Review for Estuary Development
- ☐ Non-farm dwelling in Farm Zone
- ☐ Fore-dune Grading Permit Review
- ☐ Neskowin Coastal Hazards Area

Type III

- ☐ Extension of Time
- ☐ Detailed Hazard Report
- ☐ Conditional Use (As deemed by Director)
- ☐ Ordinance Amendment
- ☐ Map Amendment
- ☐ Goal Exception

Type IV

- ☐ Ordinance Amendment
- ☐ Large-Scale Zoning Map Amendment
- ☐ Plan and/or Code Text Amendment

Location:

Site Address: South of intersection of Highway 101 and Highway 53

Map Number:	3N	10W	35	200
	Township	Range	Section	Tax Lot(s)

Clerk's Instrument #: _____

Authorization

This permit application does not assure permit approval. The applicant and/or property owner shall be responsible for obtaining any other necessary federal, state, and local permits. The applicant verifies that the information submitted is complete, accurate, and consistent with other information submitted with this application.

Property Owner Signature (Required)

3/10/26

Date

Applicant Signature

3/10/26

Date



DEVELOPMENT PERMIT

Applicant ☒ (Check Box if Same as Property Owner)

Name: Emily Akdedian Phone: 503-368-3203

Address: 532 Laneda Ave.

City: Manzanita State: OR Zip: 97130

Email: emilyakdedian@nehalemtrust.org

Property Owner

Name: LOWER NEHALEM COMMUNITY TRUST Phone: 503-368-3203

Address: 532 LANEDA AVE / PO BOX 496

City: MANZANITA State: OR Zip: 97131

Email: emilyakdedian@nehalemtrust.org

OFFICE USE ONLY	
Date Stamp RECEIVED MAR 11 2026 	
☐ Approved ☐ Denied	
Received by:	
Receipt #:	
Fees:	
Permit No: 851-26-000111-PLNG	

Description of Work: Grading work to breach existing levees at 3 locations, excavate tidal channels and create shallow mounds, install anchored log structures, and revegetation with native species.

Location:

Site Address: South of intersection of Highway 101 and Highway 53

Map Number: 3N	10W	35	200
Township	Range	Section	Tax Lot(s)

Complete all applicable fields:

Regulatory Floodway: ☒	Estuary: ☐	Floodplain: ☒
New: ☐	Addition: ☐	Replacement: ☐
Remodel: ☐	Demolish: ☐	
Dwelling: N/A	Accessory Structure: N/A	
Culvert Diameter: N/A	Bridge Length: N/A	
Length: N/A	Width: N/A	
Fence Height: N/A	Retaining Wall Height: N/A	
Streambank Stabilization: N/A	Other: ☐	
Fill/Removal/Grading: 1100 CY	Vegetation Removal: 1100 CY	

Structure/Damage \$:	5 Year Construction \$:
Substantial improvement/damage threshold 50% cost vs. value	

Flood Insurance Rate Map (FIRM) Panel Info

Tillamook County	Panel Number: 41057C_0209F
Effective Date: 9/28/18	Property Flood Zone(s): AE
Floodway: ☒ Y ☐ N	Project Flood Zone(s): AE
Stream/Waterbody Name: Nehalem River	

Elevation Data (NAVD 88)

Base Flood Elevation: 13	First Habitable Floor:
Lowest Floor/Horizontal Member:	
Enclosed Area:	Flood Vent Area:

Other Required Permits

Authorization

This permit application does not assure permit approval. The applicant and/or property owner shall be responsible for obtaining any other necessary federal, state, and local permits. The applicant verifies that the information submitted is complete, accurate, and consistent with other information submitted with this application.

Property Owner Signature (Required)

0-25-26
Date

Applicant Signature

0-25-26
Date

Type II Land Use Application

McCoy Marsh Tidal Reconnection Project

Applicant: Lower Nehalem Community Trust

Prepared: March 9, 2026

This application was prepared to support the Lower Nehalem Community Trust (LNCT) in obtaining the required Estuary and Floodplain Development Permits for the proposed McCoy Marsh Tidal Reconnection Project on the Nehalem River. Property details are as follows:

Request: Estuary and Floodplain Development Permit for the proposed McCoy Marsh Tidal Reconnection Project

Location: South side of intersection of HWY 53 and HWY 101. 45.700021, -123.879821

3N 10W Section 35. Tax Lot 3N10-3500-00200 in Tillamook County, Oregon, immediately north of the town of Wheeler (Figures 1).

Zone: EC1- Estuary Conservation Zone. The estuary zone is applied to all estuarine waters, intertidal areas, submerged and submersible lands and tidal wetlands up to the line of non-aquatic vegetation. The entire restoration site is comprised aquatic vegetation.

Staging will occur in the Oregon Department of Transportation Lot zoned as Rural Industrial (RI).

Overlays: Shoreland (SH)

Flood Zone: Special Flood Hazard (AE), Refer to FEMA Firm 41057C0209F

Applicant: Emily Akdedian Lower Nehalem Community Trust 532 Laneda Ave, Suite C Manzanita, OR 97130

Property Owner: same.

Project Description: The Project will restore tidal processes to McCoy Marsh by removing manmade barriers to tidal surface flows and expanding wetland area through breaching levees that no longer serve their function. The project objectives and design elements were identified by a technical advisory team that includes representatives from Lower Nehalem Community Trust, Wild Salmon Center, Oregon Department of Fish and Wildlife, Tillamook Estuary Partnership, and Nehalem Bay Watershed Council. The project design includes restoration of estuarine function by breaching the existing, degraded levees in three locations, grading tidal channels through the breaches and into the marsh interior, installing large wood along the tidal channels and in marsh areas, placement of marsh soils generated through earthwork to create low hummocks capable of supporting high marsh vegetation (Sitka spruce and willows), and installation of native plants across all disturbed areas.

Levees would be breached in three locations to restore full tidal exchange – two between Botts Marsh and McCoy Marsh, and one between McCoy Marsh and the Nehalem Bay. Levee breaching will include earthwork occurring in levee areas, wetlands, and waters. The breaches will include removing the levee material to near the ground surface around 8 to 9 feet elevation to allow tides to enter the McCoy Marsh, and one inset excavated tidal channel graded to tie into the Nehalem River at an elevation of 2 feet. The purpose of the wide breaches is to allow fish and woody debris to more easily enter the McCoy Marsh to provide additional habitat complexity once the construction is completed. Breaches and tidal channels are shown in the attached 60% Design Plans (Attachment 1, Sheet C3). The breaches and channel network will allow tidal access and drainage through McCoy and Botts Marshes to the Nehalem River; the restored features will be graded to provide positive drainage and fish passage.

- Breach 1 is located in the southeast corner of the McCoy Marsh, where a 30-foot opening will be made through the McCoy-Botts Levee, and a channel will be graded to connect to an existing tidal channel that currently drains through a partially buried concrete culvert in the McCoy-Botts Levee. The culvert will be plugged and remain in place.
- Breach 2 is located at the approximate midpoint of the McCoy-Botts Levee and will also be 30-feet wide. The breach will tie into the ground surface elevation of the adjoining Botts Marsh and lower in elevation to the north towards existing tidal wetland areas and converges with the channel at Breach 3.
- Breach 3 is a 50-foot wide opening in the Nehalem Levee and will allow flows from the Nehalem River on the west side of the property connecting it with the Nehalem River. Breach 3 will tie into the Nehalem Bay at an elevation of approximately 2 feet, allowing some inundation during most tidal water levels. The channel bottom will maintain 0.5 % slope for 365 feet towards the site interior.
- Breaches 2 and 3 converge in the marsh interior and join the existing tidal channel to convey tidal flows north and east. The existing tidal channel is an defined channel that connects to Breach 1 and currently terminated in the northwest corner of the site.

Hummocks

A series of “hummocks” will be built from project spoils of levee material excavated to create the breaches and tidal channels. The proposed hummocks are low, oval shaped mounds of soil rising from the marsh surface to a maximum of 2 feet above existing ground surface elevations (max fill at 10-foot elevation to maintain wetland conditions). The hummocks will have side slopes of approximately 5 H: 1 V and will serve multiple purposes: providing topographic diversity, creating more edge habitat, support woody vegetation (Sitka spruce and willows), and catching drift logs in advantageous locations. Floodplain logs and nurse crib structures (discussed below) will be installed on the hummock surfaces to enhance their ability to support Sitka spruce and willow, and to trap drift logs within the project area. These techniques are used by restoration practitioners to “jump start” the development of woody tidal marsh communities. These hummocks will not convert wetland to upland.

The use of hummocks also eliminates the need for riprap to protect the road prism of HWY 101 adjacent to the project site. Oregon Department of Transportation (ODOT) requested that project designs include measures to prevent drift logs and wave energy from impacting and eroding the road prism. Rather than armoring the base of the road with riprap, the design team proposed that the hummocks be developed and arranged in a way that will reduce the possibility of drift logs and waves impacting the road. The arrangement of the hummocks shown in the 60% plan set (Attachment 1, Sheet C3) aims to balance disturbance of wetlands, meeting ODOT's requests, and providing areas where wood will rack close to the tidal channels.

Large Wood

Two types of wood installations are included in the designs: channel logs and nurse crib log structures.

- Channel logs are individual logs with rootwads in tact driven into the channel banks at a 45° angle from the ground surface with at least 10 feet of log to be below ground. Rootwads will be exposed in the channels to provide habitat and encourage local scour and channel formation. A total of 36 channel logs will be installed.
- Crib log structures are comprised of two nurse crib logs without rootwads, laying on the ground surface on either side of two pile logs that are located at each end. The pile logs are driven at least 10 feet below the ground surface and attached to the nurse crib logs using threaded rebar and countersunk nuts. The space between the nurse crib logs will be filled with amended native soil and plated with native vegetation.

Seeding and Planting

All disturbed areas will be seeded and planted with native species that are appropriate to site conditions. The Attachment 2 includes the McCoy Marsh Vegetation Enhancement Plan.

Temporary staging and refueling will occur at an ODOT-owned maintenance lot located on the opposite (north) side of HWY 101. Construction equipment will access the staging and refueling area by crossing overland through vegetated uplands underneath the ODOT bridge that crosses over the Southern Pacific Railroad to access the east side of the refueling and staging area. Vehicles leaving the refueling and staging area will cross HWY 101 to enter the Project site on an existing upland landing.

Applicable Ordinance and Comprehensive Plan Provisions

Per pre-application materials provided by Tillamook County, the proposed development will require an Estuary Development Permit through a Type II application and a Floodplain Development Permit with supporting floodplain materials (hydraulic analysis report). This section details compliance with the Tillamook County Land Use Ordinance (TCLUO); the Floodplain Development Permit, Hydraulic Analysis, and Type II Planning Application are included with this submittal. Sections from the relevant sections of the TCLOU are shown in italics and language demonstrating the project meets the criteria of TCLUO follows.

Section 3.100: ESTUARY ZONES

(1) GENERAL USE PRIORITIES AND AREAS INCLUDED: General priorities, from highest to lowest, for uses within all ESTUARY ZONES shall be:

- (a) Uses which maintain the integrity of the estuarine ecosystem.*
- (b) Water-dependent uses requiring an estuarine location, as consistent with the overall Oregon Estuarine Classification.*
- (c) Water-related uses which do not degrade or reduce the natural estuarine resources and values.*
- (d) Non-dependent, non-related uses which do not alter, reduce or degrade the estuarine resources and values.*

ESTUARY ZONES shall be applied to all estuarine waters, intertidal areas, submerged and submersible lands and tidal wetlands up to the line of non-aquatic vegetation or the Mean Higher High Water (MHHW) line, whichever is most landward.

The site is zoned as Estuary Conservation 1 (EC1); estuary zones are applied to all estuarine waters, intertidal areas, submerged and submersible lands and tidal wetlands up to the line of non-aquatic vegetation. With the exception of portions of the levees, the site contains tidal wetlands with brackish estuarine vegetation in the existing conditions.

The proposed project is a voluntary estuarine restoration project that will maintain the integrity of the estuarine ecosystem, is a water dependent use, and will not degrade or reduce the natural estuarine resources and values found at the site. It is expected that as a result of the project, there will be significant uplift to the estuarine ecosystem and fish habitat function and values.

Section 3.106: ESTUARY CONSERVATION 1 ZONE (EC1) (1) PURPOSE AND AREAS INCLUDED: The purpose of the EC1 zone is to: (a) Provide for long-term utilization of areas which support, or have the potential to support valuable biological resources. (b) Provide for long-term maintenance and enhancement of biological productivity. (c) Provide for the long-term maintenance of the aesthetic values of estuarine areas, in order to promote or enhance the low intensity recreational use of estuarine areas adjacent to rural or agricultural shorelands. ...

Restoration is a use permitted with standards for Estuary Conservation 1 Zone (EC1) as defined in TCLUO 3.106(2)(i). The project meets the purpose of the EC1 in that it supports valuable biological resources and provides long-term maintenance and enhancement of biological productivity. The project site provides a rare opportunity to provide significant ecological uplift without introducing significant threats to infrastructure or public safety. The property includes existing, degraded levees along the Nehalem River to the west, and the levee separating the site from Bott's Marsh to the south; the property is bounded on the north by HWY 101 and the east by Southern Pacific Railroad. The levees and these built features prevent tidal exchange below 10 feet (NAVD88) other than through a 12-inch concrete culvert in the Botts Levee that allows limited tidal intrusion. Interior of the levees, the land is wetland that has retained much of the estuarine topography with remnant

tidal channel network and a mix of palustrine and estuarine plant communities. The project site is connected to a large functioning marsh (Botts Marsh to the south) and to mature Sitka spruce tidal swamp areas. Restoration of full tidal exchange to the project site interior will use and connect to the existing tidal marsh features. The *Nehalem Basin Strategic Action Plan for Coho Salmon Recovery* (Wild Salmon Center and Coast Coho Partnership, 2023) includes an objective to reconnect 300 acres of tidal wetlands within 20 years, and the proposed project would contribute to achieving that goal.

Further, the project will restore a DSL Aquatic Resource of Special Concern (ARSC) of *Wooded Tidal Wetland*. This design goals and planting strategy will use hummocks, a constructed topographic diverse surface, to restore woody vegetation (willows and Sitka spruce) to the site. The site will meet the DSL description of this type: “a wetland in which trees and shrubs have an aerial cover of 30% or more, and that is inundated at least once annually by tides. The plant species may include Sitka spruce, crabapple, or willows. Because tidal swamps occur at the upper edge of the estuary, they were readily logged and converted to agriculture, and therefore are one of the wetland types most disproportionately lost”.

The site will be protected into the future by LNCT and managed as a restored estuarine site.

(2) USES PERMITTED WITH STANDARDS: The following uses are permitted subject to the procedure of Section 3.120 and the standards in Section 3.140:

(i) Active restoration and estuarine enhancement.

The project proposes to complete active restoration by breaching existing levees, both of which are in degraded condition, and excavating tidal channels that will connect to an existing tidal channel. The project purpose is the restore full tidal processes to a levee-protected property that has been isolated from regular tidal influence for 80 years or more. The project will undergo the section 3.120 review and meets the standards in 3.140 as discussed below.

(4) REGULATED ACTIVITIES: The following Regulated Activities are permitted subject to the procedure of Section 3.120 and the standards in Section 3.140.

(f) Regulated Activities in conjunction with an approved active restoration or estuarine enhancement project.

The project will undergo the section 3.120 review and meets the standards in 3.140 as discussed below.

Section 3.120: REVIEW OF REGULATED ACTIVITIES (1) PURPOSE: The purpose of this Section is to provide an assessment process and criteria for local review and comment on State and Federal permit applications which could potentially alter the integrity of the estuarine ecosystem.

(2) REGULATED ACTIVITIES: Regulated activities are those actions which require State and/or Federal permits and include the following: (a) Fill (either fill in excess of 50 c.y. or fill of less than 50 c.y., which requires a Section 10 or Section 404 permit from the U.S. Army Corps of Engineers). (b) Dredging (either dredging in excess of 50 c.y. within a 12 month period, or dredging of less than 50 c.y., which requires a Section 10 permit from the U.S. Army Corps of Engineers).

The applicant has secured funding from OWEB and from the NOAA Restoration Center. As part of the ESA and NEPA compliance, NOAA Restoration Center staff and NMFS fish passage engineer reviewed the project engineering plans. Applications are under review for the 404/401 Permits from the U.S. Army Corps of Engineers and DEQ, and the Oregon Department of State Lands (DSL). The applicant and project engineers have worked with Oregon Department of Fish and Wildlife ODFW and ODOT for technical reviews of the project designs.

(4) ZONE REQUIREMENTS: Uses and activities shall be allowed only if they are allowed in the zones in which they are to be located.

Restoration is an allowed use in EC1.

(5) IMPACT ASSESSMENTS: The Planning Department shall, with the assistance of affected State and Federal agencies, develop impact assessments for regulated activities. Federal Environmental Impact Statements or Assessments may be substituted if made available to the Planning Department. The following considerations must be addressed in the impact assessment. (a) The type and extent of alterations expected. (b) The type of resource(s) affected including, but not limited to aquatic life and habitats, riparian vegetation, water quality and hydraulic characteristics. (c) The expected extent of impacts of the proposed alteration on water quality and other physical characteristics of the estuary, living resources, recreation and aesthetic use, navigation and other existing and potential uses of the estuary. (d) The methods which could be employed to avoid or minimize adverse impacts.

See Attachment 3 (Wetland Delineation) and Attachment 4 (Basis of Design) for analyses made during project planning and design work.

Section 3.140: Sections as applicable:

(5) DREDGING IN ESTUARINE WATERS, INTERTIDAL AREAS AND TIDAL WETLANDS: These standards shall apply only to dredging in excess of 50 c.y. within a 12-month period or dredging of 50 c.y. or less which requires a Section 10 permit from the U. S. Army Corps of Engineers.

(k) Excavation to create new water surface area shall be subject to the standards listed above and to the following standards: (3) Erosion of adjacent shoreland areas and excessive sedimentation and turbidity in adjacent aquatic areas shall be avoided. (4) Excavation shall occur at a time that will minimize its impact on aquatic life. (5) Excavated materials shall not be disposed of in estuarine waters, intertidal areas, or tidal wetlands, except as part of an approved fill project subject to fill standards.

While no dredging is proposed in the main channel of the Nehalem River is proposed, excavation will occur on the interior of the project to extend the existing channel network and to complete the levee breaches on the southern (McCoy/Botts) levee in order to allow tidal water flow into and out of the site. Excavation will also occur to breach Nehalem levee and excavate the exterior part of the tidal channels on the outboard side of the Nehalem Levee.

Excavated materials will not be disposed of in tidal waters, but will be used on the project site to create topographic diversity and the low hummocks for planting of tidal marsh species. Fill will not convert wetland to upland. Excavation work to be performed following all permit requirements

from USACE, DEQ and DSL, and all required Conservation Measures and BMPs will be followed. All excavation will take place while the site is dewatered and isolated from the Nehalem River.

(7) FILL IN ESTUARINE WATERS, INTERTIDAL AREAS AND TIDAL WETLANDS: These standards shall apply only to fill in excess of 50 c.y. or fill of less than 50 c.y. which requires a Section 10 or 404 Permit from the U.S. Army Corps of Engineers. (a) When fill in estuarine waters, intertidal areas or tidal wetlands is proposed, evidence shall be provided by the applicant and findings made by the County that: (1) The fill is necessary for navigation or other water dependent uses that require an estuarine location, or is specifically allowed by the management unit or zone; and (2) A need (i.e. a substantial public benefit) is demonstrated and the use or alteration does not unreasonably interfere with public trust rights; and, (3) If no feasible alternative upland locations exist; and, (4) If adverse impacts are minimized.

Fill will include logs for the habitat structures and “hummocks” built from project spoils of levee material excavated to create the breaches and tidal channels. The hummock placement is critical to restore site topography and allow for woody plant installation. Fill material will not convert wetland to upland.

(7)(d) The fill shall be placed at a time that will minimize sedimentation and turbidity. The work periods specified in the Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources (ODFW, 1976) shall be followed unless approval of alternative work periods has been obtained from the ODFW.

All filling activities will take place when the site is isolated and during the approved In Water Work Windows.

(7)(g) Fills shall be placed so that adjacent or nearby property is not adversely impacted by increased erosion, shoaling or flooding produced by changes in littoral drift or other changes in water circulation patterns. An affidavit from a professional registered engineer or hydrologist may impact assessment required in Section 3.120.

No nearby property will be adversely affected by the placement of fill. Oregon Department of Transportation (ODOT) requested that project designs include measures to prevent drift logs and wave energy from impacting and eroding the road prism. Rather than armoring the base of the road with riprap, the design team proposed that the hummocks be developed and arranged in a way that will reduce the possibility of drift logs and waves impacting the road. The arrangement of the hummocks shown in the 60% plan set (Attachment 1, Sheet C3) aims to balance disturbance of wetlands, meeting ODOT’s requests, and providing areas where wood will rack close to the tidal channels.

(7)(i) Fill in estuarine waters, intertidal areas and tidal wetlands shall be subject to the requirements of the State Fill and Removal Law (ORS 541.605 - 541.665), The Rivers and Harbors Act of 1899, the Clean Water Act of 1977 (PL 95-217) and other applicable State and Federal laws. These requirements shall be enforced by State and Federal agencies with regulatory authority over fill projects.

A 404 Permit is being acquired from USACE and a removal fill permit is being acquired from DSL.

(7)(j) An impact assessment shall be conducted during the local, State, and Federal review of permit applications for fill in estuarine waters, intertidal areas, or tidal wetlands according to the provisions outlined in Section 3.120. Identified adverse impacts shall be minimized to be consistent with the resource capabilities and purposes of the area.

See Attachment 3 (Wetland Delineation) and Attachment 4 (Basis of Design), and for analyses made during project planning and design work. NOAA Restoration Center would have completed NEPA for the funding (a federal action).

(12) MITIGATION:

The project is not being completed solely for the purpose of compensatory mitigation for impacts or losses to aquatic or natural resources, but is a voluntary restoration project for the purpose of fish and habitat uplift. Per Goal Section 4.1: *The term mitigation refers to actions which compensate for the adverse impacts to functional characteristics and processes of the estuary which result from dredging or fill in intertidal areas or tidal marshes. The objective of mitigation is to create, restore or enhance an estuarine area in order to replace or compensate for an intertidal area or tidal marsh which is lost or adversely impacted by dredging or fill.*

However, DSL has stated they will require mitigation for the temporary impacts incurred as a result of the project in the form of vegetation success standards and other performance monitoring to ensure the project objectives are met.

(15) RESTORATION AND ENHANCEMENT: Restoration and enhancement projects in estuary zones, Water-Dependent Development (WDD) shoreland zones or other areas within the Shoreland Overlay zone shall be subject to the following standards: (a) Restoration and enhancement policy requirements in the Tillamook County Comprehensive Plan shall be met. (b) Proposals for restoration projects shall present evidence that: (1) The restored area is a shallow subtidal or an intertidal or tidal marsh area after alteration work is performed; and (2) The restored area may not have been a functioning part of the estuarine system when alteration work begins; and (3) The restored area is revitalizing, returning or replacing original attributes and amenities which have been diminished or lost by past alterations, activities or catastrophic events.

(c) Estuarine enhancement project proposals shall identify: (1) The original conditions to be enhanced. (2) The cause of the loss or degradation. (3) The location and extent of actions necessary to achieve the enhancement objective.

(d) Estuarine enhancement project proposals shall present evidence that the project will result in an overall improvement in the cultural, historic, economic or navigation features of an estuary, which will outweigh any adverse impacts.

The project meets the definition and criteria of restoration and enhancement. Per Goal 16 Section 4.1: *The term restoration refers to actions which serve to revitalize, return or replace prior or original attributes within an estuary which have been diminished or lost by past alterations, activities or catastrophic events.*

The project will meet the policy requirements of Tillamook County Comprehensive Plan. The project site is considered "Management Unit: 25". This site is identified as a priority mitigation site. The Management Unit 25 description includes mention of the existing breaches in the McCoy-Botts Levee (the southern dike) which have restored some tidal circulation in the project site. This is limited, as it only occurs at certain elevations and flow through the culvert in the McCoy-Botts Levee is impaired. This site is described in the Goal 16 documents as a priority mitigation site, primarily because past land alterations have reduced tidal circulation. It is an area needed "for enhancement of biological productivity". The project will reverse the effects of the past land alterations to restore tidal circulation. The site is unsuitable for agriculture or building and is unacceptable for dredge placement (Goal 16; 3.4c. 10 Site 12a) due in part to "environmental, engineering or economic constraints which limit their future use as dredged material disposal sites".

See Attachment 3 (Wetland Delineation) and Attachment 4 (Basis of Design) which provides evidence the site is a tidal marsh area and describes the expected restoration and enhancement objectives. The McCoy Marsh wetland (Wetland 1 in the delineation) includes both tidal and nontidal conditions, including estuarine, intertidal, emergent (E2EM) and riverine palustrine scrub-shrub (PSS)/palustrine forested (PFO) wetland types. The wetland was historically protected from tidal inundation by the McCoy-Botts Levee (the southern dike in the Goal 16 Management Unit 25 description) that has since failed and eroded. E2EM communities are supported inboard of the levees below approximately 9 feet (North American Vertical Datum of 1988 [NAVD88]) elevation; PSS and PFO communities are located near the failed McCoy-Botts Levee, at the east end of the study area, and in a few low mounds above elevations that support E2EM communities.

The failed McCoy-Botts Levee is a partial barrier to tidal inundation and floods; surface waters are able to circumvent the McCoy-Botts Levee through a culvert shown on Figure 2 and around the east end of the levee when water levels are high enough (also shown in Attachment 1). Small drainage channels have formed within the E2EM community, routing surface water toward the culvert as the primary surface water outlet.

(e) When active restoration and enhancement projects are proposed in Estuary Natural (EN) or Estuary Conservation Aquaculture (ECA) zones, evidence shall be provided by the applicant and findings made by the County that the project is consistent with the protection of significant fish and wildlife habitats, biological productivity, and scientific, research and educational needs.

(f) When active restoration or enhancement projects are proposed in Estuary Conservation 1 (EC1) or Estuary Conservation 2 (EC2) zones, evidence shall be provided by the applicant and findings made by the County that the proposed use is consistent with the resource capabilities of the area and the long-term use of renewable resources, and does not cause a major alteration of the estuary. ...

(h) When active restoration projects are proposed in Water-Dependent Development (WDD) shoreland zones, evidence shall be provided by the applicant and findings made by the County that the proposed project does not preclude or conflict with existing or reasonable potential water-dependent use on the site or in the vicinity. Shoreland Development standards shall apply.

See Attachment 3 (Wetland Delineation) and Attachment 4 (Basis of Design) which provide evidence that the project will provide protection of significant fish and wildlife habitats, provide an

increase in biological productivity, and is not a major alteration to the estuary. The project will not conflict with existing or reasonable potential water dependent uses on the site or in the vicinity.

(j) Restoration and enhancement projects in Water-Dependent Development (WDD) shoreland zones or other areas within the Shoreland Overlay zone shall be subject to Shoreland Development standards.

The project is consistent with the Shoreland Development standards as described below under 3.545.

Section 3.510: FLOOD HAZARD OVERLAY ZONE (FH)

A hydraulic analysis report (stamped No Rise) is being submitted for this project that addresses the criteria of 3.510.

ESA compliance for section 3.510: See Attachment 5 for ESA Section 7 compliance documentation completed by NOAA Restoration Center as part of their funding requirements and also used for the Section 7 compliance for the 404 permit authorization.

Section 3.545. SH Shoreland Overlay

(1) PURPOSE: The purpose of the SHORELAND OVERLAY ZONE is to: (a) Provide for development, restoration, conservation or protection of coastal shorelands in a manner which is compatible with the resources and benefits of coastal shorelands and adjacent coastal water bodies. (b) Protect identified priority dredged material disposal and mitigation sites from uses which would prevent their ultimate use for dredged material disposal or mitigation.

The project site is 50 feet of the Nehalem River Estuary and the project is subject to the Shoreland Overlay (SH) criteria. Restoration projects are considered a Conditional Use in this overlay type. Conditional uses under 3.545 (5) include estuarine restoration actions as subject to the estuary development standards in Section 3.140 (15), as discussed previously. The site is identified as a Priority Mitigation Site (MIT-1).

(5) CONDITIONAL USES:

(c) Estuarine restoration actions (as defined in Section 6.12 of the Estuarine Resources Element of the Comprehensive Plan) shall be allowed only at approved sites listed in the Comprehensive Plan, unless the restoration action is approved as part of a mitigation project. Restoration actions are subject to the standards of Section 3.140 (15).

The project meets Section 6.12 of Goal 16, these requirements in particular:

- The project will restore tidal swamps, a habitat type identified as more historically abundant. The project is needed because both high marsh (estuarine emergent) and tidal swamp habitats (tidal scrub-shrub and forested wetlands) have been widely converted through levee construction, vegetation clear and agriculture, and filled for development throughout coastal Oregon. Tidal swamps are characterized by lower-salinity waters and/or higher elevations than tidal marshes, making their conversion to human uses easier. The proximity of tidal swamps to larger rivers attracted logging interests which used the rivers

to transport logs downstream more easily to market. Tidal swamps were logged, cleared, filled, diked, drained, and blocked by tide gates (Brophy, 2019; Diefenderfer, 2007) to allow for agriculture, grazing, and development. Loss of tidal swamp habitat in the PNW began during early European settlement (late 1700s) and continued with little to no documentation until wetland protection laws were enacted in the 1970s. A study by the Columbia River Estuary Study Task Force found that tidal swamp habitat was the most severely impacted estuarine habitat in the Columbia River estuary, with a net loss of 23,000 acres, or 77% of total acreage, since 1870, primarily due to diking (Thomas, 1983). Brophy (2019) also calculated the loss of vegetated tidal wetlands on Oregon's outer coast (not including the Columbia River) and found the loss of tidal swamp was much more severe than the loss of historical tidal marsh (59% loss) and that most of the remaining tidal swamp habitats were small (less than 25 acres), dispersed, and fragmented. The Project supports local watershed needs and priorities and is within a mapped ODFW Oregon Conservation Strategy Conservation Opportunity Area (COA), the Nehalem River Estuary.

- The project will 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 where alteration work begins.
- Priority shall be given to restoration of agriculturally marginal or unused, low-lying diked areas to adjacent estuarine wetland or tideland.
- The project is proposed as a salmon habitat project; it includes breaching dysfunctional levees and removal of a partially buried culvert that limits fish passage.
- The project is a voluntary restoration project, rather than mitigation. DSL has stated they will require mitigation as part of the project for the temporary impacts in the form of vegetation success standards and other performance monitoring.

(6) STANDARDS: Uses within the SHORELAND OVERLAY ZONE are subject to the provisions and standards of the underlying zone and of this section.

(a) Riparian vegetation shall be protected and retained according to the provisions outlined in Section 4.140, REQUIREMENTS FOR PROTECTION OF WATER QUALITY AND STREAMBANK STABILIZATION.

(b) Development in flood hazard areas shall meet the requirements of Section 3.510, FLOOD HAZARD OVERLAY ZONE.

These SH standards will be met. Existing vegetation will be protected during construction and Attachment 1 details the erosion and sediment control measure that will be taken on the site to limit impacts to water quality. The site will be isolated from the Nehalem River during construction.

The flood hazard overlay requirements will be met as described in the Hydraulic Report and 3.510.

Section 6.040: Conditional Use Criteria.

(1) *The use is listed as a Conditional Use in the underlying zone, or in an applicable overlying zone.*

Restoration is listed as a conditional use in the SH zone.

(2) *The use is consistent with the applicable goals and policies of the Comprehensive Plan.*

The project is consistent with the applicable goals and policies of the Comprehensive Plan, as described above. Oregon Planning Goals 16 (Estuarine Resources) and 17 (Coastal Shorelands), support activities in the Estuary that restore and enhance, rather than degrade, the estuary.

(3) *The parcel is suitable for the proposed use considering its size, shape, location, topography, existence of improvements and natural features.*

The project site is an ideal candidate for restoration as it occupies former tidal marsh habitat that will have good connectivity to tidal functions of the Nehalem River. The McCoy-Botts Levee and the Nehalem Levee both formerly protected the site but are now in disfunction as a levee and overtopping occurs at 10 NAVD88 events. A culvert is partially buried but does allow some minor flow, and by these events some estuarine characteristics are found on the site. The site contains former tidal channels that will be expanded to connect to the 3 breach areas.

(4) *The proposed use will not alter the character of the surrounding area in a manner which substantially limits, impairs or prevents the use of surrounding properties for the permitted uses listed in the underlying zone.*

The project will not affect surrounding land uses and is well suited to the character of the surrounding area.

(5) *The proposed use will not have detrimental effect on existing solar energy systems, wind energy conversion systems or windmills.*

Not applicable.

(6) *The proposed use is timely, considering the adequacy of public facilities and services existing or planned for the area affected by the use.*

The site is not suitable for agriculture, building, dredge disposal.



Date: 8/25/2025
Data Source: ESRI, 2025

Figure 1. Location

McCoy Wetland Tidal Reconnection Project - Tillamook County Estuary & Floodplain Development Permit Application

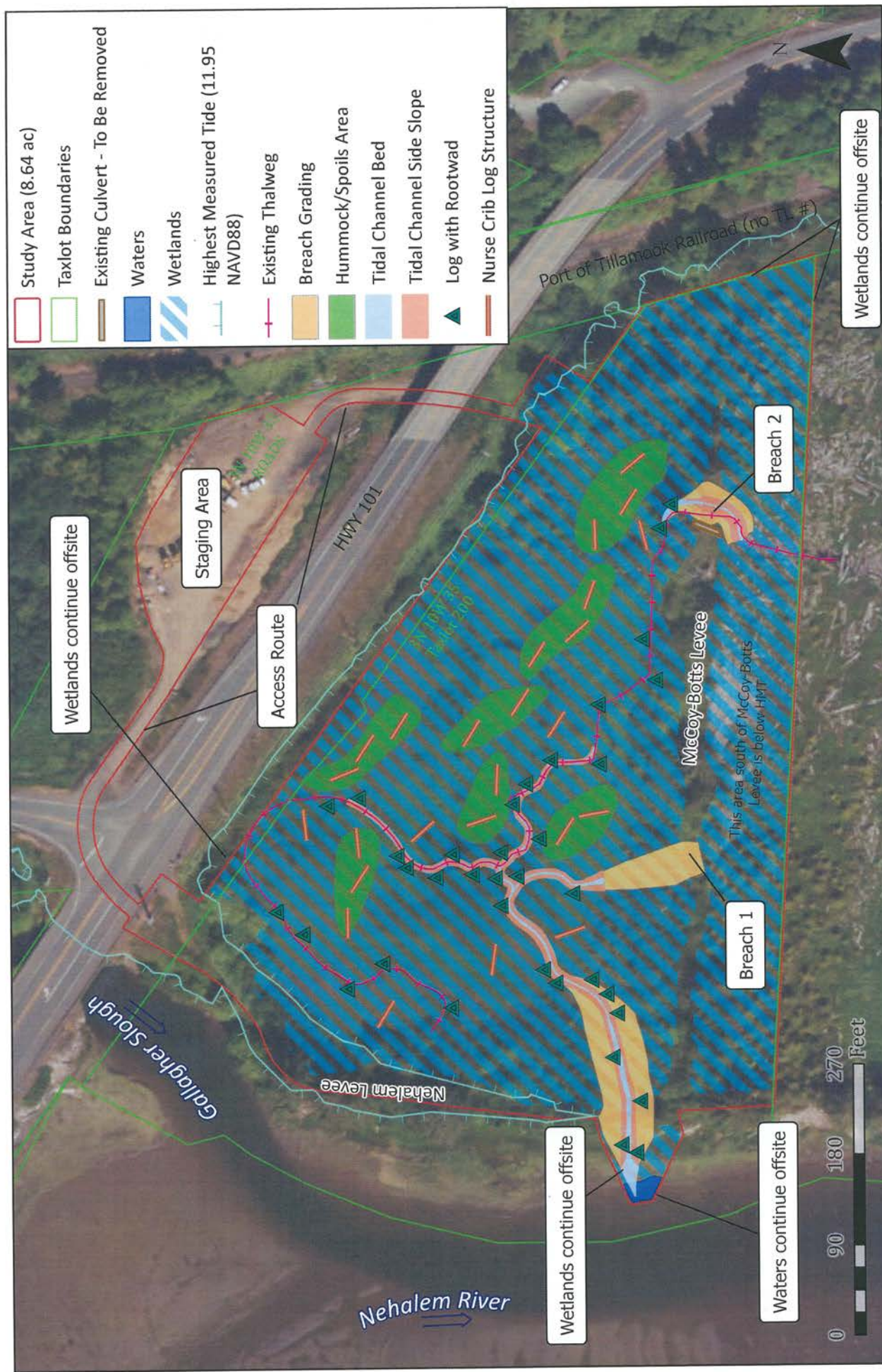


Figure 2. Project Elements

Date: 2/9/2026
Data Source: ESRI, 2025; Tillamook County Assessor

McCoy Wetland Tidal Reconnection Project - Tillamook County Estuary & Floodplain Development Permit Application
E:\CEG\GIS\1336_McCoy\1336_McCoy.aprx

REGIONAL MAP

SWEET REFERENCE ✓

DRAFT

PREPARED AT THE REQUEST OF:
LOWER NEHALEM
COMMUNITY TRUST

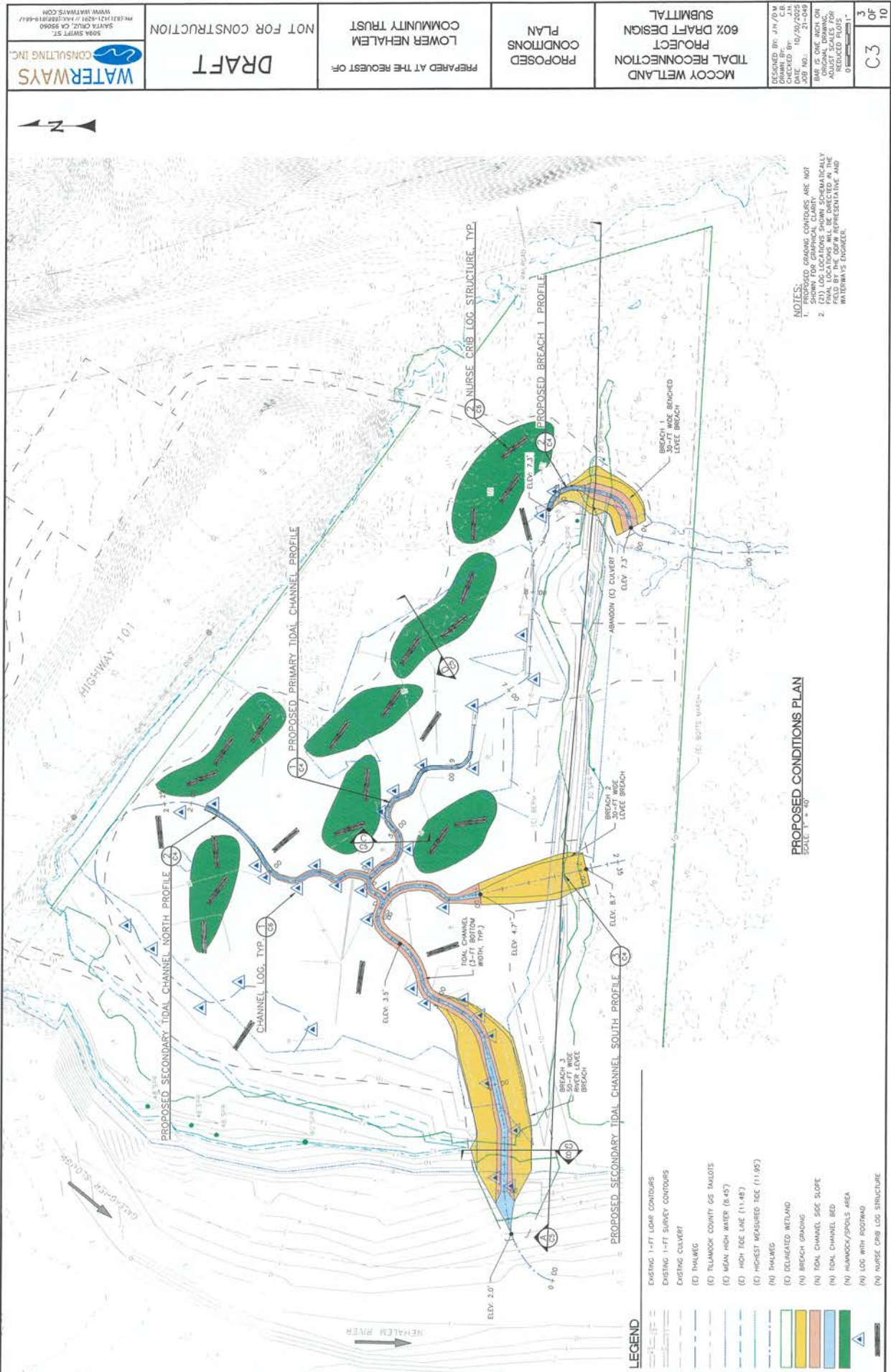
COVER

COY WETLAND
RECONNECTION
PROJECT
DRAFT DESIGN
SUBMITTAL

DESIGNED BY: J.H./D.M.
DRAWN BY: C.B.
CHECKED BY: J.H.
DATE: 10/30/2022
JOB NO.: 21-049

C1	1 of 10
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WATERWAYS CONSULTING INC. 509A SWIFT ST. SANTA ROSA, CA 95600 PH: (415) 421-4291 / FAX: (415) 421-4292 WWW.WATERWAYS.COM	DRAFT NOT FOR CONSTRUCTION	PREPARED AT THE REQUEST OF: LOWER NEHALEM COMMUNITY TRUST	PROPOSED CONDITIONS PLAN	MCCOY WETLAND TIDAL RECONNECTION PROJECT 60% DRAFT DESIGN SUBMITAL	DESIGNED BY: JAH/JCB DRAWN BY: JAH/JCB CHECKED BY: JAH/JCB DATE: 10/20/2015 JOB NO.: 15-005 MAP IS ONE INCH ON ORIGINAL DRAWING. ALL DIMENSIONS SHOWN ON THIS MAP ARE FOR INFORMATIONAL PURPOSES ONLY. DIMENSIONS SHOWN ON THIS MAP ARE NOT TO BE USED FOR CONSTRUCTION. DIMENSIONS SHOWN ON THIS MAP ARE FOR INFORMATIONAL PURPOSES ONLY. DIMENSIONS SHOWN ON THIS MAP ARE NOT TO BE USED FOR CONSTRUCTION. NOTES: 1. PROPOSED GRADING CONTOURS ARE NOT SHOWN FOR GRAPHICAL CLARITY. 2. (1) LOC LOCATIONS SHOWN SCHEMATICALLY. (2) LOC LOCATIONS SHOWN SCHEMATICALLY. (3) LOC LOCATIONS SHOWN SCHEMATICALLY. (4) LOC LOCATIONS SHOWN SCHEMATICALLY. (5) LOC LOCATIONS SHOWN SCHEMATICALLY. (6) LOC LOCATIONS SHOWN SCHEMATICALLY. (7) LOC LOCATIONS SHOWN SCHEMATICALLY. (8) LOC LOCATIONS SHOWN SCHEMATICALLY. (9) LOC LOCATIONS SHOWN SCHEMATICALLY. (10) LOC LOCATIONS SHOWN SCHEMATICALLY. (11) LOC LOCATIONS SHOWN SCHEMATICALLY. (12) LOC LOCATIONS SHOWN SCHEMATICALLY. (13) LOC LOCATIONS SHOWN SCHEMATICALLY. (14) LOC LOCATIONS SHOWN SCHEMATICALLY. (15) LOC LOCATIONS SHOWN SCHEMATICALLY. (16) LOC LOCATIONS SHOWN SCHEMATICALLY. (17) LOC LOCATIONS SHOWN SCHEMATICALLY. (18) LOC LOCATIONS SHOWN SCHEMATICALLY. (19) LOC LOCATIONS SHOWN SCHEMATICALLY. (20) LOC LOCATIONS SHOWN SCHEMATICALLY. (21) LOC LOCATIONS SHOWN SCHEMATICALLY. (22) LOC LOCATIONS SHOWN SCHEMATICALLY. (23) LOC LOCATIONS SHOWN SCHEMATICALLY. (24) LOC LOCATIONS SHOWN SCHEMATICALLY. (25) LOC LOCATIONS SHOWN SCHEMATICALLY. (26) LOC LOCATIONS SHOWN SCHEMATICALLY. (27) LOC LOCATIONS SHOWN SCHEMATICALLY. (28) LOC LOCATIONS SHOWN SCHEMATICALLY. (29) LOC LOCATIONS SHOWN SCHEMATICALLY. (30) LOC LOCATIONS SHOWN SCHEMATICALLY. (31) LOC LOCATIONS SHOWN SCHEMATICALLY. (32) LOC LOCATIONS SHOWN SCHEMATICALLY. (33) LOC LOCATIONS SHOWN SCHEMATICALLY. (34) LOC LOCATIONS SHOWN SCHEMATICALLY. (35) LOC LOCATIONS SHOWN SCHEMATICALLY. (36) LOC LOCATIONS SHOWN SCHEMATICALLY. (37) LOC LOCATIONS SHOWN SCHEMATICALLY. (38) LOC LOCATIONS SHOWN SCHEMATICALLY. (39) LOC LOCATIONS SHOWN SCHEMATICALLY. (40) LOC LOCATIONS SHOWN SCHEMATICALLY. (41) LOC LOCATIONS SHOWN SCHEMATICALLY. (42) LOC LOCATIONS SHOWN SCHEMATICALLY. (43) LOC LOCATIONS SHOWN SCHEMATICALLY. (44) LOC LOCATIONS SHOWN SCHEMATICALLY. (45) LOC LOCATIONS SHOWN SCHEMATICALLY. (46) LOC LOCATIONS SHOWN SCHEMATICALLY. (47) LOC LOCATIONS SHOWN SCHEMATICALLY. (48) LOC LOCATIONS SHOWN SCHEMATICALLY. (49) LOC LOCATIONS SHOWN SCHEMATICALLY. (50) LOC LOCATIONS SHOWN SCHEMATICALLY. (51) LOC LOCATIONS SHOWN SCHEMATICALLY. (52) LOC LOCATIONS SHOWN SCHEMATICALLY. (53) LOC LOCATIONS SHOWN SCHEMATICALLY. (54) LOC LOCATIONS SHOWN SCHEMATICALLY. (55) LOC LOCATIONS SHOWN SCHEMATICALLY. (56) LOC LOCATIONS SHOWN SCHEMATICALLY. (57) LOC LOCATIONS SHOWN SCHEMATICALLY. (58) LOC LOCATIONS SHOWN SCHEMATICALLY. (59) LOC LOCATIONS SHOWN SCHEMATICALLY. (60) LOC LOCATIONS SHOWN SCHEMATICALLY. (61) LOC LOCATIONS SHOWN SCHEMATICALLY. (62) LOC LOCATIONS SHOWN SCHEMATICALLY. (63) LOC LOCATIONS SHOWN SCHEMATICALLY. (64) LOC LOCATIONS SHOWN SCHEMATICALLY. (65) LOC LOCATIONS SHOWN SCHEMATICALLY. (66) LOC LOCATIONS SHOWN SCHEMATICALLY. (67) LOC LOCATIONS SHOWN SCHEMATICALLY. (68) LOC LOCATIONS SHOWN SCHEMATICALLY. (69) LOC LOCATIONS SHOWN SCHEMATICALLY. (70) LOC LOCATIONS SHOWN SCHEMATICALLY. (71) LOC LOCATIONS SHOWN SCHEMATICALLY. (72) LOC LOCATIONS SHOWN SCHEMATICALLY. (73) LOC LOCATIONS SHOWN SCHEMATICALLY. (74) LOC LOCATIONS SHOWN SCHEMATICALLY. (75) LOC LOCATIONS SHOWN SCHEMATICALLY. (76) LOC LOCATIONS SHOWN SCHEMATICALLY. (77) LOC LOCATIONS SHOWN SCHEMATICALLY. (78) LOC LOCATIONS SHOWN SCHEMATICALLY. (79) LOC LOCATIONS SHOWN SCHEMATICALLY. (80) LOC LOCATIONS SHOWN SCHEMATICALLY. (81) LOC LOCATIONS SHOWN SCHEMATICALLY. (82) LOC LOCATIONS SHOWN SCHEMATICALLY. (83) LOC LOCATIONS SHOWN SCHEMATICALLY. (84) LOC LOCATIONS SHOWN SCHEMATICALLY. (85) LOC LOCATIONS SHOWN SCHEMATICALLY. (86) LOC LOCATIONS SHOWN SCHEMATICALLY. (87) LOC LOCATIONS SHOWN SCHEMATICALLY. (88) LOC LOCATIONS SHOWN SCHEMATICALLY. (89) LOC LOCATIONS SHOWN SCHEMATICALLY. (90) LOC LOCATIONS SHOWN SCHEMATICALLY. (91) LOC LOCATIONS SHOWN SCHEMATICALLY. (92) LOC LOCATIONS SHOWN SCHEMATICALLY. (93) LOC LOCATIONS SHOWN SCHEMATICALLY. (94) LOC LOCATIONS SHOWN SCHEMATICALLY. (95) LOC LOCATIONS SHOWN SCHEMATICALLY. (96) LOC LOCATIONS SHOWN SCHEMATICALLY. (97) LOC LOCATIONS SHOWN SCHEMATICALLY. (98) LOC LOCATIONS SHOWN SCHEMATICALLY. (99) LOC LOCATIONS SHOWN SCHEMATICALLY. (100) LOC LOCATIONS SHOWN SCHEMATICALLY.
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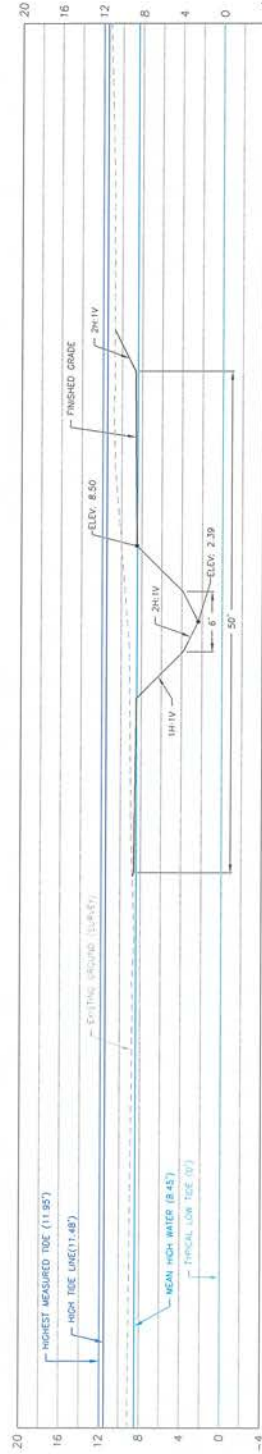
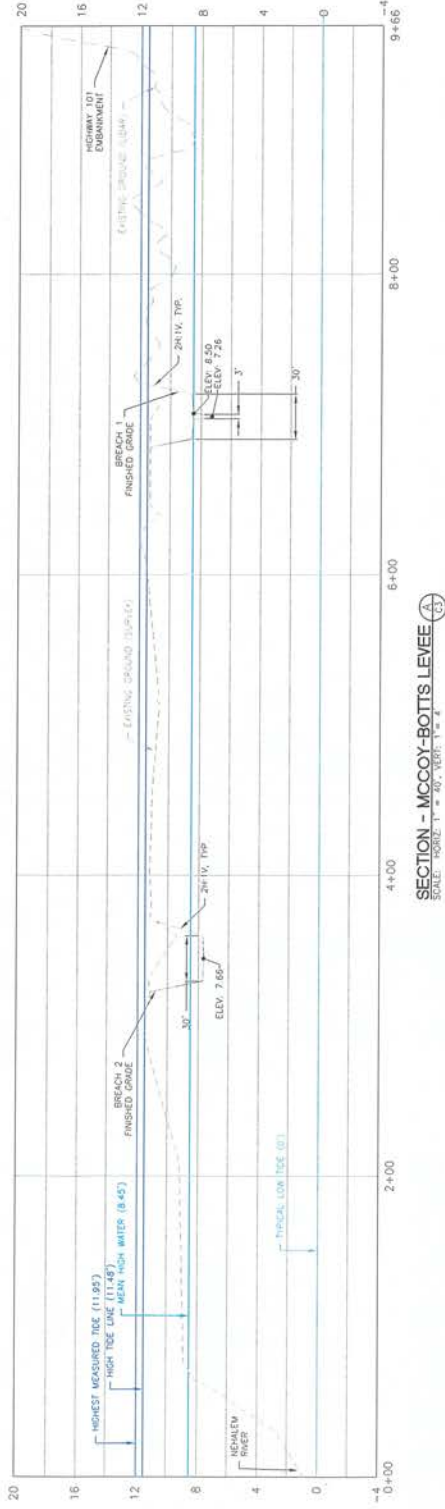
PREPARED AT THE REQUEST OF
LOWER NEHALEM
COMMUNITY TRUST

SECTIONS

MCCOY WETLAND
TIDAL RECONNECTION
PROJECT
60% DRAFT DESIGN
SUBMITTAL

DESIGNED BY: J.H./D.M.
CHECKED BY: J.H./D.M.
DATE: 10/30/2025
DRAWING NO.: 10-0000-01
BASE IS ONE COPY ON
ORIGINAL DRAWING.
ADDITIONAL COPIES FOR
REFERENCE ONLY.
0 REVISIONS

C5 **5** **10**
OF



SECTION - NEHALEM RIVER LEVEE (C6)
SCALE: 1" = 8'



TYPICAL SECTION - TIDAL CHANNEL (C8)
SCALE: 1" = 4'

TYPICAL SECTION - FLOODPLAIN HUMMOCK (C7)
SCALE: 1" = 4'



ITEM	DIMENSIONS	LENGTH	TOTAL COUNT
CHANNEL LOG	18"	15'	36
COURSE CRIB LOG	18-36"	20-40'	100
PILE LOGS	12"	15'	100



FIBER ROLL
SCALE: 1" = 1'

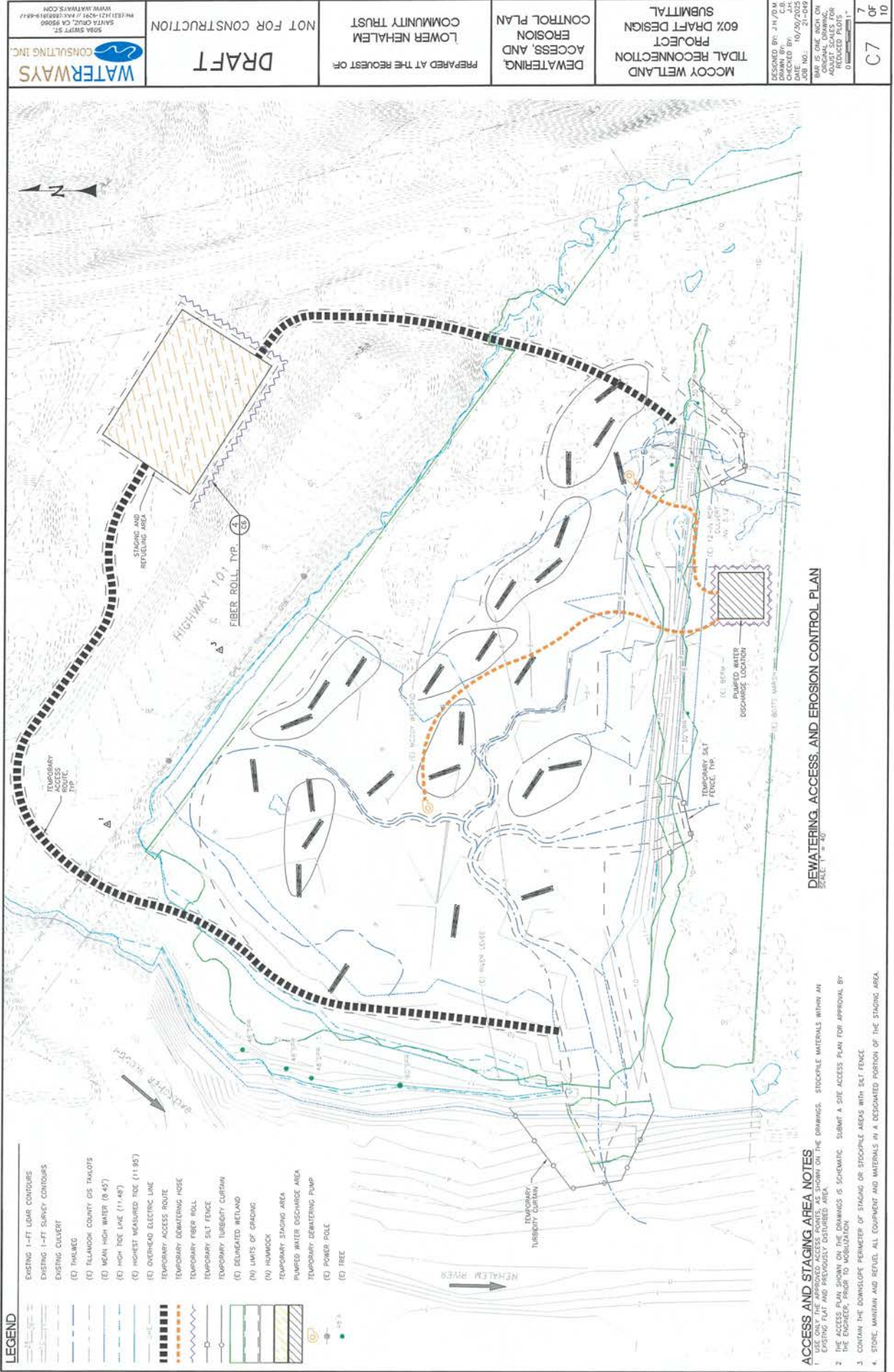


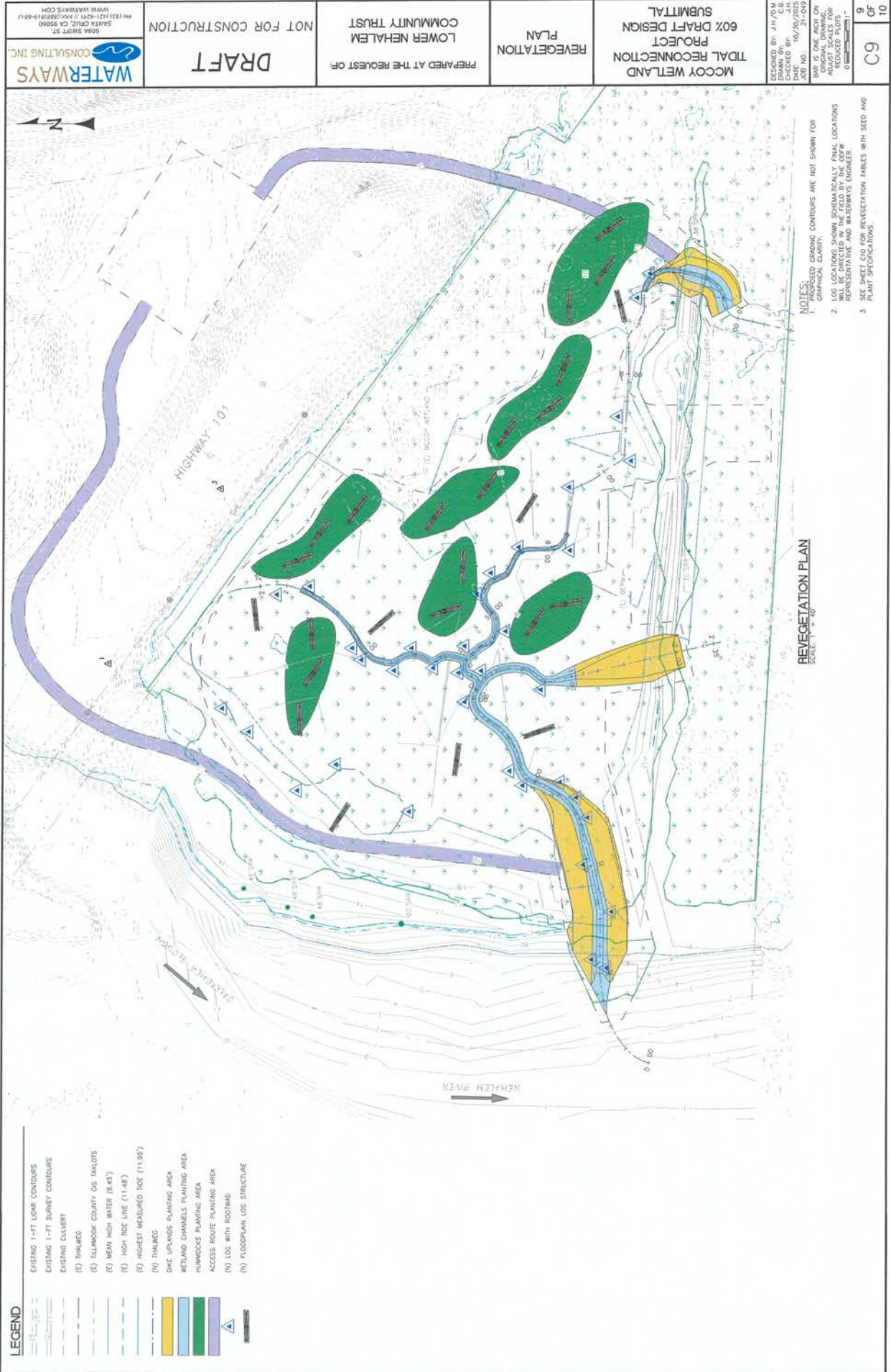
CHANNEL LOG PLAN VIEW
SCALE: 1" = 4'



PLANTING SECTION
SCALE: 1" = 2'
C61C6

NURSE CRIB LOG STRUCTURE DETAILS





PLANTING TABLE 1 – WETLAND CHANNELS (19,640 SQ FT)

HERBACEOUS (PLUGS – CLUSTERS OF 10, EACH CLUSTER SPACED 5' APART)				
SPECIES	COMMON NAME	SIZE	SPACING	PERCENT
CAREX KENYANA	DORRYS SEDGE	PLUG 6"	10'	10.00%
CAREX OBNUPTA	SLOUGH SEDGE	PLUG 6"	10'	10.00%
ELETCHARIA PALUSTRIS	CREeping SPINE-RUSH	PLUG 6"	10'	10.00%
JUNCUS BOGARDII	BOW-ANGER'S RUSH	PLUG 6"	10'	10.00%
SCORPIS MARITIMUS	SEAFOAST BULLRUSH	PLUG 6"	10'	10.00%
SCORPIS MICROCARPUS	SMALL-FLOWERED BULLRUSH	PLUG 6"	10'	10.00%

PLANTING TABLE 2 – HUMMOCKS (29,451 SQ FT)

TREES				
SPECIES	COMMON NAME	SIZE	NUMBER	SPACING
PICEA SITCHENSIS	SITKA SPRUCE	PLUGS	18	3' POLE CUTTING
SAUX PIPER	PIPER WILLOW	4" CUTTINGS	1289	4"
SHRUBS				
SPECIES	COMMON NAME	SIZE	NUMBER	SPACING
LONICERA INVOLUCRATA	BLACK THIMBERRY	1 GALLON	184	4"
ROSA PISCICARPA	SWAMP ROSE	1 GALLON	184	4"
SPIRAEA DOUGLASHI	DOUGLAS SPIRAEA	1 GALLON	184	4"
HERBACEOUS				
SPECIES	COMMON NAME	SIZE	NUMBER	SPACING
ACHILLEA MILEFOLIUM	COMMON YARROW	PLUGS	1787	6" IN CLUSTERS OF 6, EACH CLUSTER SPACED 5' APART
AGROSIS EXARATA	SPINE BENTGRASS	PLUGS	1787	6" IN CLUSTERS OF 6, EACH CLUSTER SPACED 5' APART
CAREX OBNUPTA	SLOUGH SEDGE	PLUGS	1787	6" IN CLUSTERS OF 6, EACH CLUSTER SPACED 5' APART
DESCHAMPSIA CESPIIOSA	TUFTED HAIRGRASS	PLUGS	1787	6" IN CLUSTERS OF 6, EACH CLUSTER SPACED 5' APART

PLANTING TABLE 3 – HUMMOCK AND CHANNEL GRADING AREA SEED (49,091 SQ FT)

HERBACEOUS (SEEDS 25 LBS / ACRE)				
SPECIES	COMMON NAME	SIZE	PERCENT	SPACING
ACHILLEA MILEFOLIUM	COMMON YARROW	SEED	10.00%	500
AGROSIS EXARATA	SPINE BENTGRASS	SEED	40.00%	377
CAREX OBNUPTA	SLOUGH SEDGE	SEED	10.00%	1000
DESCHAMPSIA CESPIIOSA	TUFTED HAIRGRASS	SEED	40.00%	377

PLANTING TABLE 4 – DIKE UPLAND SEED (67,458 SQ FT)

HERBACEOUS (SEEDS 25 LBS / ACRE)				
SPECIES	COMMON NAME	SIZE	PERCENT	SPACING
ACHILLEA MILEFOLIUM	COMMON YARROW	SEED	10.00%	500
AGROSIS EXARATA	SPINE BENTGRASS	SEED	40.00%	377
CAREX OBNUPTA	SLOUGH SEDGE	SEED	10.00%	1000
DESCHAMPSIA CESPIIOSA	TUFTED HAIRGRASS	SEED	40.00%	377

PLANTING TABLE 5 – DIKE UPLAND (67,458 SQ FT)

TREES				
SPECIES	COMMON NAME	SIZE	SPACING	PERCENT
ALNUS RUBRA	RED ALDER	2 GALLON	50	8'
PICEA SITCHENSIS	SITKA SPRUCE	2 GALLON	50	8'
SAUX PIPER	PIPER WILLOW	4" POLE CUTTING	2,000	4'
TRILIA PULCATA	WESTERN RED CEDAR	2 GALLON	50	8'
SHRUBS				
SPECIES	COMMON NAME	SIZE	SPACING	PERCENT
CONUS STOLONIFERA	RED OSER DOGWOOD	1 GALLON	413	4'
GAULThERIA SHALLO	SALAL	1 GALLON	413	4'
LONICERA INVOLUCRATA	BLACK THIMBERRY	1 GALLON	413	4'
ROSA PISCICARPA	SWAMP ROSE	1 GALLON	413	4'
SYMPHORICARPOS ALBUS	SNOWBERRY	1 GALLON	414	4'
HERBACEOUS (PLUGS – CLUSTERS OF 5 EACH SPACED 6" APART IN CLUSTER CLUSTERS SPACED 10' APART)				
SPECIES	COMMON NAME	SIZE	SPACING	PERCENT
FRAGARIA VESCA	WOOD'S STRAWBERRY	PLUG	675	20.00%
GEUM MACROPHYLLUM	LARGE-LEAVED AVENS	PLUG	675	20.00%
LUPINUS POLYPHYLLUS	LARGE-LEAVED LUPINE	PLUG	675	20.00%
TELLIMA GRANDIFLORA	FRINCECUP	PLUG	675	20.00%
TOLMIEA MENZIESI	PUGGY-BACK PLANT	PLUG	675	20.00%

PLANTING TABLE 6 – ACCESS AREA UPLANDS SEED (16,897 SQ FT)

HERBACEOUS (SEEDS 25 LBS / ACRE)				
SPECIES	COMMON NAME	SIZE	PERCENT	SPACING
ACHILLEA MILEFOLIUM	COMMON YARROW	SEED	10.00%	500
AGROSIS EXARATA	SPINE BENTGRASS	SEED	40.00%	377
DESCHAMPSIA CESPIIOSA	TUFTED HAIRGRASS	SEED	40.00%	377
LUPINUS POLYPHYLLUS	LARGE LEAVED LUPINE	SEED	10.00%	1000

PLANTING TABLE 7 – ACCESS AREA WETLANDS SEED (925 SQ FT)

HERBACEOUS (SEEDS 40 LBS / ACRE)				
SPECIES	COMMON NAME	SIZE	PERCENT	SPACING
ACHILLEA MILEFOLIUM	COMMON YARROW	SEED	10.00%	500
AGROSIS EXARATA	SPINE BENTGRASS	SEED	40.00%	377
CAREX OBNUPTA	SLOUGH SEDGE	SEED	10.00%	1000
DESCHAMPSIA CESPIIOSA	TUFTED HAIRGRASS	SEED	40.00%	377
SCORPIS MICROCARPUS	SMALL FRUITED BULLRUSH	SEED	10.00%	1000

PLANTING TABLE 8 – UPLAND ACCESS (16,897 SQ FT)

TREES				
SPECIES	COMMON NAME	SIZE	SPACING	PERCENT
SAUX PIPER	PIPER WILLOW	3" POLE CUTTING	500	3'
SHRUBS				
SPECIES	COMMON NAME	SIZE	SPACING	PERCENT
CONUS STOLONIFERA	RED OSER DOGWOOD	3" POLE CUTTING	377	3'
SAUX SITCHENSIS	SITKA WILLOW	3" POLE CUTTING	1000	3'

PLANTING TABLE 9 – UPLAND ACCESS (925 SQ FT)

TREES				
SPECIES	COMMON NAME	SIZE	SPACING	PERCENT
PIPER WILLOW	PIPER WILLOW	3" POLE CUTTING	103	3'



McCoy Slough Vegetation Enhancement Plan Revision 6/26/25

Site Narrative:

The McCoy Slough project is located along Highway 101 south of Nahalem, between the intersection of Hwy 101 and Necanicum Hwy and Botts Marsh. The project is an enclosed wetland, almost entirely cut off by a dike from the bordering Nahalem River.

Botanically, the wetlands is quite healthy, containing a dense population of sedges, rushes, and grasses. If connected to the river, the current botanical conditions would support plenty of fish habitat. The buffer zones, elevations above ordinary high water, are for the most part healthy, except for a few large patches of *Rubus armeniacus* (Himalayan blackberry), which is on the wetland side of the dike, and sporadic *Polygonum ssp.* (Knotweed), which is on the river side of the dike. It is noted that although there is quite a bit of knotweed which has washed up in neighboring Botts Marsh, none of it has survived the frequent inundation with brackish waters.

Purpose/Goals:

Waterways Consulting, Inc. has been hired to design a project which reconnects McCoy Slough with the Nahalem River. This plan will include breaching the dike along both the Nahalem River and Botts Marsh, excavating channels in the wetlands, and installing hummocks with woody debris in the wetlands. The purpose of this plan is to provide guidelines for revegetation following construction and invasive species removal throughout the project. It is intended as complementary material with the designs produced by Waterways Consulting, Inc.

Restoration Plan:

There are four primary areas of restoration on the site: Wetland Channels, Hummocks, Diked Uplands, and Access Routes. The Diked Upland zone is the only one which faces major invasive species pressure from *Rubus armeniacus* (Himalayan Blackberry) and *Polygonum ssp.* (Knotweed), which will need to be treated prior to any construction to reduce the chance of re-spread. However, anytime there is ground disturbance, there is a chance of new invasive species



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Ash Creek Forest Management, LLC is a B-Corp/Oregon benefit company,
Salmon Safe practitioner and proud member of The Intertwine Alliance.



introduction by nearby seed sources or existing buried seed sources. This plan anticipates some degree of vegetation management will need to occur in these healthy areas. The Access Routes, run through each of the zones, but are relegated to a small portion of the site. These should be treated as areas that separate planting areas but then included into the relative elevation zone during maintenance.

Wetland Channels:

No site preparation is recommended for the Wetland Channels. After construction is complete, plug planting (see Plant Table 1) should immediately take place to prevent any invasive species from moving into the disturbed ground. This planting will also assist with limiting erosion.

For the first three years following planting, seasonal maintenance should take place. This includes spring and fall herbicide treatments on any invasive species, summer hand pulling treatments, and winter interplanting.

Hummocks:

No site preparation is recommended for the Hummocks. As soon as these are constructed, planting (see Plant Table 2) and seeding (see Plant Table 3) should immediately take place to prevent invasive species from moving into the disturbed ground. This will also assist with limiting erosion. Due to the high potential of inundation, seeding in this zone should primarily be focused on the apex of the hummocks.

For the first three years following planting, seasonal maintenance should take place. This includes spring and fall herbicide treatments on any invasive species, summer hand pulling treatments, and winter interplanting. This zone has a higher risk of invasive species pressure than the Wetland Channels zone. Additional treatments should be added for species that require off season treatments.

Dike Uplands

Due to the existence of knotweed in the Dike Upland zones, knotweed treatment must take place prior to any construction on site. Inject aquatic glyphosate concentrate into each stem of knotweed using a stem injector. Mash knotweed without severing stem a day after injection to trigger a stress response. For knotweed that is too small for injection, gently mash without severing stem and foliar spray with 4% aquatic glyphosate, 1% non-ionic surfactant. Due to the high density of native plants surrounding the knotweed and the upcoming ground disturbance, it is not recommended to use imazapyr, which is commonly used in knotweed treatments. It is also recommended that Himalayan Blackberry is to be treated prior to construction to reduce a potential invasive seed source. To treat, cut blackberry to 6 inches and then spray with 2% aquatic triclopyr, 2% aquatic glyphosate, and 1% non-ionic surfactant after it regrows to 1 foot. Respray prior to planting.

Immediately after construction, seed (see Plant Table 4) and plant site (see Plant Table 5). Planting and seeding should only take place in areas of disturbed soil or in areas where invasive species removal has taken place.

For the first three years following planting, seasonal maintenance should take place. This includes spring and fall herbicide treatments on any invasive species, summer knotweed stem injection or mash and spray treatments, and winter interplanting. This zone has the highest risk of invasive species pressure. Adaptive management must take place to ensure no disturbed area is recolonized by invasives.

Access Routes

These access routes will be created to allow machinery to conduct the hummock construction and breaches in the dike. These areas should be treated as new construction zones, and planted in high density to return them to their pre-construction quality. Immediately after construction, seed uplands (see Plant Table 6) and wetlands (see Plant Table 7) at 40lbs per acre. Replant uplands (see Plant Table 8) and wetlands (see Plant Table 9) at high density. Planting and seeding should only take place in areas of disturbed soil or in areas where invasive species removal has taken place.

For the first three years following planting, seasonal maintenance should take place. This includes spring and fall herbicide treatments on any invasive species, summer knotweed stem injection or mash and spray treatments, and winter interplanting. This zone has the highest risk of invasive species pressure. Adaptive management must take place to ensure no disturbed area is recolonized by invasives.

Plant Tables:

Plant Table 1 – Wetland Channels (19,640 sq ft)

Herbaceous (Plugs - Clusters of 10, each cluster spaced 5' apart)			
Species	Common Name	Size	Spacing
<i>Carex deweyana</i>	Dewey's sedge	plug	6"
<i>Carex obnupta</i>	Slough sedge	plug	6"
<i>Eleocharis palustris</i>	Creeping spike-rush	plug	6"
<i>Juncus bolanderi</i>	Bolander's rush	plug	6"
<i>Scirpus maritimus</i>	Seacoast bulrush	plug	6"
<i>Scirpus microcarpus</i>	Small-flowered bulrush	plug	6"

Plant Table 2 – Hummocks (29,451 sq ft)

Trees				
Species	Common Name	Size	Number	Spacing

<i>Picea sitchensis</i>	Sitka spruce	Plugs	18	3 per hummock log structure planted into logs
<i>Salix piperi</i>	Piper Willow	4' cuttings	1289	4'
Shrubs				
Species	Common Name	Size	Number	Spacing
<i>Lonicera involucrata</i>	Black twinberry	1 gallon	184	4'
<i>Rosa pisocarpa</i>	Swamp rose	1 gallon	184	4'
<i>Spiraea douglasii</i>	Douglas spiraea	1 gallon	184	4'
Herbaceous				
Species	Common Name	Size	Number	Spacing
<i>Achillea millefolium</i>	Common yarrow	Plugs	1767	6" in clusters of 6, each cluster spaced 5' apart
<i>Agrostis exarata</i>	Spike bentgrass	Plugs	1767	6" in clusters of 6, each cluster spaced 5' apart
<i>Carex obnupta</i>	Slough sedge	Plugs	1767	6" in clusters of 6, each cluster spaced 5' apart
<i>Deschampsia cespitosa</i>	Tufted hairgrass	Plugs	1767	6" in clusters of 6, each cluster spaced 5' apart

Plant Table 3 – Hummock & Channel Grading Area Seed (49,091 sq ft)

Herbaceous (Seeded 25 lbs / acre)			
Species	Common Name	Size	Percent
<i>Achillea millefolium</i>	Common yarrow	seed	10.00%
<i>Agrostis exarata</i>	Spike bentgrass	seed	40.00%
<i>Carex obnupta</i>	Slough sedge	seed	10.00%
<i>Deschampsia cespitosa</i>	Tufted hairgrass	seed	40.00%

Plant Table 4 – Dike Upland Seed (67,458 sq ft)

Herbaceous (Seeded 25 lbs / acre)			
Species	Common Name	Size	Percent
<i>Achillea millefolium</i>	Common yarrow	seed	20.00%
<i>Agrostis exarata</i>	Spike bentgrass	seed	40.00%
<i>Deschampsia cespitosa</i>	Tufted hairgrass	seed	40.00%

Plant Table 5 – Dike Upland (67,458 sq ft)

Trees				
Species	Common Name	Size		Spacing
<i>Alnus rubra</i>	Red alder	2 gallon	50	8'
<i>Picea sitchensis</i>	Sitka spruce	2 gallon	50	8'
<i>Salix piperi</i>	Piper willow	4' pole cutting	2,000	4'
<i>Thuja plicata</i>	Western red cedar	2 gallon	50	8'
Shrubs				
Species	Common Name	Size		Spacing
<i>Conus stolonifera</i>	Red osier dogwood	1 gallon	413	4'
<i>Gaultheria shallon</i>	Salal	1 gallon	413	4'
<i>Lonicera involucrata</i>	Black twinberry	1 gallon	413	4'
<i>Rosa pisocarpa</i>	Swamp rose	1 gallon	413	4'
<i>Symphoricarpos albus</i>	Snowberry	1 gallon	414	4'
Herbaceous (Plugs - Clusters of 5 each spaced 6" apart in cluster. Clusters spaced 10' apart)				
Species	Common Name	Size		Percent
<i>Fragaria vesca</i>	Wood's Strawberry	plug	675	20.00%
<i>Geum macrophyllum</i>	Large-leaved avens	plug	675	20.00%
<i>Lupinus polyphyllus</i>	Large-leaved lupine	plug	675	20.00%
<i>Tellima grandiflora</i>	Fringecup	plug	675	20.00%
<i>Tolmiea menziesii</i>	Piggy-back plant	plug	675	20.00%

Plant Table 6 – Access Area Uplands Seed (16,897 sq ft)

Herbaceous (Seeded 25 lbs / acre)			
Species	Common Name	Size	Percent
<i>Achillea millefolium</i>	Common yarrow	seed	10.00%
<i>Agrostis exarata</i>	Spike bentgrass	seed	40.00%
<i>Deschampsia cespitosa</i>	Tufted hairgrass	seed	40.00%
<i>Lupinus polyphyllus</i>	Large leaved lupine	Seed	10.00%

Plant Table 7 – Access Area Wetlands Seed (925sq ft)

Herbaceous (Seeded 40 lbs / acre)			
Species	Common Name	Size	Percent

<i>Achillea millefolium</i>	Common yarrow	seed	10.00%
<i>Agrostis exarata</i>	Spike bentgrass	seed	30.00%
<i>Carex obnupta</i>	Slough sedge	seed	10.00%
<i>Deschampsia cespitosa</i>	Tufted hairgrass	seed	40.00%
<i>Scirpus microcarpus</i>	Small fruited bullrush	Seed	10.00%

Plant Table 8 – Upland Access (16,897 sq ft)

Trees				
Species	Common Name	Size		Spacing
<i>Salix piperi</i>	Piper willow	3' pole cutting	500	3'
Shrubs				
Species	Common Name	Size		Spacing
<i>Conus stolonifera</i>	Red osier dogwood	3' pole cutting	377	3'
<i>Salix sitchensis</i>	Sitka willow	3' pole cutting	1000	3'

Plant Table 9 – Upland Access (925 sq ft)

Trees				
Species	Common Name	Size		Spacing
<i>Salix piperi</i>	Piper willow	3' pole cutting	103	3'

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM Attachment 3

A complete report and signed report cover form, along with [applicable review fee](#), are required before a report review timeline can be initiated by the Department of State Lands. All applicants will receive an emailed confirmation that includes the report's unique file number and other information.

Ways to submit report:

- ❖ **Under 50MB** - A single unlocked PDF can be emailed to: wetland.delineation@dsl.oregon.gov.
- ❖ **50MB or larger** - A single unlocked PDF can be uploaded to [DSL's Box.com](#) website. After upload notify DSL by email at: wetland.delineation@dsl.oregon.gov.
- ❖ **OR** a hard copy of the unbound report and signed cover form can be mailed to: Oregon Department of State Lands, 775 Summer Street NE, Suite 100, Salem, OR 97301-1279.

Ways to pay review fee:

- ❖ By credit card on [DSL's epayment portal](#) after receiving the unique file number from DSL's emailed confirmation.
- ❖ By check payable to the Oregon Department of State Lands attached to the unbound mailed hardcopy **OR** attached to the complete signed cover form if report submitted electronically.

Contact and Authorization Information			
☒ Applicant ☐ Owner Name, Firm and Address: Emily Akdedian, Lower Nehalem Community Trust 532 Landeda Ave, Suite C Manzanita, OR 97130		Business phone # (503) 368-3203 Mobile phone # (optional) E-mail: emilyakdedian@nehalemtrust.org	
☐ Authorized Legal Agent, Name and Address (if different):		Business phone # Mobile phone # (optional) E-mail:	
I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.			
Typed/Printed Name: <u>Emily Akdedian</u>		Signature:	
Date: <u>09/15/2025</u>		Special instructions regarding site access: <u>Prior notification to LNCT</u>	
Project and Site Information			
Project Name: McCoy Marsh Tidal Reconnection Project		Latitude: 45.699588N Longitude: 123.878950W decimal degree - centroid of site or start & end points of linear project	
Proposed Use: Habitat Restoration/Tidal Reconnection		Tax Map # 3N 10 35 Tax Lot(s) 200 Tax Map # _____ Tax Lot(s) _____	
Project Street Address (or other descriptive location): Intersection of HWY 53 and HWY 101, South of HWY 101		Township 3N Range 10W Section 35 QQ Use separate sheet for additional tax and location information	
City: Wheeler County: Tillamook		Waterway: Nehalem River River Mile: NA	
Wetland Delineation Information			
Wetland Consultant Name, Firm and Address: Tammy Stout, Cascade Environmental Group, LLC 2800 N Lombard Ave, # 803, Portland OR 97217		Phone # (971) 400-6335 Mobile phone # (if applicable) E-mail: tstout@cascadeenv.com	
The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge.			
Consultant Signature:		Date: <u>08/28/2025</u>	
Primary Contact for report review and site access is ☒ Consultant ☐ Applicant/Owner ☐ Authorized Agent			
Wetland/Waters Present? ☒ Yes ☐ No		Study Area size: 8.64 ac Total Wetland Acreage: 7.1200	
Check Applicable Boxes Below			
☐ R-F permit application submitted		☐ Fee payment submitted \$ _____	
☐ Mitigation bank site		☐ Resubmittal of rejected report (\$100)	
☐ EFSC/ODOE Proj. Mgr: _____		☐ Request for Reissuance. See eligibility criteria. (no fee)	
☒ Wetland restoration/enhancement project (not mitigation)		DSL # _____ Expiration date _____	
☐ Previous delineation/application on parcel If known, previous DSL # _____		☐ LWI shows wetlands or waters on parcel Wetland ID code _____	
For Office Use Only			
DSL Reviewer: _____		Fee Paid Date: ____ / ____ / ____	
Date Delineation Received: ____ / ____ / ____		DSL WD # _____	
		DSL App.# _____	

McCoy Marsh Tidal Reconnection Project – Wetlands and Other Waters Delineation



Prepared for:

Prepared by:

Cascade Environmental Group, LLC
2800 N Lombard St, #803
Portland, OR 97217
Contact: Tammy Stout



August 2025

Cascade Environmental Group, LLC. McCoy Wetland Tidal Reconnection Project –
Wetlands and Other Waters Delineation Report. August 2025. Portland, OR. Prepared for Lower
Nehalem Community Trust.

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Acronyms and Abbreviations

Corps	U.S. Army Corps of Engineers
DSL	Department of State Lands
E1UBL	estuarine, subtidal, unconsolidated bottom, subtidal
E2EM	estuarine, intertidal, emergent
E2EM1P	estuarine, intertidal, emergent, persistent, irregularly flooded
EPA	Environmental Protection Agency
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
GPS	global positioning system
HMT	Highest Measured Tide
LWI	Local Wetland Inventory
NAVD88	North American Vertical Datum of 1988
NOAA	National Oceanic and Atmospheric Administration
NOL	not on list
NRCS	National Resource Conservation Service
NWI	National Wetland Inventory
OAR	Oregon Administrative Rules
OBL	obligate
PEM1Ch	palustrine emergent, persistent, seasonally flooded, diked/impounded
PFO	palustrine forested
PSS	palustrine scrub-shrub
PSS1R	palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded-tidal
SWI	State Wetland Inventory
UPL	upland
USDA	U.S. Department of Agriculture
USGS	United States Geological Survey
USFWS	United States Fish and Wildlife Service

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A. Landscape Setting and Land Use

This report has been prepared to provide an assessment of the location and extent of existing wetlands and other waters within the McCoy Wetland Tidal Reconnection Project (Project) site to support the permitting of this voluntary habitat restoration project.

Introduction

The Lower Nehalem Community Trust has proposed a restoration project to restore habitat in tidal and freshwater wetlands by improving connectivity between wetland areas and the tidal reach of the Nehalem River. The Project site includes the Nehalem River levee, the McCoy-Botts Levee that has failed but still impedes surface water movement from tides and high river flows, and the protected wetland known as McCoy Marsh. Project objectives include improving hydraulic connectivity and habitat by breaching the Nehalem River levee, the McCoy-Botts Levee in multiple locations, spoiling materials on site, and installing native vegetation. The Project is located on the Nehalem River, immediately downstream of Highway 101. The study area property is zoned Estuary Natural, located in Tillamook County, Oregon; see Figure 1 in Appendix A. Project activities are regulated under the Clean Water Act by the U.S. Army Corps of Engineers (Corps) and under the Removal-Fill Law by the Oregon Department of State Lands (DSL).

Site Description and Land Use

The Wetlands and Waters Delineation Study Area (Study Area) contains all areas where Project-related disturbance is proposed, including staging, access, excavation, filling, and placement of habitat features. The Study Area consists of 8.64 acres comprising one parcel (200) and Oregon Coast Highway 101 (map numbers 3N 10 35) (Figure 2). The Study Area is located south of Highway 101, along the Nehalem River, and can be accessed from the highway using an unmarked pullout. The Project falls within Township 3N, Range 10 W, Section 35.

The Study Area falls entirely within the Nehalem Bay watershed (12-digit Hydrologic Unit Code # 171002020605) and is situated within the Coast Range Environmental Protection Agency (EPA) Level III ecoregion, which falls within the Marine West Coast Forest EPA Level II ecoregion (Thorson et al. 2003). The Coast Range has high topographic variability and lies within 100 kilometers of the Pacific Ocean. The climate is maritime with substantial rainfall. Temperatures are generally mild. The Coast Range is mostly forested, supporting Sitka spruce (*Picea sitchensis*, FAC), western redcedar (*Thuja plicata*, FAC), and Douglas-fir (*Pseudotsuga menziesii*, FACU).

The McCoy Marsh wetland is located on the east side of Nehalem Bay, just upstream of the community of Wheeler, Oregon. The property was disconnected from tidal influence by the construction of the Nehalem Levee and the McCoy-Botts Levee. The Nehalem Levee is mostly intact but the McCoy-Botts Levee has been abandoned and since eroded.

McCoy Marsh is adjacent to [Botts Marsh](#), a 35-acre larger and tidally connected wetland considered to be a highly valuable high marsh environment containing a well-developed tidal channel network. Bott's Marsh is a conserved salt marsh once designated for development. McCoy Marsh is separated from Bott's Marsh by portion of the constructed levee, which is now degraded and densely vegetated including several very large spruce trees. Tidal water enters McCoy Marsh by overtopping the McCoy-Botts Levee, filling the McCoy wetland or backwatering through the concrete culvert, and then subsequently draining through a culvert back through Bott's marsh. A 12-inch concrete culvert under an eroded part of the levee separating McCoy and Bott's marshes allows some minor tidal exchange at tides above 8 feet elevation but appears to be partially plugged or collapsed. Tidal inundation likely occurs only during very high tides above 10 feet (typically king tides).

Although the property has been isolated from regular tidal influence for at least 80 years by constructed levees, it has retained much of its historic microtopography and wetland character. The ground surface in McCoy Marsh, other than on the levees, is comparable to elevations in the northern extent of Bott's Marsh suggesting the possibility of restoring "high marsh" habitat with similar conditions as in Bott's Marsh. The site is used as open space and habitat preservation. McCoy Marsh (and Botts Marsh) was purchased by the Lower Nehalem Community Trust for the purpose of preservation and restoration.

B. Site Alterations

Site alterations include the Nehalem River Levee, the failed McCoy-Botts Levee, Highway 101 and an Oregon Department of Transportation (ODOT) maintenance parking area on the north side of Highway 101. The McCoy-Botts Levee has eroded and developed vegetation over time and includes the 12-inch concrete culvert that allows flows into and out of the protected area. No other significant alterations to soils and hydrology were found onsite, and evidence of vegetation management was observed.

Aerial imagery was inspected for the effects of these changes (Appendix D); site alterations are described below.

- 1945: Both Nehalem River Levee and the McCoy-Botts Levee are visible, and appear to be intact and fully functional. A road is evident on the Nehalem Levee. A well-developed

tidal channel network is evident in Botts Marsh to the south, no channels are evident in the McCoy Marsh. It is not clear if tidal channels were filled but it is likely. An impoundment of some type also bisects Botts Marsh to the south.

- 1950: Log boom floats are set up along the Nehalem River along the Nehalem Levee. Logs appear to be being removed from Botts Marsh, south of the McCoy-Botts Levee.
- 1960: Tidal channels are starting to reappear in McCoy Marsh and some land disturbance (clearing or log pond?) evident along the McCoy-Botts Levee, and to the south into Botts Marsh.
- 1965: the Nehalem Levee and McCoy-Botts Levees are both overgrown with trees and log storage along the river and in Botts Marsh is less evident. Faint fence lines may be due to grazing in McCoy Marsh.
- 1986: Tidal channel into Botts Marsh appear to have reclaimed drainage patterns and are well developed with impoundments, no log booms or log storage visible. McCoy Marsh is more vegetated and developing tidal channels.

C. Precipitation Data and Analysis

Precipitation data for, and prior to, the date of fieldwork were reviewed to evaluate observed wetland hydrology conditions relative to statistically normal precipitation. Precipitation that deviates from normal ranges can affect site conditions and impact observed wetland hydrology indicators.

Precipitation data were acquired from AgACIS for Tillamook County (FIPS 41057), Oregon and the USACE Antecedent Precipitation Tool to provide context for observed hydrological conditions of the Study Area at the time of the site visit. Table 1 provides precipitation data for the dates of the site visits, precipitation for the 2 weeks prior to each site visit, and a comparison to the normal water year average. A water year is defined as the 12-month period beginning October 1 and ending September 30 of the following year. Climate data are included in Appendix D.

Table 1. Precipitation Summary for Recent Period Preceding Site Visits

Observed Precipitation ^a					
Date of Site Visit	Date of Visit (inches)	Two Weeks to Date (inches)	Water Year to Date (inches)	Normal Water Year to Date (inches)	Percent of Normal Water Year to Date
11/26/2024	0.00	10.30	22.75	17.38	131%
01/10/2025	0.27	6.63	40.21	35.77	112%

^a Data provided by the National Oceanic and Atmospheric Administration's AgACIS Tillamook County (FIPS 41057), Oregon station.

Table 2 provides monthly precipitation totals for the 90-day period preceding each site visit along with the normal monthly ranges of precipitation representing 70% probability, as reported in the Natural Resource Conservation Service (NRCS) WETS table for the area using National Oceanic and Atmospheric Administration (NOAA) weather and climate data. WETS tables were developed specifically for application to wetland science and provide data obtained from NOAA National Weather Service climate stations for the purpose of defining a normal range for monthly precipitation and growing seasons (NRCS 2022).

Table 2. Precipitation Summary for Three Months Preceding Site Visit

30 days ending on	Month Weight	Total Precipitation (inches) ^a	WETS Normal Range of Precipitation ^a	Condition Value ^b	Condition Score (month weight x condition value)
11/26/2024	3	21.09	11.28-19.53	3	9
10/27/2024	2	4.49	5.40-9.08	1	2
09/27/2024	1	1.39	1.47-3.65	1	1
					Sum: 12 (normal) ^c
01/10/2025	3	22.72	14.03-20.04	3	9
12/11/2024	2	15.29	11.87-20.50	2	4
11/11/2024	1	11.29	6.46-14.20	2	2
					Sum: 15 (wet) ^c

^a Data provided by the Antecedent Precipitation Tool; ^b 1=dry, 2=normal, 3=wet; ^c a condition score of 6-9=drier than normal, 10-14=normal, and 15-18=wetter than normal

Each month is weighted according to its temporal relationship to the date of fieldwork (assuming the more recent the time period, the greater the influence the precipitation conditions exert on the date of fieldwork), as well as a condition value based on the level of

precipitation observed relative to normal (as indicated by the WETS range). The weighted month value and condition values are multiplied to produce a condition score, which is summed to produce a single value representative of the overall hydrological condition leading up to the date of fieldwork. The results are shown in Table 2 for date when the site visit was performed.

Precipitation in September and October was drier than average, and precipitation in November was higher than the WETS normal range, yielding an overall condition score of 12 (normal).

Overall, based on these measures and assessment of the water year to date, the site was likely at normal conditions, and assessments of hydrology or indicators of hydrology could be considered reliable.

D. Methods

This section describes the methods used to determine the extent of wetlands and waters within the Study Area. As part of the methodology, both office and onsite methods were used.

Office Methods

Prior to conducting fieldwork, biologists reviewed the following available data and information:

- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI)
- Aerial photos: Google Earth, Oregon Statewide Inventory Program – Oregon Imagery Framework Representation Team and U.S. Geological Survey (USGS) Earth Explorer imagery
- U.S. Department of Agriculture (USDA) and NRCS Web Soil Survey Tillamook County Area, Oregon
- Tillamook County Tax Maps (Figure 2)

National, Statewide, Local Wetlands Inventory

NWI data show a PEM1Ch (palustrine emergent, persistent, seasonally flooded, diked/impounded) polygon occupying the emergent wetland portion of the study area, and a PSS1R (palustrine scrub-shrub, broad-leafed deciduous, seasonally flooded-tidal) polygon extending east-west near the southern boundary of the study area (USFWS 2024). Uplands are shown paralleling Highway 101 and in the general north-south dike alignment location that parallels the Nehalem River. Outboard of the dike, the Nehalem River is shown as EIUBL (estuarine, subtidal, unconsolidated bottom, subtidal) polygon, and an E2EM1P (estuarine,

intertidal, emergent, persistent, irregularly flooded) polygon is shown between the north-south dike and the river.

A State Wetland Inventory (SWI) hydric soil polygon is mapped throughout the study area and across Highway 101, where the highway is constructed on an embankment much higher than the surrounding ground.

No Local Wetland Inventory (LWI) data were available for the Study Area or surrounding areas. Figure 3a shows NWI data, and Figure 3b shows SWI data.

USDA/NRCS County Soil Resource Inventory

Web Soil Survey data produced by the NRCS were obtained for the Study Area to assess soil conditions onsite (NRCS 2024); soil data are shown in Figure 4.

Soil Unit 2A: Fluvaquents-Histosols complex, 0-1% slopes

This hydric soil occurs in swamps and tidal marshes and is formed from estuarine deposits. It is very poorly drained and floods frequently. In the Study Area, it makes up the majority of the site. This soil is very slightly to moderately saline and supports Sitka spruce forest and emergent wetlands.

Soil Unit 29E: Templeton-Kloutchie complex, 30-60% slopes

This nonhydric soil occurs on mountain ridgetops and slopes in the Coast Range of Oregon. It is deep to very deep and well drained. Commercial uses are primarily timber and recreation.

Soil Unit 102A: Fluvaquents-Histosols complex, 0-1% slopes, diked

This hydric soil occurs in swamps and tidal marshes and is formed from estuarine deposits. It is very poorly drained and would flood frequently if not for dike protections. In the Study Area, it makes up the northern portion of the site where Highway 101 functions as a dike. This soil is very slightly to moderately saline and supports Sitka spruce forest and emergent wetlands.

Site-Specific Methods

The site was delineated according to methodology described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (Corps 2010), the 1987 Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987), and Oregon Administrative Rules (OAR) 141-090 et seq.

Fieldwork was performed on November 25, 2024, by Cascade wetland biologists Brent Haddaway and Tammy Stout, and again on January 10, 2025, by Brent Haddaway. The Study Area was easily located in the field using visual markers including the dike, Nehalem River, and

Highway 101 and project boundary files loaded into a handheld Trimble Geo7X global positioning system (GPS) unit.

Wetlands were determined based on the presence or absence of wetland indicators. Formal sample plots were established to determine where the wetland boundary occurs. Soil colors were evaluated using a Munsell soil color chart (Gretag Macbeth 2000). Plant indicator statuses were determined using the 2020 National Wetland Plant List (Corps 2020). The location data for boundaries and plots were collected using GPS.

Paired plots were placed in non-wetlands (uplands and non-wetland areas below Highest Measured Tide [HMT]) and wetlands to identify the boundary of wetlands. The presence of vegetation was used to determine the boundary between tidal wetlands and tidal waters (Nehalem River).

For other regulated tidal waters, tidal waters extent was mapped using available LiDAR data and elevations recorded at the tidal gage in Nehalem, Oregon (NRCS Gage 9437908). Ground-level color photographs were also taken throughout the site to convey study area conditions (Appendix C).

E. Description of All Wetlands and Other Non-Wetland Waters

Two wetlands totaling 7.12 acres were identified in the study area, which includes both estuarine and palustrine plant communities. Estuarine conditions exist across all of Wetland 2, and most of the emergent portion of Wetland 1. Palustrine communities occur at higher elevations in Wetland 1 before transitioning to uplands. A tidal segment of the Nehalem River (0.01 acres of open water tidal area) flows along the western portion of the study area. Figure 5 shows an aerial photo of the site; Figure 6a provides wetlands and waters results, including HMT elevations; and Figure 6b shows wetland and waters results with Mean High Water and Highest Astronomical Tide elevations. Data plots were taken to demonstrate typical wetland conditions and adjacent uplands in the Study Area; data sheets are included in Appendix B. Site photographs are included in Appendix C.

Regulated Corps tidal elevations from the nearest tidal gage (Garibaldi Station 9437540) were obtained and correlated to river gage data at the nearby Nehalem River gage. The DSL HMT elevation was obtained from the DSL table on compiled HMT data for the Nehalem River at

Nehalem. Within the 8.64-acre Study Area, the following acreages fall below the tidal elevations that are relevant to Corps and DSL jurisdictions:

- Highest Measured Tide/Highest Recorded Tide: 11.95 feet (7.26 acres)
- Highest Astronomical Tide: 11.48 feet (7.41 acres)
- Mean High Water: 8.45 feet (3.24 acres)

Wetlands

Wetland 1

Wetland 1 (7.04 acres) includes both tidal and nontidal conditions, including estuarine, intertidal, emergent (E2EM) and riverine palustrine scrub-shrub (PSS)/palustrine forested (PFO) wetland types. The wetland was historically protected from tidal inundation by the McCoy-Botts Levee that has since failed and eroded. E2EM communities are supported inboard of the levees below approximately 9 feet (North American Vertical Datum of 1988 [NAVD88]) elevation; PSS and PFO communities are located near the failed McCoy-Botts Levee, at the east end of the study area, and in a few low mounds above elevations that support E2EM communities.

The failed McCoy-Botts Levee is a partial barrier to tidal inundation and floods; surface waters are able to circumvent the McCoy-Botts Levee through a culvert shown on Figure 6 and around the east end of the levee when water levels are high enough. Small drainage channels have formed within the E2EM community, routing surface water toward the culvert as the primary surface water outlet.

E2EM communities are vegetated with triangular club-rush (*Schoenoplectus pungens*, OBL) saltgrass (*Distichlis spicata*, OBL), creeping bentgrass (*Agrostis stolonifera*, FAC), slender cinquefoil (*Argentina anserina*, OBL), and Lyngby's sedge (*Carex lyngbyei*, OBL). These areas were inundated to the surface during fieldwork and do not border uplands; therefore, no data plots were recorded in E2EM areas.

PSS communities are vegetated with twinberry (*Lonicera involucrata*, FACW), salmonberry (*Rubus spectabilis*, FACW), trailing blackberry (*Rubus ursinus*, FACU), Armenian blackberry (*Rubus armeniacus*, FAC), and cascara (*Frangula purshiana*, FAC), with slough sedge (*Carex obnupta*, OBL), sea watch (*Angelica lucida*, NOL), sword fern (*Polystichum munitum*, FACU), and pearly everlasting (*Anaphalis margaritacea*, FACU) in the understory. PFO communities were dominated by Sitka spruce, with an understory of slough sedge, and sword fern and salal (*Gaultheria shallon*, FACU) growing on hummocks. Vegetation within PSS and PFO communities met the dominance test for hydrophytic vegetation; soils met indicators for gleyed matrix (F2),

sandy redox (S5), and depleted matrix (F3); and test plots met hydrology indicators for high water table (A2), soil saturation (A3), and FAC-neutral test (D5).

Wetland 2

Wetland 2 (0.08 acres) occurs outboard of the Nehalem River Levee, along a tidal reach of the Nehalem River, and has an E2EM Cowardin classification and estuarine hydrogeomorphic class. Vegetation in Wetland 2 consists of Baltic rush (*Juncus balticus*, OBL), slender cinquefoil, Lyngby's sedge, creeping bentgrass (*Agrostis stolonifera*, FAC), tall fescue (*Festuca arundinacea*, FAC), and tufted hairgrass (*Deschampsia cespitosa*, FACW)

Vegetation in Wetland 2 met the dominance test for hydrophytic vegetation and soils met indicators for depleted matrix (F3). Wetland hydrology indicators FAC-neutral test (D5), geomorphic position (D2), and oxidized rhizospheres (C3) were all observed.

Other Waters

Onsite delineation waters are based on the elevation of the maximum recorded tide (HMT) at the Nehalem, Oregon, USGS Gage 9437908 (11.95 feet NAVD88). Below this elevation is 0.01 ac of open water of the Nehalem River.

Uplands

Uplands within the Study Area consist of the Nehalem Levee and portions of the McCoy-Botts Levee, the highway embankment, and the ODOT maintenance parking area on the north side of Highway 101. The failed McCoy-Botts Levee was likely constructed of local soils, which were a mix of loams and sandy loam, whereas the Highway 101 embankment soils appeared to be imported fill, consisting of sands and gravel. Uplands occurring as the failed dike and highway embankment supported similar vegetation, Sitka spruce, red alder (*Alnus rubra*, FAC), Armenian blackberry, trailing blackberry, sword fern, bracken fern (*Pteridium aquilinum*, FACU), Scotch broom (*Cytisus scoparius*, UPL), creeping bentgrass, and orchardgrass (*Dactylis glomerata*, FACU); all upland data plots failed to meet hydrophytic vegetation criteria. Upland soils failed to meet any hydric soils criteria, with very dark brown or dark brown matrix colors and textures ranging from sand to loam.

F. Deviation from SWI-NWI

NWI data show a PEM1Ch polygon occupying the emergent wetland portion of the Study Area and a PSS1R polygon where PFO and PSS communities were identified during delineation fieldwork. The emergent wetland area supports salt-tolerant species, indicating that some tidal inundation occurs and suggesting that E2EM may be a more accurate Cowardin classification.

The E2EM1P polygon mapped outboard of the Nehalem Levee is generally accurate. Both PFO and PSS communities, along with a narrow upland, were observed along the failed McCoy-Botts Levee's east-west alignment, and PSS and PFO wetlands were also present in the eastern portion of the study area; the NWI data do not display upland portions of the east-west failed McCoy-Botts Levee or PFO communities.

A SWI hydric soil polygon is mapped throughout the study area and across Highway 101. However, the highway in this location is constructed on an embankment much higher than the surrounding ground. Embankment soils appeared to be imported fill material consisting of sand and gravel.

No LWI data were available for the study area or surrounding areas.

G. Mapping Method

Sample plots, ordinary high water mark boundaries, photos, and wetland boundary points were recorded in the field using TerraSync software on a Trimble Geo7X hand-held GPS unit. GPS data collected were post-processed with GPS Pathfinder Office software resulting in sub-meter positional accuracy. GPS survey data were exported to a GIS format (ESRI shapefile) and mapped in ArcGIS Pro 2.9 desktop software.

H. Additional Information

No additional information on wetlands or waters beyond what is included in earlier sections is presented. Appendix D contains the climate data retrieved for the precipitation analysis.

I. Results and Conclusions

Cascade Environmental Group, LLC, identified two wetlands totaling 7.12 acres within the Study Area. Approximately 7.26 acres of the 8.64-acre Study Area falls below the HMT elevation. Below the HMT elevation, are 0.01 acres of open water portion of the Nehalem River.

J. Disclaimer

This report documents the best professional judgment and conclusions of the investigator. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at one's own risk unless it has been reviewed and approved in writing by the Corps and the Oregon DSL in accordance with OAR 141-090-0005 through 141-090-0055.

Appendix A. Figures



Figure 1. Location
McCoy Wetland Tidal Reconnection Project

Date: 7/29/2025
 Data Source: ESRI, 2025

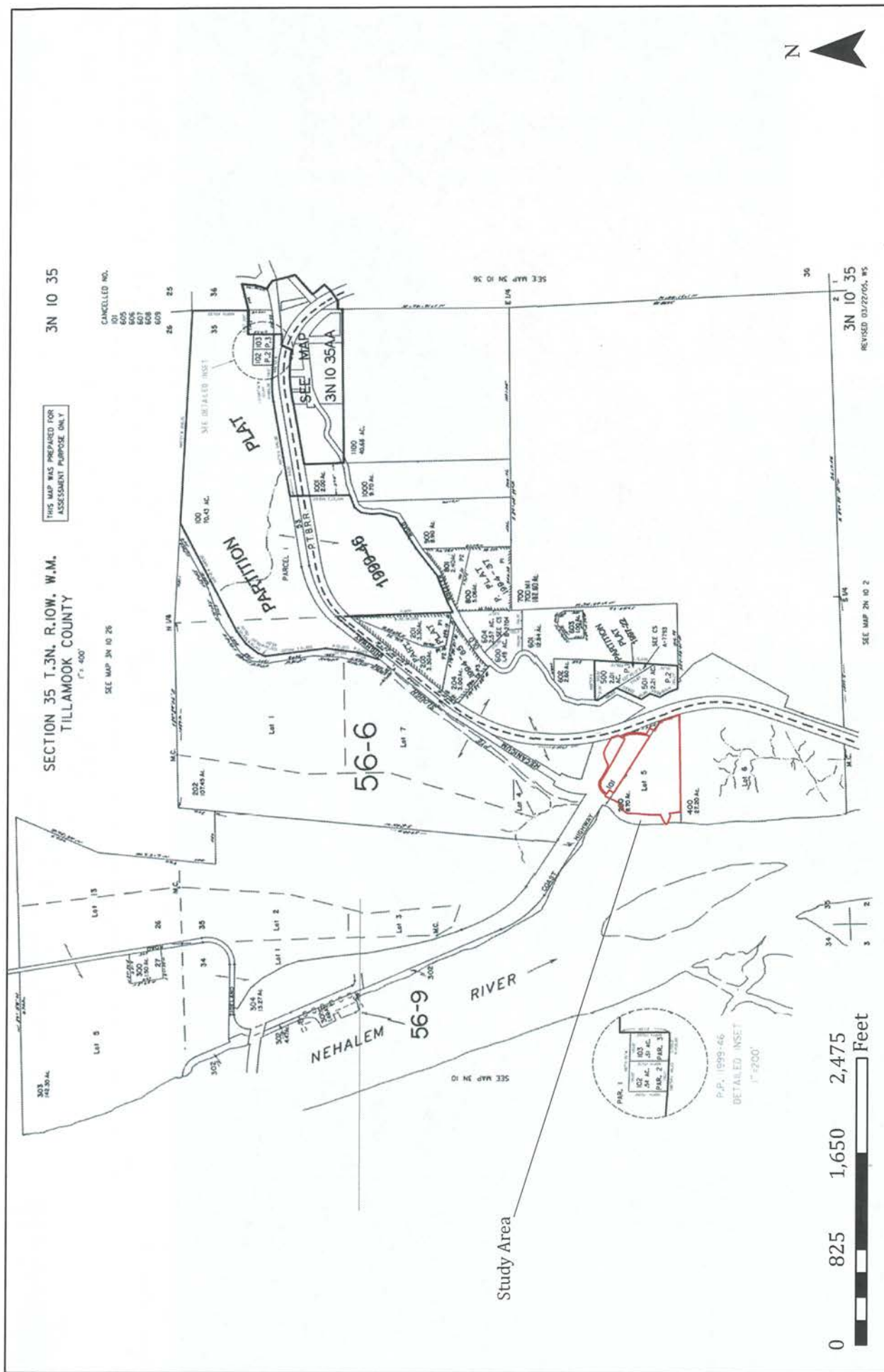
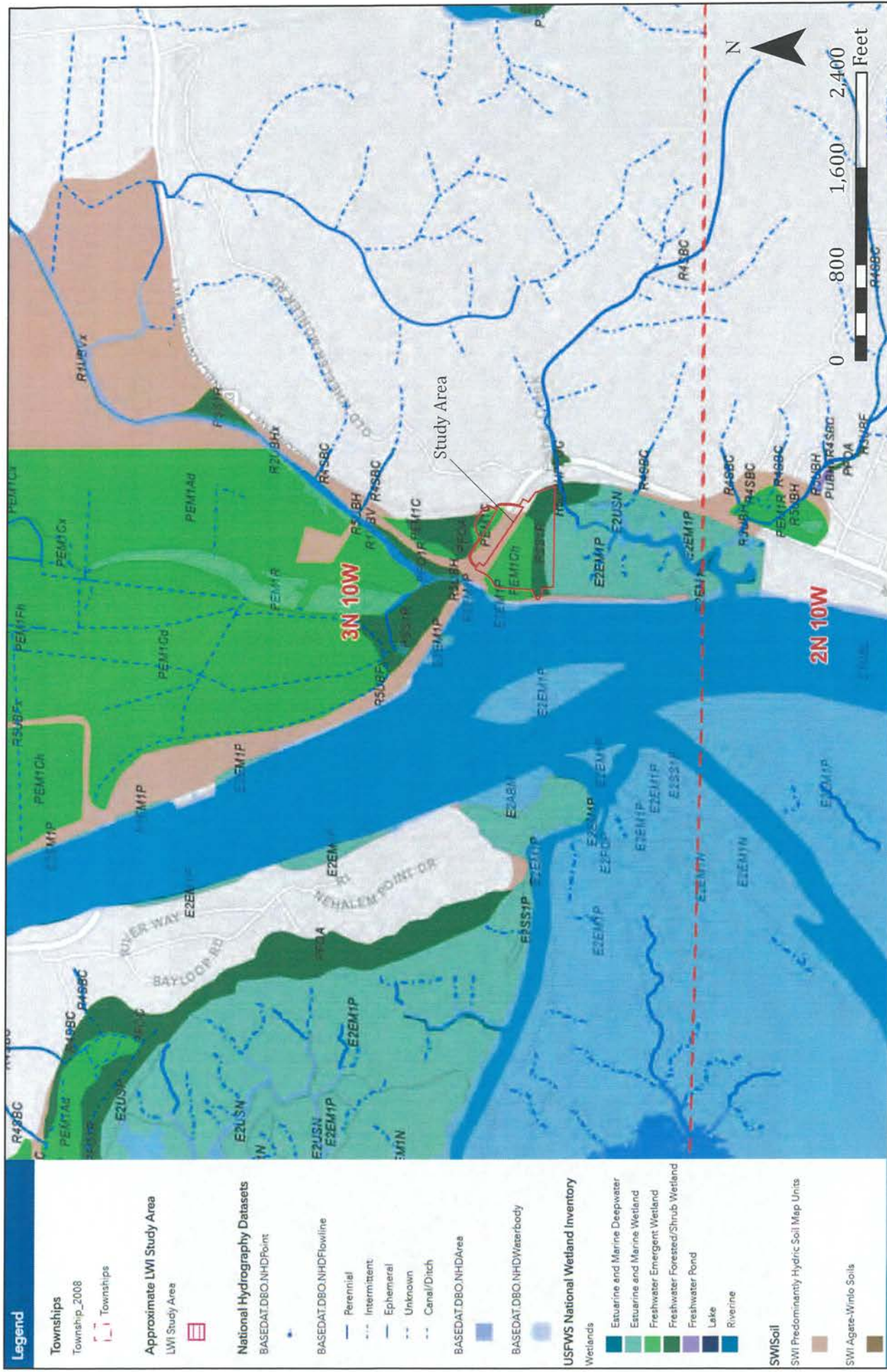


Figure 2. Taxlots

McCoy Wetland Tidal Reconnection Project



Date: 7/29/2025

Data Source: ESRI, 2025; USFWS; Oregon DSL

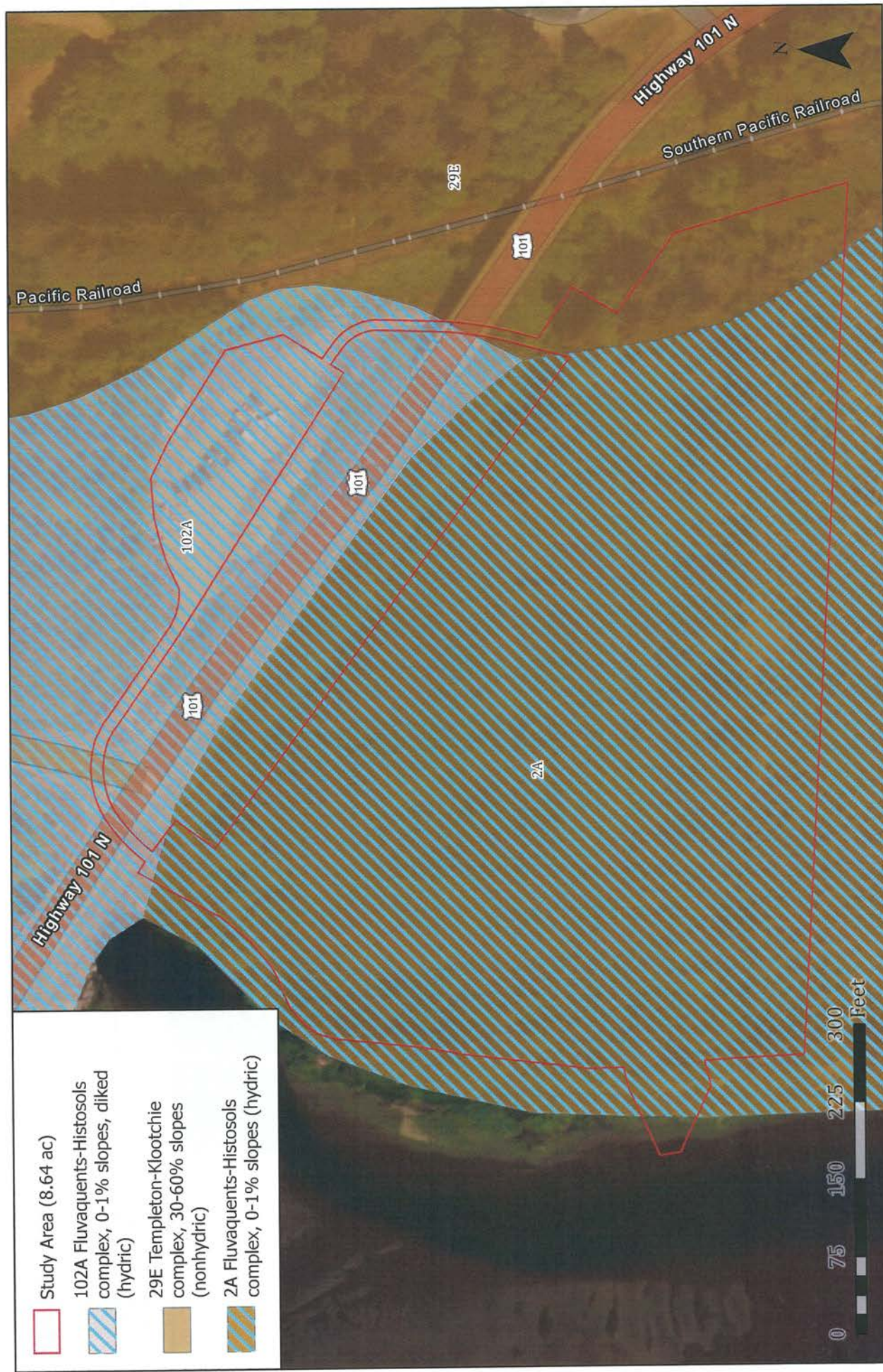


Figure 4. USDA Soil Survey

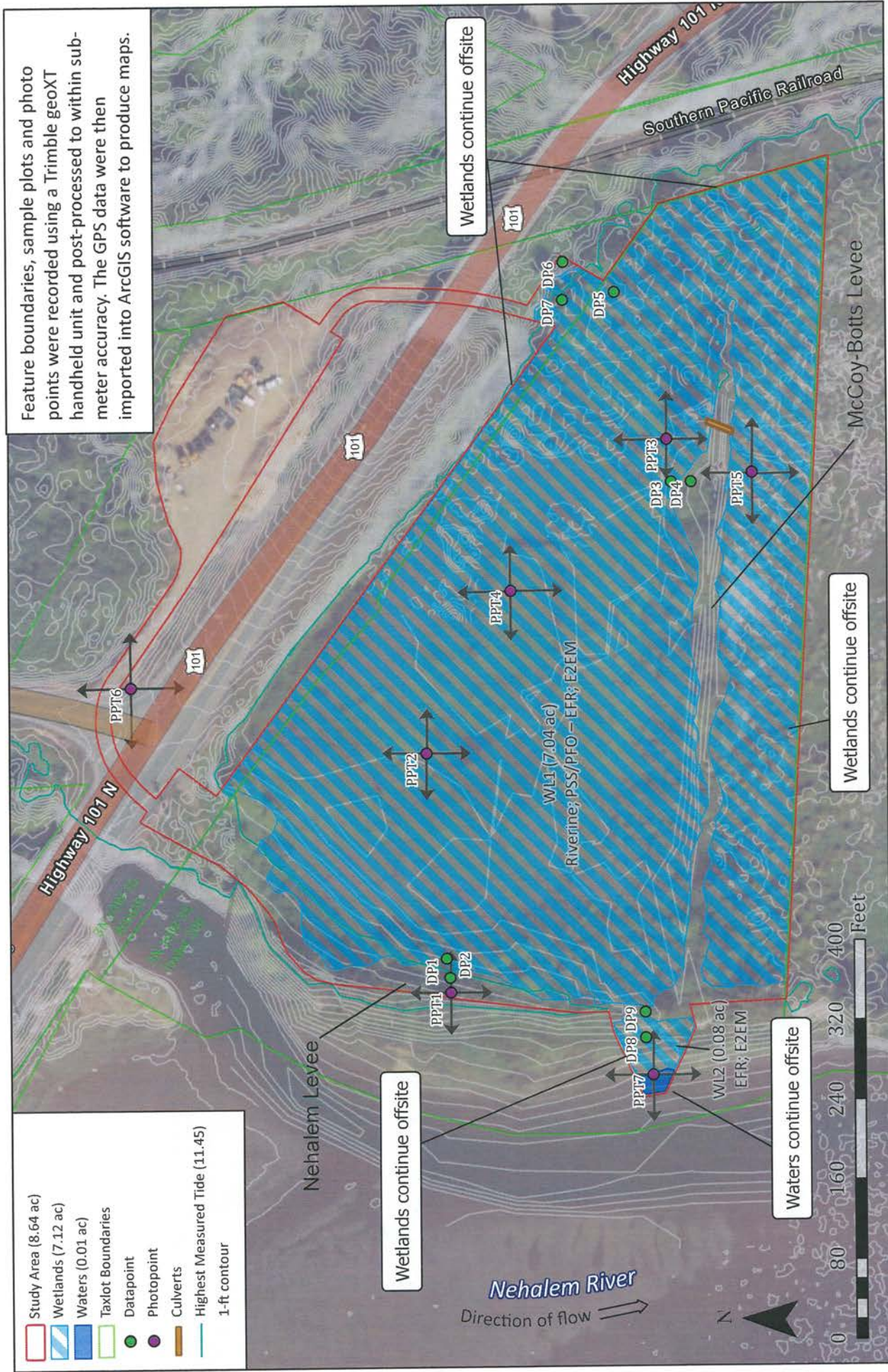
McCoy Wetland Tidal Reconnection Project

Date: 7/29/2025
Data Source: ESRI, 2025; USDA; NRCS



Date: 7/29/2025
Data Source: ESRI, 2025; USDA

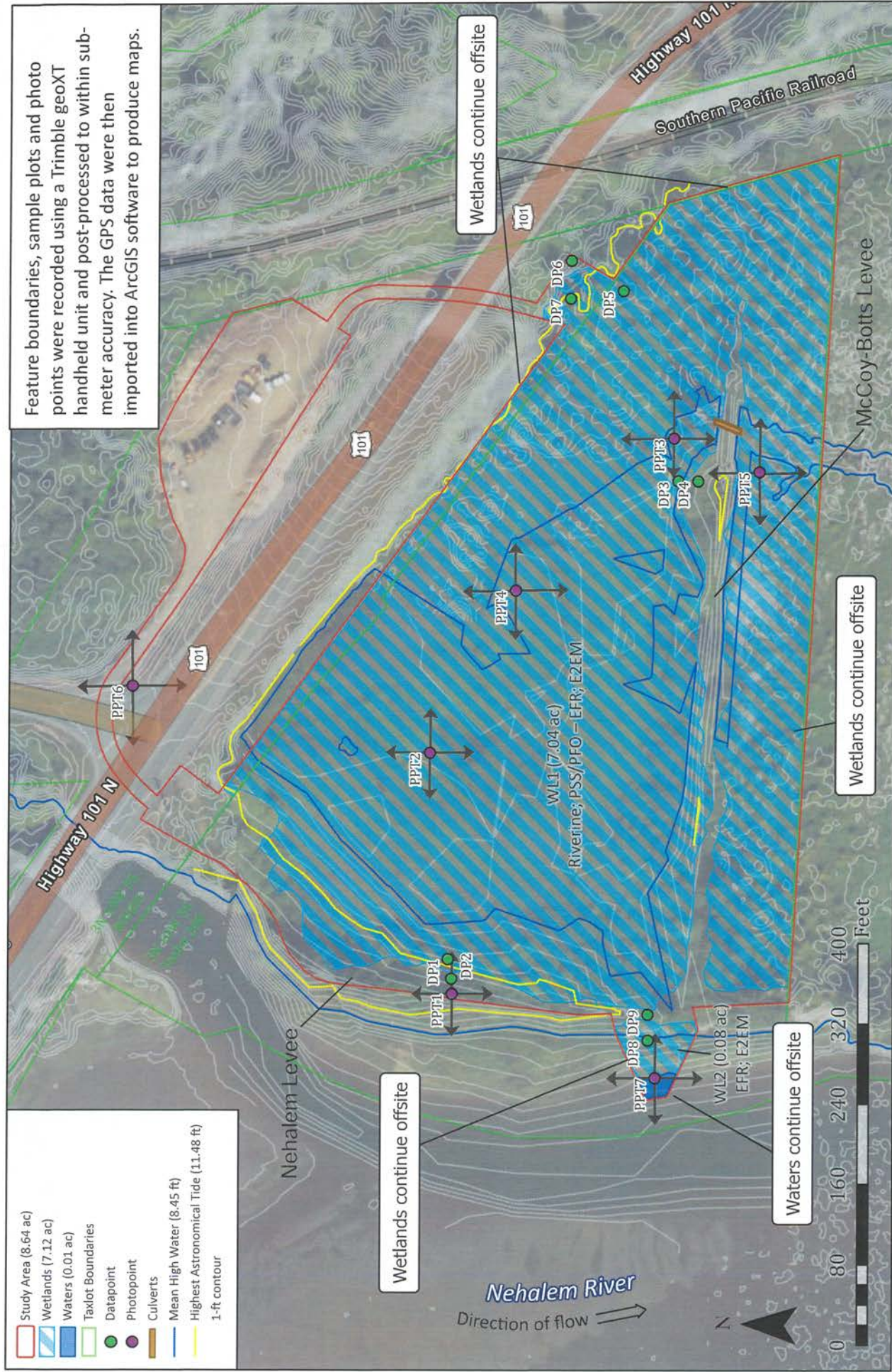
Figure 5. Recent Aerial (2022)
McCoy Wetland Tidal Reconnection Project



Feature boundaries, sample plots and photo points were recorded using a Trimble geoXT handheld unit and post-processed to within sub-meter accuracy. The GPS data were then imported into ArcGIS software to produce maps.

Figure 6a. Wetlands and Waters
McCoy Wetland Tidal Reconnection Project

Date: 7/29/2025
Data Source: ESRI, 2025; NOAA; DOGAMI



Feature boundaries, sample plots and photo points were recorded using a Trimble geoXT handheld unit and post-processed to within sub-meter accuracy. The GPS data were then imported into ArcGIS software to produce maps.

Figure 6b. Wetlands and Waters
McCoy Wetland Tidal Reconnection Project

Date: 7/29/2025
Data Source: ESRI, 2025; NOAA; DOGAMI

Appendix B. Wetland Data Forms

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

Project/Site: McCoy Wetland City/County: Wheeler, Tillamook Co Sampling Date: 11/26/2024
 Applicant/Owner: Lower Nehalem Community Trust State: OR Sampling Point: DP1
 Investigator(s): B Haddaway, T Stout Section, Township, Range: S 35T3 N R10W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.700210N Long: 123.880853W Datum: NAD 83
 Soil Map Unit Name: Fluvaquents-Histosols, 0 to 1 persect slopes NWI Classification: PEM1Ch
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u> No <u> </u>
Hydric Soil Present?	Yes <u>X</u> No <u> </u>		
Wetland Hydrology Present?	Yes <u>X</u> No <u> </u>		
Remarks: Plot located at wetland boundary with degraded dike.			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Picea sitchensis</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index Worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u> </u> x1 = <u>0</u> FACW species <u> </u> x2 = <u>0</u> FAC species <u> </u> x3 = <u>0</u> FACU species <u> </u> x4 = <u>0</u> UPL species <u> </u> x5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>#DIV/0!</u>
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Indicators: <u>X</u> 1 - Rapid Test for Hydrophytic Vegetation <u>####</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptation ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)
Total Cover: <u>20</u>				
Shrub Stratum				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Lonicera involucrata</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>60</u>				Remarks:
Herb Stratum				
1. <u>Carex obnupta</u>	<u>75</u>	<u>Y</u>	<u>OBL</u>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Remarks:
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Remarks:
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Remarks:
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Remarks:
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Remarks:
Total Cover: <u>75</u>				
Woody Vine Stratum				Remarks:
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Remarks:
Total Cover: <u>0</u>				

SOIL

Sampling Point: _____ 1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10 YR 2/2	100					loamy sand	
5-8	10 YR 3/1	95	10 YR 3/3	5	C	M	loamy sand	
8-16	10 YR 3/1	95	5 YR 3/3	5	C	M	sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)****Indicators for Problematic Hydric Soils³:**

☐ Histosol (A1)	☒ Sandy Redox (S5)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Stripped Matrix (S6)	☐ Red Parent Material (TF2)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (except MLRA 1)	☐ Other (Explain in Remarks)
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	
☐ Depleted Below Dark Surface (A11)	☐ Depleted Matrix (F3)	
☐ Thick Dark Surface (A12)	☐ Redox Dark Surface (F6)	
☐ Sandy Muck Mineral (S1)	☐ Depleted Dark Surface (F7)	
☐ Sandy gleyed Matrix (S4)	☐ Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if present):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A and 4B)
☒ High Water Table (A2)	☐ Salt Crust (B11)
☒ Saturation (A3)	☐ Aquatic Invertebrates (B13)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Plowed Soils (C6)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)
☐ Inundation Visible on Aerial Imagery (B7)	
☐ Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (2 or more required)

☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)
☐ Raised Ant Mounds (D6) (LRR A)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____
 Water table Present? Yes ☒ No _____ Depth (inches): 7"
 Saturation Present? Yes ☒ No _____ Depth (inches): 10"
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No _____

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

Remarks:

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

Project/Site: McCoy Wetland City/County: Wheeler, Tillamook Co Sampling Date: 11/26/2024
 Applicant/Owner: Lower Nehalem Community Trust State: OR Sampling Point: DP2
 Investigator(s): B Haddaway, T Stout Section, Township, Range: S 35T3 N R10W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.700199N Long: 45.700199N Datum: NAD 83
 Soil Map Unit Name: Fluvaquents-Histosols, 0 to 1 percent slopes NWI Classification: PEM1Ch
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u> No <u>X</u>		
Wetland Hydrology Present?	Yes <u> </u> No <u>X</u>		
Remarks: Plot located on constructed but derelict dike. Vegetation meets dominance indicator criteria, but does not meet prevalence index criteria; no soils or hydrology indicators present.			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60%</u> (A/B)
1. <u>Picea sitchensis</u>	<u>70</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Alnus rubra</u>	<u>10</u>		<u>FAC</u>	
3. <u> </u>				
4. <u> </u>				
Total Cover: <u>80</u>				
Shrub Stratum				
1. <u>Cytisus scoparius</u>	<u>5</u>	<u>Y</u>	<u>NOL</u>	Prevalence Index Worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u> </u> x1 = <u>0</u> FACW species <u> </u> x2 = <u>0</u> FAC species <u>167</u> x3 = <u>501</u> FACU species <u>20</u> x4 = <u>80</u> UPL species <u>5</u> x5 = <u>25</u> Column Totals: <u>192</u> (A) <u>606</u> (B) Prevalence Index = B/A = <u>3.2</u>
2. <u>Frangula purshiana</u>	<u>2</u>	<u>Y</u>	<u>FAC</u>	
3. <u> </u>				
4. <u> </u>				
5. <u> </u>				
Total Cover: <u>7</u>				
Herb Stratum				
1. <u>Agrostis stolonifera</u>	<u>85</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptation ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Dactylis glomerata</u>	<u>5</u>		<u>FACU</u>	
3. <u>Polystichum munitum</u>	<u>10</u>		<u>FACU</u>	
4. <u> </u>				
5. <u> </u>				
6. <u> </u>				
7. <u> </u>				
8. <u> </u>				
9. <u> </u>				
10. <u> </u>				
11. <u> </u>				
Total Cover: <u>100</u>				
Woody Vine Stratum				
1. <u>Rubus ursinus</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
2. <u> </u>				
Total Cover: <u>5</u>				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				

Remarks: Vegetation meets dominance test, but fails prevalence index

SOIL

Sampling Point: _____ 2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10 YR 3/1	100					loam	
3-9	7.5 YR 4/3	100					loam	
9-16	7.5 YR 3/3	100					sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)****Indicators for Problematic Hydric Soils³:**

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

Restrictive Layer (if present):Type: _____
Depth (inches): _____Hydric Soil Present? Yes _____ No ☒

Remarks: No indicators met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes _____	No ☒	Depth (inches): _____
Water table Present?	Yes _____	No ☒	Depth (inches): _____
Saturation Present?	Yes _____	No ☒	Depth (inches): _____

(includes capillary fringe)
Wetland Hydrology Present? Yes _____ No ☒

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

Remarks: No indicators met, plot located on constructed dike

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

Project/Site: McCoy Wetland City/County: Wheeler, Tillamook Co Sampling Date: 11/26/2024
 Applicant/Owner: Lower Nehalem Community Trust State: OR Sampling Point: DP3
 Investigator(s): B Haddaway, T Stout Section, Township, Range: S 35T3 N R10W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.699643N Long: 45.699643N Datum: NAD 83
 Soil Map Unit Name: Fluvaquents-Histosols, 0 to 1 persect slopes NWI Classification: PEM1Ch
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover:	<u>0</u>			
Shrub Stratum				
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index Worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u> </u> x1 = <u>0</u> FACW species <u> </u> x2 = <u>0</u> FAC species <u> </u> x3 = <u>0</u> FACU species <u> </u> x4 = <u>0</u> UPL species <u> </u> x5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>#DIV/0!</u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover:	<u>0</u>			
Herb Stratum				
1. <u>Agrostis stolonifera</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>####</u> 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptation ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Carex obnupta</u>	<u>60</u>	<u>Y</u>	<u>OBL</u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover:	<u>100</u>			
Woody Vine Stratum				
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover:	<u>0</u>			
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				
Remarks:				

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	7.5 YR 2.5/2	100					loam	
3-7	5BG	90	10 YR 4/4	10	C	M	silt loam	
7-16	7.5 YR 3/2	95	2.5 YR 4/4	5	C	M	sand	

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

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

Indicators for Problematic Hydric Soils³:

☐ Histosol (A1)	☐ Sandy Redox (S5)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Stripped Matrix (S6)	☐ Red Parent Material (TF2)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (except MLRA 1)	☐ Other (Explain in Remarks)
☐ Hydrogen Sulfide (A4)	☒ Loamy Gleyed Matrix (F2)	
☐ Depleted Below Dark Surface (A11)	☐ Depleted Matrix (F3)	
☐ Thick Dark Surface (A12)	☐ Redox Dark Surface (F6)	
☐ Sandy Muck Mineral (S1)	☐ Depleted Dark Surface (F7)	
☐ Sandy gleyed Matrix (S4)	☐ Redox Depressions (F8)	

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A and 4B)
☒ High Water Table (A2)	☐ Salt Crust (B11)
☒ Saturation (A3)	☐ Aquatic Invertebrates (B13)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Plowed Soils (C6)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)
☐ Inundation Visible on Aerial Imagery (B7)	
☐ Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (2 or more required)

☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)
☐ Raised Ant Mounds (D6) (LRR A)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____
 Water table Present? Yes ☒ No ☐ Depth (inches): 9
 Saturation Present? Yes ☒ No ☐ Depth (inches): 8
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

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

Project/Site: McCoy Wetland City/County: Wheeler, Tillamook Co Sampling Date: 11/26/2024
 Applicant/Owner: Lower Nehalem Community Trust State: OR Sampling Point: DP4
 Investigator(s): B Haddaway, T Stout Section, Township, Range: S 35T3 N R10W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.699588N Long: 123.878950W Datum: NAD 83
 Soil Map Unit Name: Fluvaquents-Histosols, 0 to 1 persect slopes NWI Classification: PEM1Ch
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: Upland paired plot. Vegetation meets dominance criteria, but fails prevalence index. No hydric soils or wetland hydrology indicators present.	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>57%</u> (A/B)
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>0</u>				
Shrub Stratum 1. <u>Cytisus scoparius</u> 10 Y NOL 2. <u>Lonicera involucrata</u> 15 Y FAC 3. <u>Fagella purshiana</u> 10 Y FAC 4. <u> </u> 5. <u> </u> Total Cover: <u>35</u>				Prevalence Index Worksheet: Total % Cover of: Multiply by: OBL species <u>20</u> x1 = <u>20</u> FACW species <u> </u> x2 = <u>0</u> FAC species <u>25</u> x3 = <u>75</u> FACU species <u>100</u> x4 = <u>400</u> UPL species <u>10</u> x5 = <u>50</u> Column Totals: <u>155</u> (A) <u>545</u> (B) Prevalence Index = B/A = <u>3.5</u>
Herb Stratum 1. <u>Carex obnupta</u> 20 Y OBL 2. <u>Pteridium aquilinum</u> 80 Y FACU 3. <u>Polystichum munitum</u> 20 Y FACU 4. <u> </u> 5. <u> </u> 6. <u> </u> 7. <u> </u> 8. <u> </u> 9. <u> </u> 10. <u> </u> 11. <u> </u> Total Cover: <u>120</u>				
Woody Vine Stratum 1. <u>Rubus armeniacus</u> 10 Y FAC 2. <u> </u> Total Cover: <u>10</u> % Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptation ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain)
Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>				

Remarks: Dominance test met, prevalence index criteria not met.

SOIL

Sampling Point: _____ 4

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	7.5 YR 2.5/1	100					loam	
2-8	7.5 YR 3/2	100					loamy sand	
8-12	7.5 YR 3/3	100					loamy sand	
12-16	7.5 YR 3/1	95	7.5 YR 3/3	5	C	M	loamy sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)****Indicators for Problematic Hydric Soils³:**

☐ Histosol (A1)	☐ Sandy Redox (S5)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Stripped Matrix (S6)	☐ Red Parent Material (TF2)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (except MLRA 1)	☐ Other (Explain in Remarks)
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	
☐ Depleted Below Dark Surface (A11)	☐ Depleted Matrix (F3)	
☐ Thick Dark Surface (A12)	☐ Redox Dark Surface (F6)	
☐ Sandy Muck Mineral (S1)	☐ Depleted Dark Surface (F7)	
☐ Sandy gleyed Matrix (S4)	☐ Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if present):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Plowed Soils (C6)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)
☐ Inundation Visible on Aerial Imagery (B7)	
☐ Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (2 or more required)

☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)
☐ Raised Ant Mounds (D6) (LRR A)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes _____ No _____	Depth (inches): _____
Water table Present?	Yes _____ No _____	Depth (inches): _____
Saturation Present?	Yes _____ No _____	Depth (inches): _____

(includes capillary fringe)
Wetland Hydrology Present? Yes _____ No X

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

Remarks:

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

Project/Site: McCoy Wetland City/County: Wheeler, Tillamook Co Sampling Date: 11/26/2024
 Applicant/Owner: Lower Nehalem Community Trust State: OR Sampling Point: DP5
 Investigator(s): B Haddaway, T Stout Section, Township, Range: S 35T3 N R10W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.699818N Long: 123.878219W Datum: NAD 83
 Soil Map Unit Name: Templeton-Klootchie complex, 30 to 60% slopes NWI Classification: UPL
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: Unpaired plot taken as representative of mapped soil unit within study area	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Picea sitchensis</u>	<u>90</u>		<u>FAC</u>	
2. <u> </u>				Prevalence Index Worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u> </u> x1 = <u>0</u> FACW species <u> </u> x2 = <u>0</u> FAC species <u> </u> x3 = <u>0</u> FACU species <u> </u> x4 = <u>0</u> UPL species <u> </u> x5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>#DIV/0!</u>
3. <u> </u>				
4. <u> </u>				Hydrophytic Vegetation Indicators: <u>X</u> 1 - Rapid Test for Hydrophytic Vegetation <u>####</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptation ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)
Total Cover: <u>90</u>				
Shrub Stratum 1. <u> </u> 2. <u> </u> 3. <u> </u> 4. <u> </u> 5. <u> </u> Total Cover: <u>0</u>				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum 1. <u>Carex obnupta</u> <u>95</u> <u>Y</u> <u>OBL</u> 2. <u> </u> 3. <u> </u> 4. <u> </u> 5. <u> </u> 6. <u> </u> 7. <u> </u> 8. <u> </u> 9. <u> </u> 10. <u> </u> 11. <u> </u> Total Cover: <u>95</u>				
Woody Vine Stratum 1. <u> </u> 2. <u> </u> Total Cover: <u>0</u> % Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
Remarks:				

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10 YR 4/1	100					silty clay	
4-11	10 YR 4/1	85	2.5YR 4/4	10	C	M	silty clay	
			2.5 YR 4/4	5	C	PL	silty clay	
11-16	10 YR 4/1	70	5 YR 4/6	30	C	M	silty clay	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**Indicators for Problematic Hydric Soils³:**

☐ Histosol (A1)	☐ Sandy Redox (S5)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Stripped Matrix (S6)	☐ Red Parent Material (TF2)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (except MLRA 1)	☐ Other (Explain in Remarks)
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	
☐ Depleted Below Dark Surface (A11)	☒ Depleted Matrix (F3)	
☐ Thick Dark Surface (A12)	☐ Redox Dark Surface (F6)	
☐ Sandy Muck Mineral (S1)	☐ Depleted Dark Surface (F7)	
☐ Sandy gleyed Matrix (S4)	☐ Redox Depressions (F8)	

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☒ No _____

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:****Primary Indicators (any one indicator is sufficient)**

☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A and 4B)
☒ High Water Table (A2)	☐ Salt Crust (B11)
☒ Saturation (A3)	☐ Aquatic Invertebrates (B13)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Plowed Soils (C6)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)
☐ Inundation Visible on Aerial Imagery (B7)	
☐ Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (2 or more required)

☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)
☐ Raised Ant Mounds (D6) (LRR A)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____
 Water table Present? Yes ☒ No _____ Depth (inches): 1
 Saturation Present? Yes ☒ No _____ Depth (inches): 3
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No _____

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

Remarks:

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

Project/Site: McCoy Wetland City/County: Wheeler, Tillamook Co Sampling Date: 1/10/2025
 Applicant/Owner: Lower Nehalem Community Trust State: OR Sampling Point: DP6
 Investigator(s): B Haddaway, T Stout Section, Township, Range: S 35T3 N R10W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.699961N Long: 45.699961N Datum: NAD 83
 Soil Map Unit Name: Templeton-Kloutchie complex, 30-60% slopes NWI Classification: UPL
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: Upland paired plot.	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>0</u>				
Shrub Stratum				
1. <u>Rubus armeniacus</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	Prevalence Index Worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u> </u> x1 = <u>0</u> FACW species <u> </u> x2 = <u>0</u> FAC species <u>50</u> x3 = <u>150</u> FACU species <u>65</u> x4 = <u>260</u> UPL species <u> </u> x5 = <u>0</u> Column Totals: <u>115</u> (A) <u>410</u> (B) Prevalence Index = B/A = <u>3.6</u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>50</u>				
Herb Stratum				
1. <u>Polystichum munitum</u>	<u>35</u>	<u>Y</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptation ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Pteridium aquilinum</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>55</u>				
Woody Vine Stratum				
1. <u>Rubus laciniatus</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>10</u>				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				
Remarks: Dominance test met, prevalence index criteria not met.				

SOIL

Sampling Point: 6

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)	
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)	
☐ High Water Table (A2)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)	
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)	
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)	
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Geomorphic Position (D2)	
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)	
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Plowed Soils (C6)	☐ FAC-Neutral Test (D5)	
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)	
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)	
☐ Inundation Visible on Aerial Imagery (B7)			
☐ Sparsely Vegetated Concave Surface (B8)			
Field Observations: Surface Water Present? Yes ☐ No ☐ Depth (inches): _____ Water table Present? Yes ☐ No ☐ Depth (inches): _____ Saturation Present? Yes ☐ No ☐ Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes ☐ No ☒	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

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

Project/Site: McCoy Wetland City/County: Wheeler, Tillamook Co Sampling Date: 1/10/2025
 Applicant/Owner: Lower Nehalem Community Trust State: OR Sampling Point: DP7
 Investigator(s): B Haddaway, T Stout Section, Township, Range: S 35T3 N R10W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.699959N Long: 123.878257W Datum: NAD 83
 Soil Map Unit Name: Templeton-Kloutchie complex, 30 to 60% slopes NWI Classification: UPL
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)
1. <u>Picea sitchensis</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>10</u>				
Shrub Stratum				
1. <u>Rubus armeniacus</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	Prevalence Index Worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u> </u> x1 = <u>0</u> FACW species <u> </u> x2 = <u>0</u> FAC species <u> </u> x3 = <u>0</u> FACU species <u> </u> x4 = <u>0</u> UPL species <u> </u> x5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>#DIV/0!</u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>60</u>				
Herb Stratum				
1. <u>Carex obnupta</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators: <u>X</u> 1 - Rapid Test for Hydrophytic Vegetation <u>####</u> 2 - Dominance Test is >50% <u>####</u> 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptation ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Polystichum munitum</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>40</u>				
Woody Vine Stratum				
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>0</u>				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				

Remarks: R. Armeniacus included in shrub stratum because it is large, upright mound.

SOIL

Sampling Point: _____ 7

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10 YR 3/2	100					sandy loam	
5-8	10 YR 3/2	100					sand	
8-16	10 YR 3/2	65	10 YR 4/1	30	D	M	sand	
			10 YR 4/4	5	C	M	sand	

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

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

Indicators for Problematic Hydric Soils³:

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes _____	No ☒	Depth (inches): _____
Water table Present?	Yes _____	No ☒	Depth (inches): _____
Saturation Present?	Yes _____	No ☒	Depth (inches): _____

(includes capillary fringe)
Wetland Hydrology Present? Yes ☒ No _____

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

Remarks: Plot fails to meet FAC- neutral test but vegetation meets prevelance index criteria without FAC species. Plot located near upland boundary in sandy soil slope, meets vegetation and soils criteria.

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

Project/Site: McCoy Wetland City/County: Wheeler, Tillamook Co Sampling Date: 1/10/2025
 Applicant/Owner: Lower Nehalem Community Trust State: OR Sampling Point: DP8
 Investigator(s): B Haddaway, T Stout Section, Township, Range: S 35T3 N R10W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.699656N Long: 123.881137W Datum: NAD 83
 Soil Map Unit Name: Fulvaquents-Histosols Complex, 0-1% slopes NWI Classification: UPL
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83%</u> (A/B)
1. <u>Picea sitchensis</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>10</u>				
Shrub Stratum				
1. <u>Rubus armeniacus</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	Prevalence Index Worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u> </u> x1 = <u>0</u> FACW species <u> </u> x2 = <u>0</u> FAC species <u> </u> x3 = <u>0</u> FACU species <u> </u> x4 = <u>0</u> UPL species <u> </u> x5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>#DIV/0!</u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>60</u>				
Herb Stratum				
1. <u>Carex lyngbei</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators: <u>X</u> 1 - Rapid Test for Hydrophytic Vegetation <u>####</u> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptation ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Juncus balticus</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>	
3. <u>Argentina anserina</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>	
4. <u>Agrostis stolonifera</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
5. <u>Deschampsia cespitosa</u>	<u>15</u>	<u> </u>	<u>FACW</u>	
6. <u>Festuca arundinacea</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>140</u>				
Woody Vine Stratum				
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>0</u>				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				

Remarks:

SOIL

Sampling Point: _____ 8

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	7.5 YR 4/3	100					sandy loam	
4-9	10 YR 4/2	80	7.5 YR 4/6	15	C	M	sandy loam	
			2.5 YR 4/4	5	C	M		
9-16	10 YR 4/2	60	7.5 YR 4/6	15	C	M	loam	
			2.5 YR 3/6	25	C	M/PL		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)****Indicators for Problematic Hydric Soils³:**

☐ Histosol (A1)	☐ Sandy Redox (S5)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Stripped Matrix (S6)	☐ Red Parent Material (TF2)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (except MLRA 1)	☐ Other (Explain in Remarks)
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	
☐ Depleted Below Dark Surface (A11)	☐ Depleted Matrix (F3)	
☐ Thick Dark Surface (A12)	☐ Redox Dark Surface (F6)	
☐ Sandy Muck Mineral (S1)	☐ Depleted Dark Surface (F7)	
☐ Sandy gleyed Matrix (S4)	☐ Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if present):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)
☐ Sediment Deposits (B2)	☒ Oxidized Rhizospheres along Living Roots (C3)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Plowed Soils (C6)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)
☐ Inundation Visible on Aerial Imagery (B7)	
☐ Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (2 or more required)

☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☒ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)
☐ Raised Ant Mounds (D6) (LRR A)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches): _____
Water table Present?	Yes ☐	No ☒	Depth (inches): _____
Saturation Present?	Yes ☒	No ☐	Depth (inches): _____ 10

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

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

Project/Site: McCoy Wetland City/County: Wheeler, Tillamook Co Sampling Date: 1/10/2025
 Applicant/Owner: Lower Nehalem Community Trust State: OR Sampling Point: DP9
 Investigator(s): B Haddaway, T Stout Section, Township, Range: S 35T3 N R10W
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): Northwest Forests and Coast (LRR A) Lat: 45.699660N Long: 123.881036W Datum: NAD 83
 Soil Map Unit Name: Fulvaquents-Histosols Complex, 0-1% slopes NWI Classification: UPL
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" Present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

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

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status?	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)
1. <u>Picea sitchensis</u>	<u>100</u>	<u>Y</u>	<u>FAC</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index Worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u> </u> x1 = <u>0</u> FACW species <u> </u> x2 = <u>0</u> FAC species <u>100</u> x3 = <u>300</u> FACU species <u>75</u> x4 = <u>300</u> UPL species <u> </u> x5 = <u>0</u> Column Totals: <u>175</u> (A) <u>600</u> (B) Prevalence Index = B/A = <u>3.4</u>
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptation ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 5 - Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) <u> </u>
Total Cover: <u>100</u>				
Shrub Stratum				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
1. <u>Gaultheria shallon</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>40</u>				Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum				
1. <u>Polystichum munitum</u>	<u>10</u>	<u> </u>	<u>FACU</u>	Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Total Cover: <u>10</u>				
Woody Vine Stratum				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
1. <u>Rubus ursinus</u>	<u>25</u>	<u> </u>	<u>FACU</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Total Cover: <u>25</u>				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
Remarks:				

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10 YR 4/3	100					sandy loam	lots of organic material, roots

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**Indicators for Problematic Hydric Soils³:**

☐ Histosol (A1)	☐ Sandy Redox (S5)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Stripped Matrix (S6)	☐ Red Parent Material (TF2)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (except MLRA 1)	☐ Other (Explain in Remarks)
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	
☐ Depleted Below Dark Surface (A11)	☐ Depleted Matrix (F3)	
☐ Thick Dark Surface (A12)	☐ Redox Dark Surface (F6)	
☐ Sandy Muck Mineral (S1)	☐ Depleted Dark Surface (F7)	
☐ Sandy gleyed Matrix (S4)	☐ Redox Depressions (F8)	

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

Restrictive Layer (if present):

Type: Roots
Depth (inches): 7"

Hydric Soil Present? Yes _____ No X

Remarks: Plot located on eroded dike with extensive root system and nurselogs making much of the substrate.

HYDROLOGY**Wetland Hydrology Indicators:****Primary Indicators (any one indicator is sufficient)**

☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1)
☐ Sediment Deposits (B2)
☐ Drift Deposits (B3)
☐ Algal Mat or Crust (B4)
☐ Iron Deposits (B5)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Sparsely Vegetated Concave Surface (B8)

☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A and 4B)
☐ Salt Crust (B11)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Plowed Soils (C6)
☐ Stunted or Stressed Plants (D1) (LRR A)

Secondary Indicators (2 or more required)

☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A and 4B)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)
☐ Raised Ant Mounds (D6) (LRR A)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
 Water table Present? Yes _____ No X Depth (inches): _____
 Saturation Present? Yes _____ No X Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

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

Remarks: Plot located on top of weathered dike, located on a ridge with no source of hydrology.

Appendix C. Site Photographs

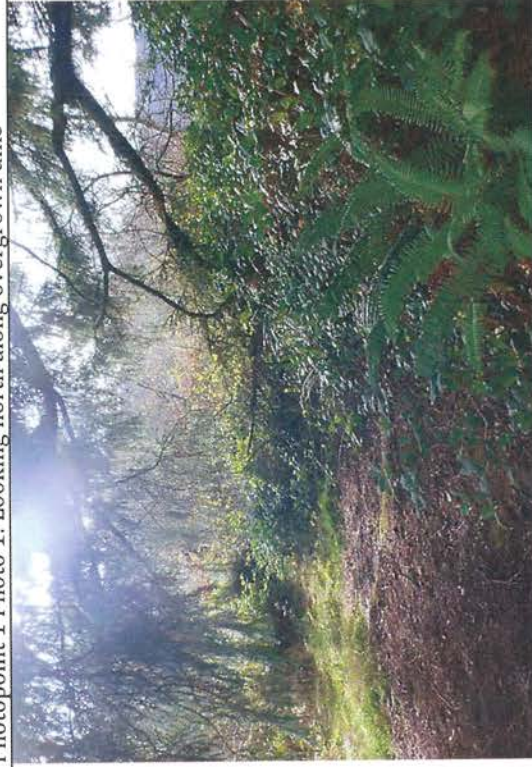
McCoy Wetland Tidal Reconnection Project Wetland and Waters Delineation
Appendix B



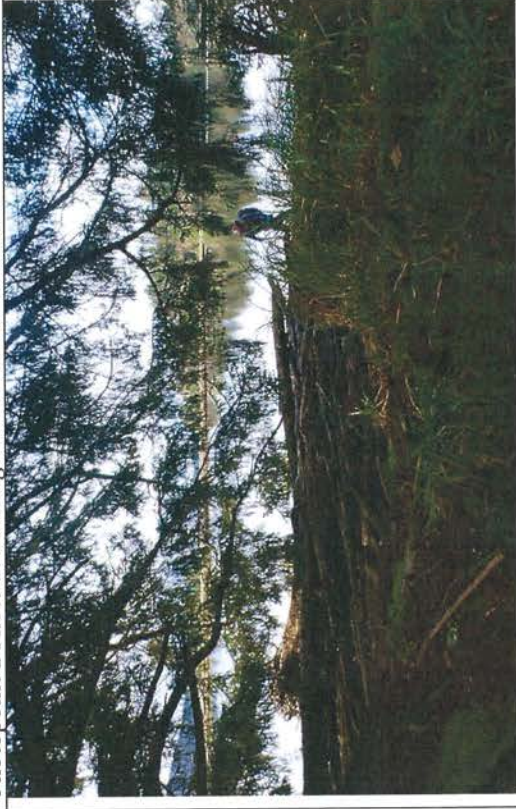
Photopoint 1 Photo 1: Looking north along overgrown dike



Photopoint 1 Photo 2: Looking east towards Wetland 1



Photopoint 1 Photo 3: Looking south along overgrown dike.



Photopoint 1 Photo 4: Looking west towards Nehalem River.

McCoy Wetland Tidal Reconnection Project Wetland and Waters Delineation
Appendix B



Photopoint 2 Photo 1: Looking north at Wetland 1.



Photopoint 2 Photo 2: Looking east at Wetland 1 and Hwy 101.



Photopoint 2, Photo 3: Looking south



Photopoint 2 Photo 4: Looking west

McCoy Wetland Tidal Reconnection Project Wetland and Waters Delineation
Appendix B



Photopoint 3 Photo 1: Looking north at Wetland 1



Photopoint 3, Photo 2: Looking east along dike and Wetland 1.



Photopoint 3 Photo 3: Looking south at abandoned dike.

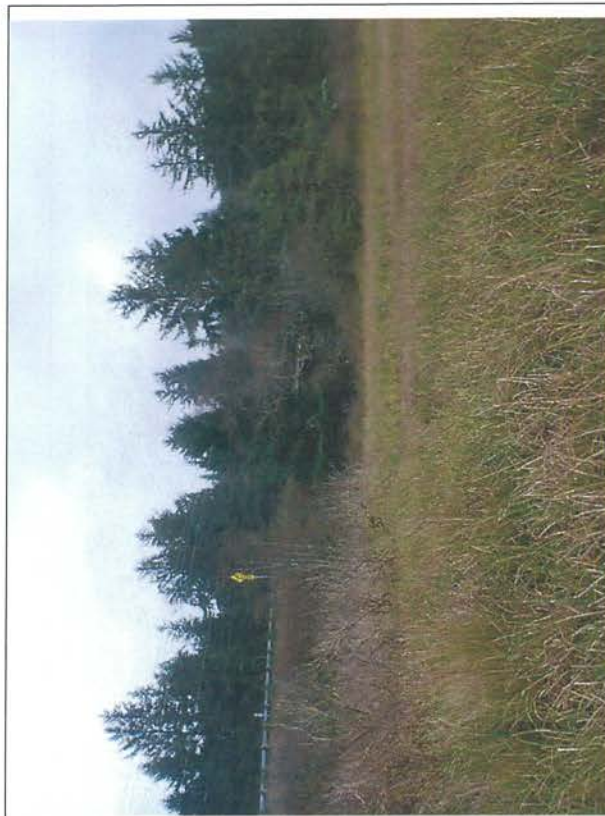


Photopoint 3 Photo 4: Looking west.

McCoy Wetland Tidal Reconnection Project Wetland and Waters Delineation
Appendix B



Photopoint 4 Photo 1: Looking north at hummock.



Photopoint 4 Photo 2: Looking east at Wetland 1



Photopoint 4 Photo 3: Looking south at Wetland 1



Photopoint 4 Photo 4: Looking west at Wetland 1.

McCoy Wetland Tidal Reconnection Project Wetland and Waters Delineation
Appendix B



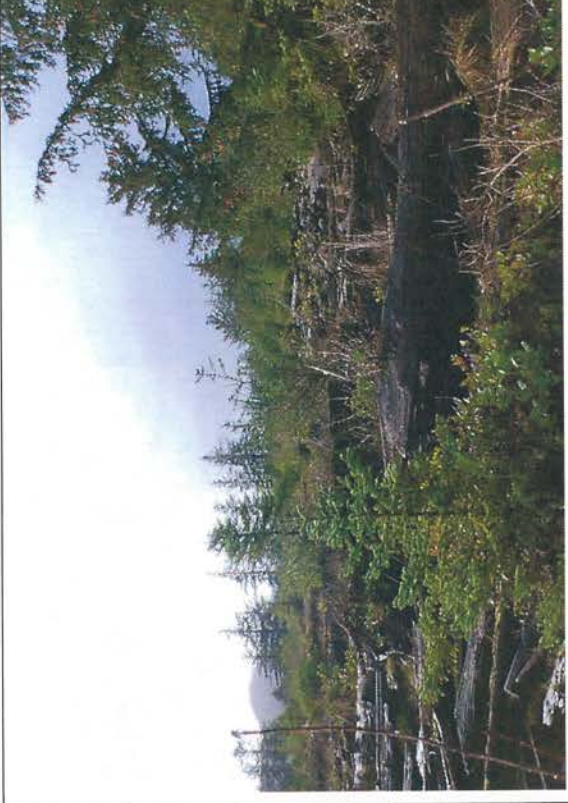
Photopoint 5 Photo 1: Looking north at abandoned dike.



Photopoint 5 Photo 2. Looking east.



Photopoint 5, Photo 3: Looking south at Botts Marsh.



Photopoint 5, Photo 4. Looking west

McCoy Wetland Tidal Reconnection Project Wetland and Waters Delineation
Appendix B



Photopoint 6, Photo 1: ODOT parking area/construction staging area.



Photopoint 7, photo 1: Outboard of dike, facing north in Wetland 2.

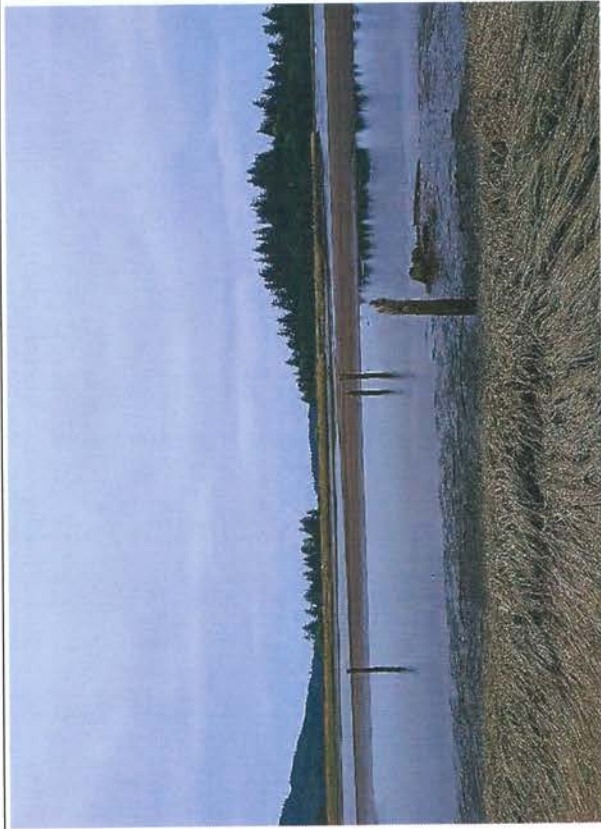


Photopoint 7, Photo 2: Facing east, eroded and overgrown dike.

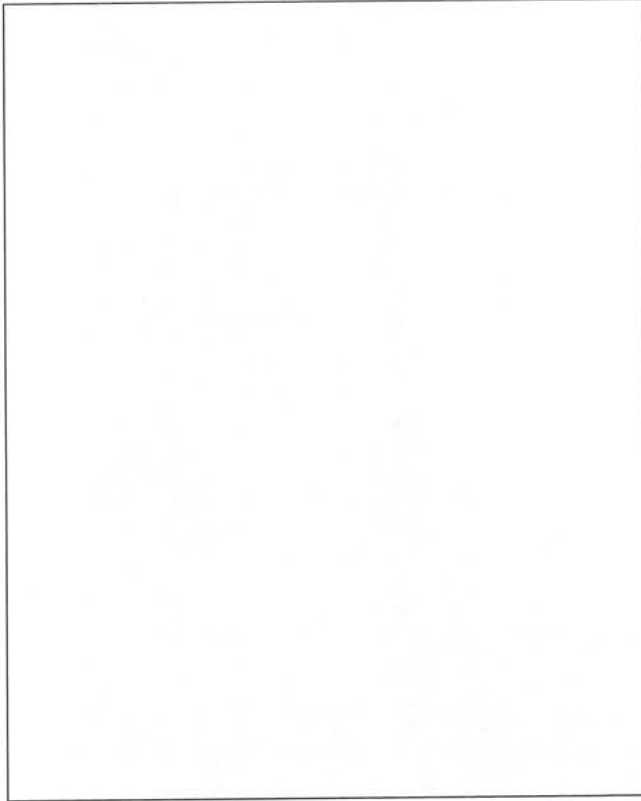


Photopoint 7, Photo 4: Facing south at Wetland 2, overgrown dike and Nehalem River.

McCoy Wetland Tidal Reconnection Project Wetland and Waters Delineation
Appendix B



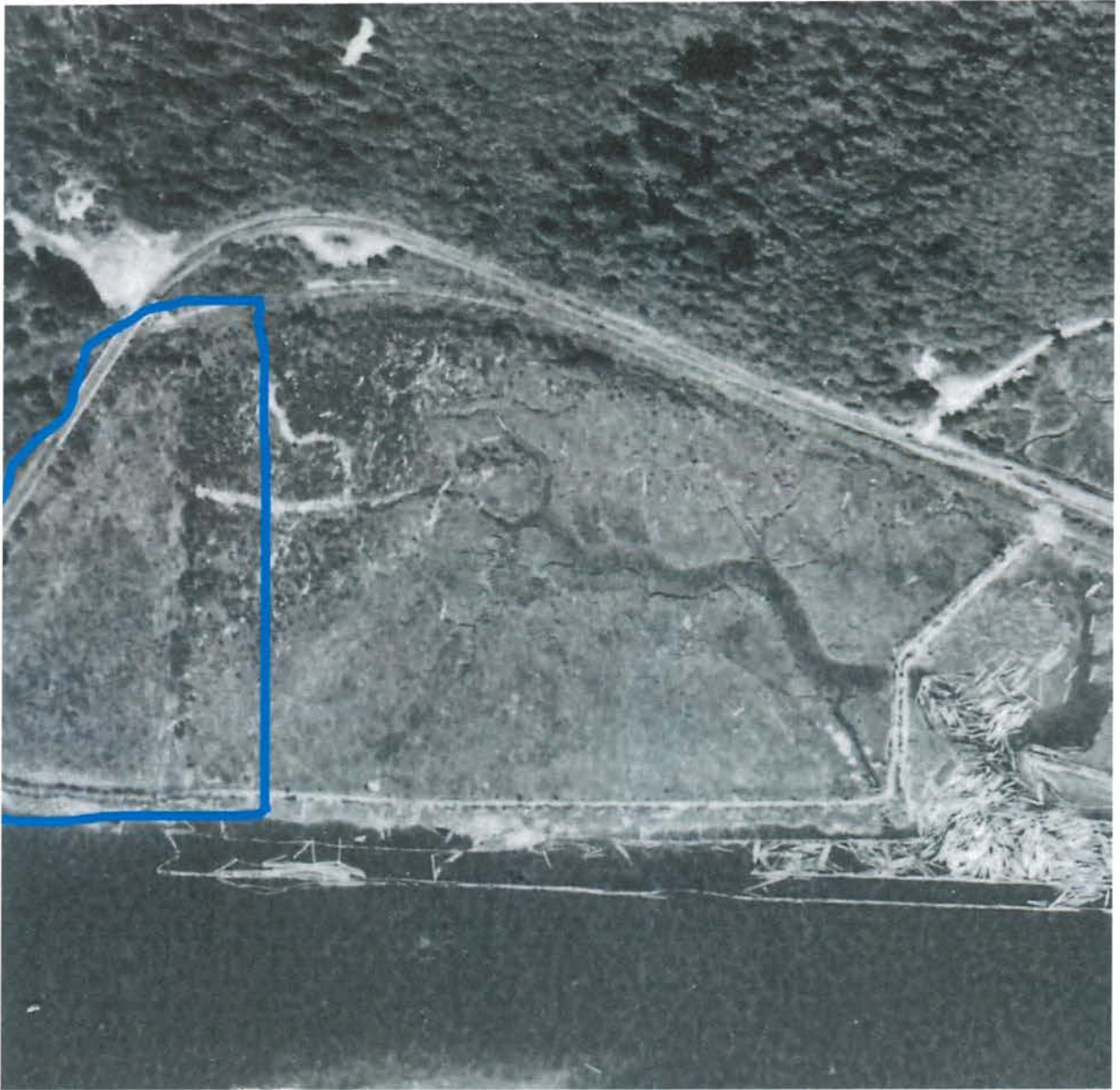
Photopoint 7, Photo 1: Facing west at Nehalem River.



Appendix D. Additional Tables and Information



1945 Photo



1950 Photo



1960 Photo



1965 Photo

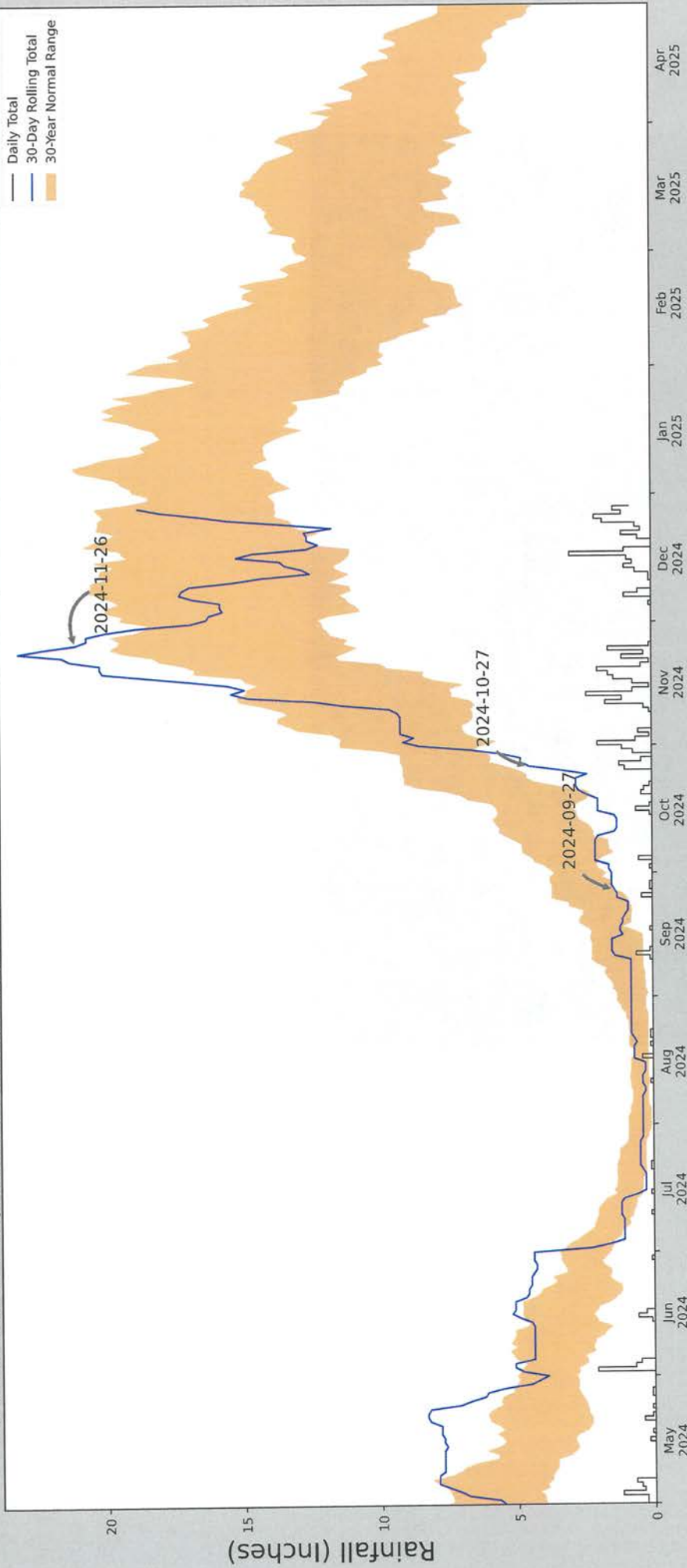


1986 Photo.



2024 Google Earth Photo

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	45.700140, -123.880360
Observation Date	2024-11-26
Elevation (ft)	8,677
Drought Index (PDSI)	Incipient wetness
WebWIMP H ₂ O Balance	Wet Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-11-26	11.287008	19.528741	21.090552	Wet	3	3	9
2024-10-27	5.403543	9.08189	4.492126	Dry	1	2	2
2024-09-27	1.479134	3.653543	1.393701	Dry	1	1	1
Result							Normal Conditions - 12

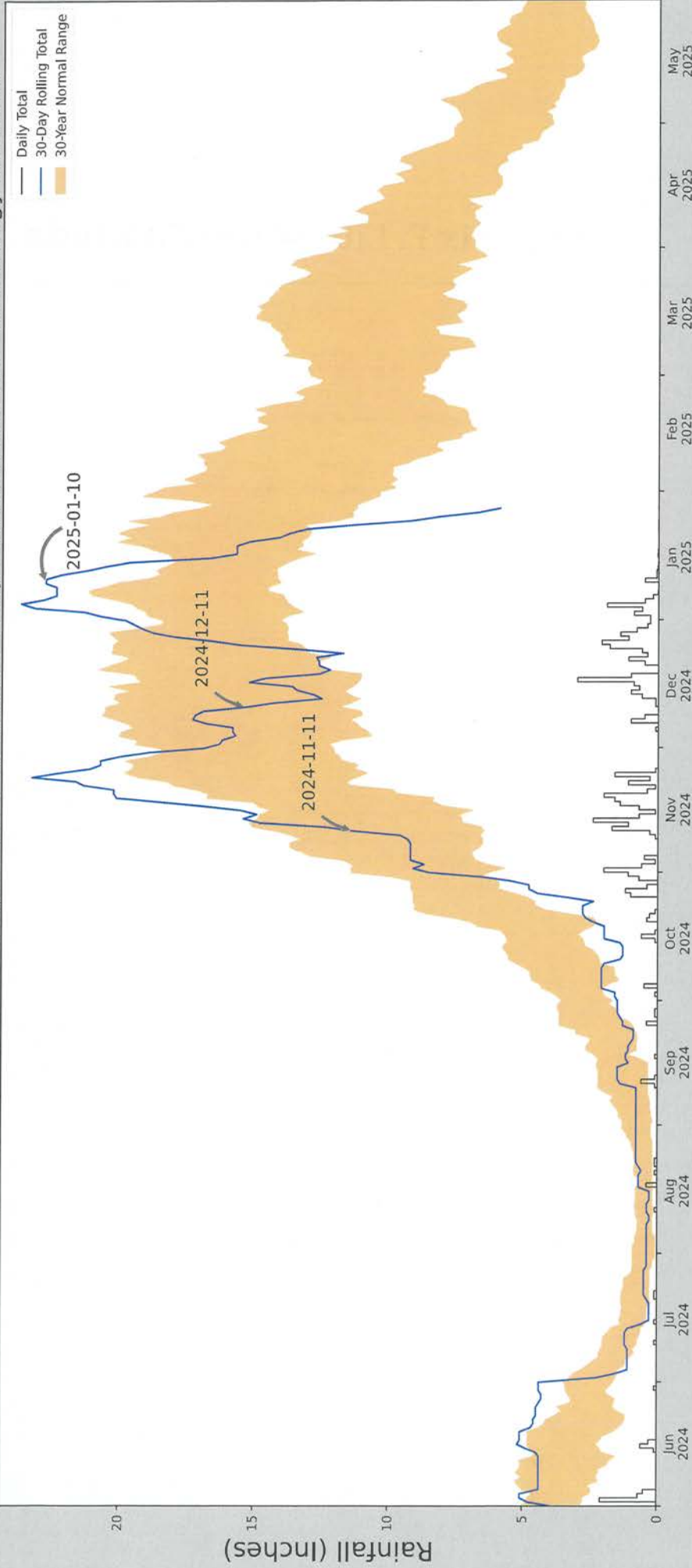


Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
Saddle Mountain	45.54, -123.37	3109.908	27.031	3101.231	95.994	11346	89
TILLAMOOK 17.3 NE	45.6017, -123.5466	658.137	9.546	2451.771	27.7	4	0
TILLAMOOK 16.1 ENE	45.584, -123.5592	539.042	9.644	2570.866	29.133	1	0
TIMBER 0.3 NNE	45.7238, -123.294	911.089	13.22	2198.819	35.017	2	1

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	45.700140, -123.880360
Observation Date	2025-01-10
Elevation (ft)	8,677
Drought Index (PDSI)	Not available
WebWIMP H ₂ O Balance	Wet Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-01-10	14.031497	20.048032	22.716536	Wet	3	3	9
2024-12-11	11.867323	20.501969	15.291339	Normal	2	2	4
2024-11-11	6.468898	14.195276	11.291339	Normal	2	1	2
Result							Wetter than Normal - 15



Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
Saddle Mountain	45.54, -123.37	3109.908	27.031	3101.231	95.994	11346	89
TILLAMOOK 17.3 NE	45.6017, -123.5466	658.137	9.546	2451.771	27.7	4	0
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TIMBER 0.3 NNE	45.7238, -123.294	911.089	13.22	2198.819	35.017	2	0

Appendix E. Literature Citations

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McCOY MARSH TIDAL RECONNECTION PROJECT DRAFT 60% BASIS OF DESIGN REPORT



VIEW OF McCOY MARSH LOOKING SOUTH FROM ALONG HIGHWAY 101

prepared for



WILD SALMON CENTER

prepared by



1020 SW Taylor St. Suite 380
Portland, Oregon 97205

July 2, 2025

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Appendix F	Log Structure Stability Calculations
Appendix G	Hydraulic Report Requested by Oregon Department of Transportation (<i>not included in current version of report</i>)

1.0 INTRODUCTION

1.1 Project Overview

The McCoy Marsh Tidal Reconnection project provides an opportunity to create immediate ecological uplift and reclaim tidal wetlands in the Nehalem River estuary through breaching dikes that no longer serve any practical purpose. The McCoy property, a 9-acre diked former tidal wetland purchased by the Lower Nehalem Community Trust (LNCT) for preservation and restoration, is located along the east edge of Nehalem Bay just north of the town of Wheeler (**Figure 1**). The property is directly adjacent to Bott's Marsh, a 35-acre intact tidal wetland also owned and managed by LNCT. Waterways was hired by LNCT to assist the landowner and its project partners – including Wild Salmon Center (WSC), Oregon Department of Fish and Wildlife (ODFW), Tillamook Estuary Partnership (TEP), and Nehalem Bay Watershed Council (NBWC) – in collaboratively developing a restoration plan and designing the project.

This report describes the existing features and processes at the site, modeling of the existing and proposed conditions tidal hydraulics, documents the alternatives analysis and selection process, and explains the basis for the project design for the preferred alternative. The report is accompanied by a series of Appendices that provide supplemental information to the main report. The 60% (permit-ready) plans are provided as **Appendix A**.



Figure 1. Location of Project Area within Nehalem Bay, Shown at Low Tide (from Google Earth).

1.2 Project Goals and Objectives

An initial kickoff site visit was attended by the entire design and technical advisory team (LNCT, WSC, ODFW, TEP, NBWC, and Waterways). During the site visit, the team reviewed the potential site opportunities and constraints and discussed the project goals and objectives. Following the initial site visit, the design team (LNCT, WSC, and Waterways) led a brief process to collaboratively define the goals and objectives for the project. **Appendix B** contains information on the feedback received, and documents project partners' input on refining and prioritizing the objectives. Through this process the group adopted the following goals and objectives for the project:

Goal Statement

"Restore tidal processes to the entirety of the 9-acre McCoy Wetland, which are currently inhibited by perimeter dikes, to create critical estuarine habitats "

Objectives

At the kickoff site visit, seven specific project objectives were identified and later refined by the group. Each attendee provided specific feedback and/or wording of the objectives and ranked the objectives in order of priority, from first to seventh. An average "priority score" helped to show which objectives were most important to the group. **Table 1** summarizes the project objectives and priorities. In summary, the primary objectives include re-introducing tidal exchange, providing off-channel tidal rearing habitat for salmonids, and creating the conditions to allow for "high marsh" habitat to form on much of the property. Secondary objectives, to be achieved if possible and practical, include maximizing the extent of removal of artificial fill, and expanding tidal Sitka spruce wetland in parts of the property. Recreational and educational objectives were also considered, but the design team and technical advisors concluded that such project elements, including parking, post-construction site access, trails, and signage, will be considered later by LNCT, separately from the habitat restoration effort. That said, one of the requirements of the project designs will be that LNCT crews must be able to access the site for planned vegetation monitoring and maintenance.

Table 1. Project Objectives and Priorities

	Objective #	Initial Objectives (to be quantified later)	Average Priority Score
Primary Objectives	1	Re-introduce salt water tidal exchange with a frequency and extent resembling the pre-dike condition.	2.0
	2	Provide off-channel rearing habitat to salmonids during highest tides and river flows (above 7.5' elevation)	2.2
	3	Create "high marsh" habitat similar to non-channelized parts of Botts Marsh	3.3
	4	Provide off-channel rearing habitat to salmonids during more frequent periods (above 4' elevation)	3.8
Secondary Objectives	5	Remove as much of the artificial levee as possible	4.6
	6	Expand tidal sitka spruce wetland around Nehalem Bay	5.5
	7	Provide recreational or educational access and opportunities	6.3

2.0 EXISTING CONDITIONS

2.1 Project Area Overview

The McCoy Marsh wetland is a 9-acre parcel on the east side of Nehalem Bay, just upstream of the community of Wheeler, Oregon (**Figure 1**). The property has been disconnected from tidal influence by the construction of dikes, and is adjacent to Botts Marsh, a larger and tidally connected wetland considered to be a highly valuable high marsh environment containing a well-developed tidal channel network. McCoy Marsh is separated from Bott's Marsh by a constructed levee, which is now degraded and densely vegetated including several very large spruce trees. A 12-inch concrete culvert under an eroded part of the levee separating McCoy and Bott's marshes (**Figure 2A**) allows some minor tidal exchange at tides above 8 feet elevation. During very high tides above 10 feet (typically king tides), tidal water overtops the levee and fills the McCoy wetland, which subsequently drains slowly through the culvert back into Bott's marsh.

Although the property has been isolated from regular tidal influence for at least 80 years by constructed levees, it was not filled or graded and retains much of its historic microtopography and wetland character. The ground surface in McCoy Marsh is generally between 8- and 10-foot elevation (NAVD88), comparable to elevations in the northern extent of Bott's Marsh (**Figure 2B**). This suggests the possibility of restoring "high marsh" habitat with similar conditions as in Bott's Marsh.

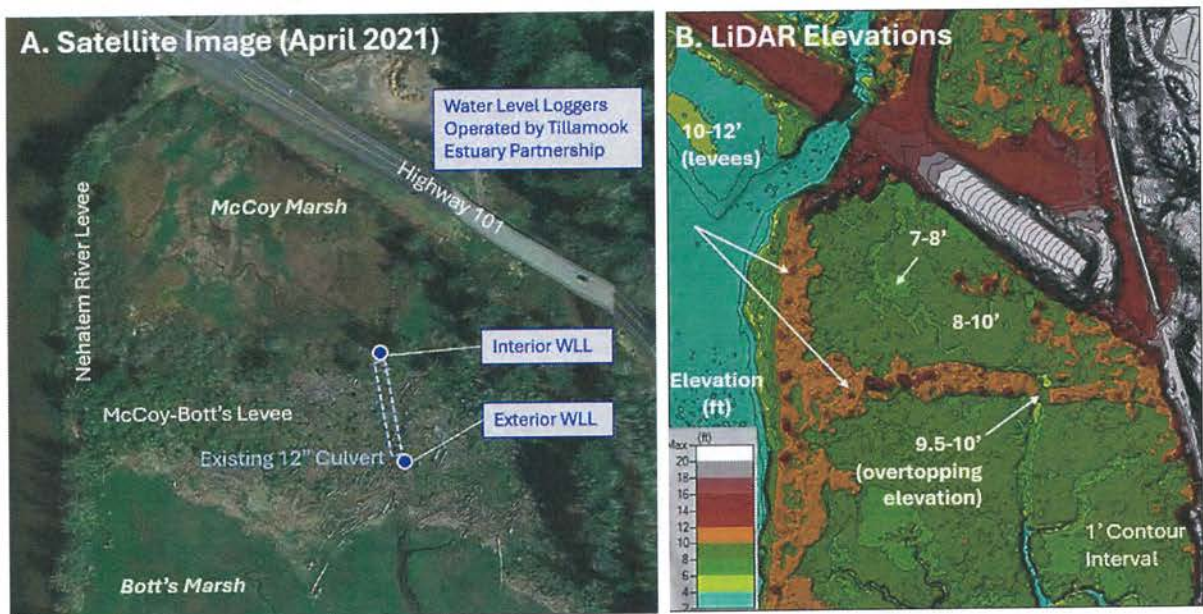


Figure 2. Satellite Image (A) and Elevation Map (B) of the McCoy Property and Northern End of Bott's Marsh.

2.2 Vegetation

To better understand existing botanical conditions, potential future conditions, and inform revegetation planning, Ash Creek Forest Management (Ash Creek) performed an initial site visit to the property and to a nearby “reference site” at a similar elevation on the northern margin of Nehalem Bay considered to support healthy tidal wetland vegetation. Ash Creek’s description of existing conditions, included in the Revegetation Plan (**Appendix C**), is summarized below:

The parts of the McCoy property below about 9 feet elevation contain a dense population of wetland sedges, rushes, and grasses. Vegetation in the buffer zones and elevations above ordinary high water are for the most part healthy, except for a few large patches of *Rubus armeniacus* (Himalayan blackberry), which is on the wetland side of the dike. Some *Polygonum ssp.* (Knotweed) is established on the river side of the dike.

One relevant observation made by Ash Creek is that, although substantial knotweed is present in Bott’s Marsh as tidal wrack or drift material, little to no knotweed has become established on the high marsh surfaces. Ash Creek interprets this as meaning that while propagules are introduced through tidal exchanges, knotweed may not be able to survive and establish in the areas in Bott’s Marsh, probably because they are frequently inundated with brackish waters. When the levees are breached, McCoy Marsh will probably also receive knotweed propagules, but Ash Creek infers that these may not be able to establish in the frequently inundated areas of the property. Even so, careful monitoring and possible management of knotweed and other invasive species should be performed following the project.

Wetlands

Cascade Environmental Group (CEG) mapped wetlands on the site based on plant species, soil properties, and other indicators (see **Appendix D** for full report). Based on this mapping, nearly all the site is wetland except for narrow areas along the levees above about nine feet elevation (**Figure 3**). The wetlands shown in **Figure 3** include both tidal and nontidal conditions, including estuarine E2EM and flat PSS/PFO wetland types. The wetland was protected from tidal inundation by a dike that has since partially eroded. E2EM communities are supported both inboard and outboard of the dike below approximately nine feet, NAVD 88 feet elevation; PSS and PFO communities are located near the degraded dike at the east end of the study area and in a few low mounds above elevations that support E2EM communities.

The degraded dikes are a partial barrier to tidal inundation and floods, but surface water is able to circumvent the dike through a culvert (**Figure 2A**). Small drainage channels have formed within the E2EM community, routing surface water towards the culvert as the primary surface water outlet.

E2EM communities are vegetated with triangular club-rush (*Schoenoplectus pungens*, OBL) saltgrass (*Distichlis spicata*, OBL), creeping bentgrass (*Agrostis stolonifera*, FAC), slender cinquefoil (*Argentina anserina*, OBL), Lyngby’s sedge (*Carex lyngbei*, OBL) and E2EM communities were inundated to the surface during fieldwork and do not border uplands, no data plots were recorded in E2EM areas.

PSS communities are vegetated with twinberry (*Lonicera involucrata*, FACW), salmonberry (*Rubus spectabilis*, FACW), trailing blackberry (*Rubus ursinus*, FACU), and Armenian blackberry (*Rubus armeniacus*, FAC), cascara (*Frangula purshiana*, FAC) with slough sedge (*Carex obnupta*, OBL), sea watch (*Angelica lucida*, NOL), sword fern (*Polystichum munitum*, FACU), and pearly everlasting (*Anaphalis margaritacea*, FACU). PFO communities were dominated by Sitka spruce (*Picea sitchensis*, FAC), with slough sedge, and sword fern, and salal (*Gaultheria shallon*, FACU) growing on hummocks in the understory. Vegetation within PSS and PFO communities met the dominance test for hydrophytic vegetation; soils met indicators for loamy gleied matrix (F2), sandy redox (S5), and depleted matrix; and test plots met hydrology indicators for high water table (A2), soil saturation A3, and FAC-neutral test.



Figure 3. Mapped Wetlands in Project Area (Preliminary Data Provided by Cascade Environmental Group, 2024)

Uplands

Uplands within the study area consist of the degraded dikes, the highway embankment, and the ODOT maintenance parking area on the north side of Highway 101. The dike was likely constructed of local soils, which are a mix of loams and sandy loam, whereas the Highway 101 embankment soils appeared to be imported fill, consisting of sands and gravel. Uplands occurring as the failed dike and highway embankment supported similar vegetation, Sitka spruce, red alder (*Alnus rubra*, FAC), Armenian blackberry, trailing blackberry, sword fern, bracken fern (*Pteridium aquilinum*, FACU), Scotch broom (*Cytisus scoparius*, UPL), creeping bentgrass, and orchardgrass (*Dactylis glomerata*, FACU). All upland

data plots failed to meet hydrophytic vegetation criteria. Upland soils failed to meet any hydric soils criteria, with very dark brown or dark brown matrix colors and textures ranging from sand to loam.

2.3 Fish and Wildlife Use

The Nehalem River estuary is extensively used by many native and non-native fish species at all life stages. Salmonid species in the Nehalem River include Chinook, coho, and chum salmon, as well as steelhead and coastal cutthroat trout. Of these, coho and steelhead are the most threatened. At present, the project area includes wetland that has been isolated from the Nehalem River for at least 80 years and essentially no fish use McCoy Marsh. Historically, and under proposed future conditions, tidal channels on the property can provide opportunities for juvenile fish to shelter and feed in areas outside the main channel. Off-channel tidal rearing areas, where food is more plentiful and juvenile fish are less vulnerable to predation, are critical and limited habitats for recovering coho populations in the Nehalem River. The Nehalem Basin Strategic Action Plan for Coho Salmon Recovery (Wild Salmon Center and Coast Coho Partnership, 2023) set a long-term objective of reconnecting 300 acres of tidal wetlands over the next 20 years, and this project would contribute towards that outcome.

McCoy Marsh also provides habitat that may be used by many birds, mammals, amphibians, and reptiles. Based on habitat surveys of similar estuarine sites in the region, more than 100 species of birds use similar habitats on the margins of the Nehalem Bay, including waterfowl and shorebirds, wading birds, marsh and forest songbirds, and raptors. While we have not seen any evidence of beaver presence in McCoy Marsh, beaver could potentially populate the site once the levees are breached and tidal channels excavated. Coyotes, bears, mountain lions, and a resident herd of Roosevelt Elk are present in similar environments around the Nehalem Bay, although large mammals may be less likely to use McCoy Marsh due to the proximity of Highway 101. Amphibian and reptile species including Western Toad, red-legged frog, and salamanders may also be present in wetland and riparian zones in the Nehalem estuary.

2.4 Site Hydrology

There are no significant tributary inflows into McCoy Marsh, so the water on the site presently comes from direct rainfall onto the site, periodic tidal inundation through the small culvert in the southeast corner of the property, and occasional levee overtopping during very high tides.

This section describes the available data on water levels inside and outside the project site, and the derivation of estimates of jurisdictional water levels (Highest Measured Tide, Mean High Water, and High Tide Line) needed for permitting purposes.

Measured Water Levels

The U.S. Geological Survey operates a flow and water level gage on the Nehalem River at the Highway 101 Bridge (USGS 1430140) about 0.7 miles upstream of the project site (see **Figure 1**). This is a relatively new gage and collects instantaneous information on both water levels and water velocities. Because of the short distance and low gradient between the McCoy property and the gage, this gage serves as a good estimate of water levels in the Nehalem River immediately outside the project site. Therefore, data from this gage is used as a boundary condition for the hydraulic modeling as well as for computing jurisdictional water levels. Data from this gage are available from April 2024 to present.

In addition to the USGS gage, Tillamook Estuary Partnership (TEP) installed two water level recorders at the McCoy site at the request of LNCT. In December 2023, prior to the beginning of the current alternatives analysis and design, two pressure transducers with data recorders (also called water level loggers) were installed on the inside and outside of the culvert connecting Bott's and McCoy Marsh (see **Figure 2** for location). TEP provided water level data for these gages at 15-minute intervals, adjusted for barometric pressure.

Collectively the water level data from the Nehalem River and from inside and outside the McCoy-Bott's levee provide a good understanding of the existing conditions hydrology of the McCoy site. **Figure 4** is a 5-day sample of water level data from the three sites. The TEP water level loggers, which are installed close to the ground elevation of about 7 feet, are above the Nehalem Bay tidal water level most of the time. During the first two days of the data set shown in **Figure 4**, the TEP sensors remained dry or within small tide pools most of the time. In the first two days, the loggers were submerged only during high tides. When water level exceeded about 7 feet, the water level at both sensors rose and then fell about 1.5 feet, in parallel with the Nehalem River tides.

The final three days of the record shown in **Figure 4** shows what happens in McCoy Marsh when water levels exceed about 10 feet. At this tidal level, enough water enters the enclosed basin, probably through overtopping the levee at eroded sections, to fill it to nearly the same level as Nehalem Bay (10 feet). Under these conditions, the site drains slowly due through the undersized culvert (see high tides on 2/28, 2/29, and 3/1 in **Figure 4**).

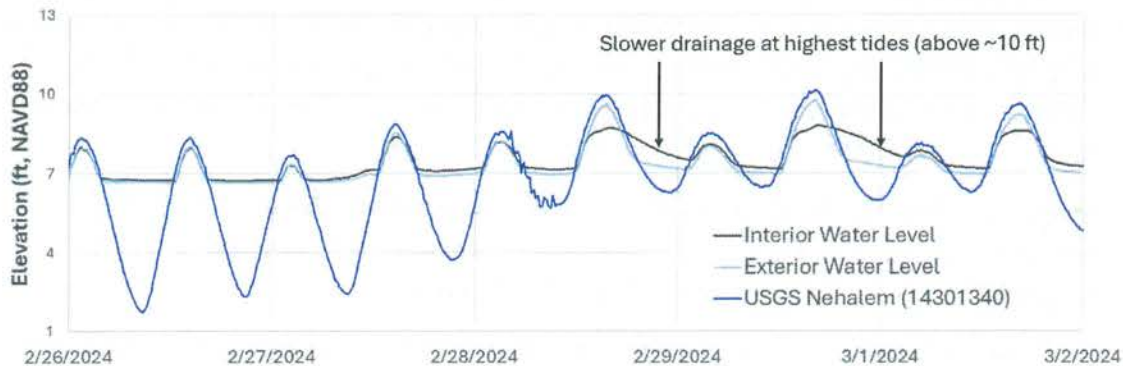


Figure 4. Example of Water Level Data Showing How the Site Fills and Empties in Different Size Tides.

Jurisdictional Water Levels

For the purposes of permitting with the Oregon Department of State Lands (DSL) and U.S. Army Corps of Engineers (USACE), it was necessary to identify the tidal elevations at the project site subject to different jurisdictions by the two agencies. DSL regulates activities below the highest measured tide (HMT), whereas the USACE, through the Clean Water Act, applies to areas below the “high tide line”. The USACE also regulates areas below “mean high water” (MHW) via the Rivers and Harbors Act (see <https://www.nwp.usace.army.mil/Missions/Regulatory/Jurisdiction.aspx> for a visual explanation of jurisdictions in coastal tidelands and wetlands). The upcoming Joint Permit Application that will be submitted to both agencies for this project will require computing the fill and removal volumes of sediment below the HMT, HTL, and the MHW, so these jurisdictional water elevations must be shown in the design drawings. These datums are typically provided by NOAA for coastal tidal gages. Unfortunately, the USGS Nehalem gage is not a tidal gage for which these datums are provided, so they were estimated for the current site using different methods (**Table 2**).

The jurisdictional water levels were estimated as follows:

- **Highest Measured Tide.** DSL has analyzed NOAA data to determine the HMT for many sites along the Oregon Coast (DSL, 2010; available here: <https://www.oregon.gov/dsl/wetlands-waters/Documents/DeterminingHighestMeasuredTide.pdf>). These expanded sites include the Nehalem River at the Highway 101 bridge. From this document, the estimated HMT for the Nehalem River at Highway 101 is an elevation of 11.95 feet (NAVD88).
- **High Tide Line.** For practical purposes, the HTL is assumed to be equivalent to the Highest Astronomical Tide (HAT) which is reported for NOAA tidal gages. The nearest NOAA tidal gage in coastal Oregon is in Garibaldi, in Tillamook Bay. Based on data, NOAA estimates the HTL at the Garibaldi NOAA gage is 10.43 ft MLLW datum, which converts to 10.11 ft NAVD88. To estimate the HAT for the USGS Nehalem gage, we searched the Garibaldi record for a high tide event

with an elevation near 10.11 ft, and found the peak water elevation at the Nehalem at the same time. A high tide with a similar elevation was on 12/4/24; the equivalent water level for the USGS Nehalem gage at that time was 11.48 ft (NAVD88). This is the recommended HAT and HTL for the project area.

- **Mean High Water.** Similarly, the reported MHW for the Garibaldi gage was 7.295 ft NAVD88. This tide was reached on 12/15/24, and the concurrent water level at Nehalem was 8.45 ft NAVD88. This value is the recommended MHW for the project area.

The estimated jurisdictional water levels provided above are physically reasonable. The HTL and MHW are 1.4 feet and 1.2 feet higher, respectively, in Nehalem compared to Garibaldi (Table 2). Whereas Garibaldi is in Tillamook Bay, Nehalem is on the Nehalem River. The river provides a base flow that would tend to augment the tides by one to two feet.

Table 2. Analysis of Regulatory Datums for McCoy Tidal Wetland Project

	MLLW (ft)	Date and Time Specified Water Elevation was Reached at Garibaldi	NAVD88 (ft)	Conversion Difference btwn MLLW and NAVD88 (ft)	Location
Mean High Water					
Giribaldi MHW (water elevation at 12:15 am on 12/15/2024, per USGS data)	7.61	12/15/24 12:15 PM	7.295	-0.315	Garibaldi
Concurrent Water Elevation at Nehalem (@ 12:15 am 12/15/2024, from USGS Nehalem Gage)			8.45		
Concurrent Elevation Difference (Nehalem minus Garibaldi)			1.155		
High Tide Line - equivalent to Highest Astronomical Tide (HAT)					
Giribaldi HAT (per NOAA web site)	10.43	12/4/24 10:00 AM	10.115	-0.315	Garibaldi
Concurrent Water Elevation at Nehalem (@ 10 am 12/4/2024 from USGS Nehalem Gage)			11.48		
Concurrent Elevation Difference (Nehalem minus Garibaldi)			1.365		
Highest Measured Tide (HMT)					
Garibaldi HMT using DSL table	11.96		11.64	-0.32	Garibaldi
Garibaldi Highest Observed Tide (1/4/2022 @ 01:30, per NOAA website)	12.08		12.4	-0.32	Garibaldi
Concurrent Water Elevation @ Nehalem					
Elevation at Nehalem using DSL table	11		11.95	0.95	Nehalem

Notes:

Recommended Regulatory Water Levels for this project are in the cells highlighted yellow

1. McCoy project location is very close to the new USGS Nehalem Gage (operational since 2023); estimated MHW, HTL, and HMT are based on correlations to that gage.

2. Elevations reported in italics were converted using the NOAA online conversion tool at <https://vdatum.noaa.gov/vdatumweb>

2.5 Existing Conditions Hydraulic Model

To better understand site conditions and develop initial design concepts, Waterways created Existing Conditions 2-dimensional (2D) hydraulic models of the project area using the U.S. Army Corps of Engineers' Hydraulic Engineering Center River Analysis System (HEC-RAS).

Two Existing Conditions models were created for the purposes of this project: one used the unmodified LiDAR data as a modeling terrain, and one incorporated survey data collected for this project. There are advantages and disadvantages to both models. The LiDAR elevations are comprehensive, with millions of data points and high resolution; however, LiDAR elevations are known to be higher than actual ground surfaces in some areas due to the presence of vegetation. The survey data is more accurate, but

for this project, with a single day of survey and sight lines that were difficult in some key areas, a model based on survey will have inaccuracies due to limited topographic data. Both models have been used by the design team for the purposes of understanding, design, and communications. The discussion below of existing conditions is based on analysis of the model that is based on LiDAR data. The discussion of proposed conditions hydraulics discussed later (in Section 5) is based on the terrain derived from the ground survey.

The following data were used to run the Existing Conditions model:

- Topography from LiDAR and ground survey,
- Manual digitization of breaklines along known geomorphic boundaries along the base and tops of levees, slopes, channels, and tidal benches,
- Mapping of vegetation roughness using aerial imagery, and
- Boundary condition water levels from the USGS Nehalem gage.

To validate the model and gain a better understanding of its limitations, the model was run for several tidal cycles using the USGS Nehalem data as the boundary condition and compared with data from the TEP water level loggers inside and outside the McCoy project site. **Figure 5** compares the modeled and measured water levels at the TEP water level loggers for four typical tidal cycles in winter 2025. The validation run leads to the following observations about the model accuracy:

- The model tends to slightly overpredict water levels on both sides of the Bott's/McCoy levee during high tides. The error is less than 0.25 foot (3 inches) during typical high and low tides, but the error increases to as much as 0.5 foot (6 inches) during a large high tide. The predicted water levels are considered to be reasonably good for an uncalibrated model based on LiDAR without survey data. Some of the discrepancy may be due to errors in the LiDAR data, roughness estimates, and/or limitations related to the cell size, computational interval, or other model details.
- The errors are similar for both inside and outside the levee. Therefore, the model seems to reasonably replicate flow through the culvert, including the tendency for slow drainage following tides approaching 10 feet, as shown in **Figure 4** above.
- There is a lag time of an hour between the modeled and measured high tides. This might be expected due to the time it takes for a tidal signal to propagate through Bott's Marsh, which is not represented by the model. This lag time error is not important to any of the questions needed to be answered for this design effort.

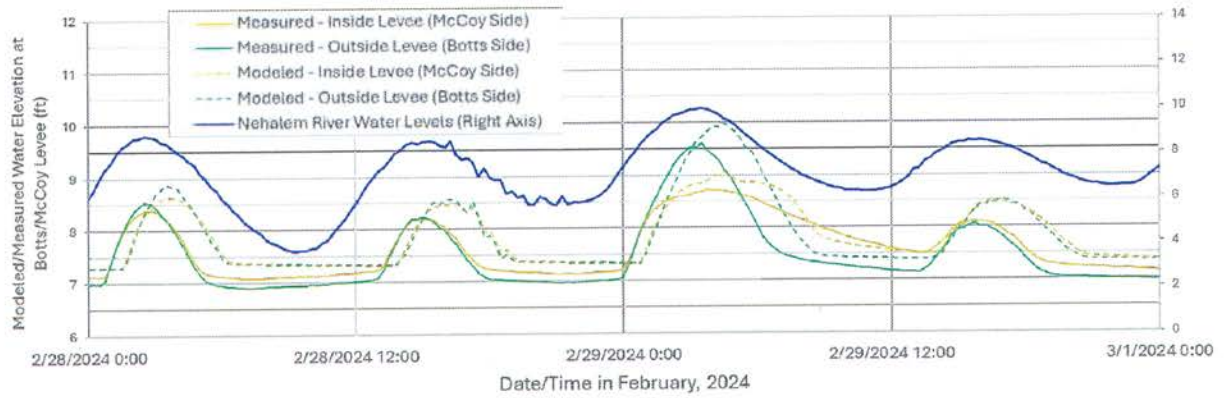


Figure 5. Existing Conditions Model Validation Runs.

The existing conditions model was run for a range of low and high flows and different tidal conditions to gain a more complete understanding of the existing hydraulic conditions of the site and support the development of potential project alternatives. **Figure 6** shows the extent and depth of modeled water inundation for several tidal scenarios: typical summer low tide, typical summer high tide, typical winter high tide, and a king tide.

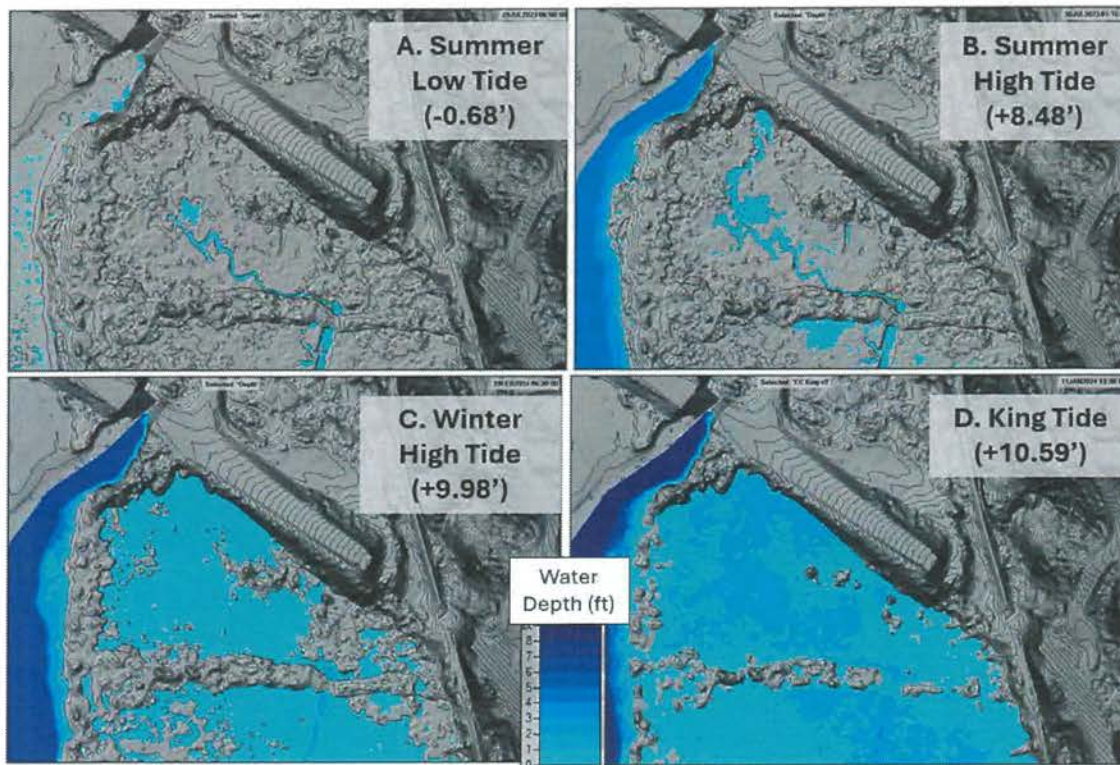


Figure 6. Existing Conditions Modeled Water Inundation and Depths for Different Tidal Scenarios

Some of the key observations of the existing conditions model are summarized as follows:

- During low tides (**Figure 6A**), the site mostly drains, leaving some ponded water in some of the lower areas within the site. This is consistent with observations. However, some of the ponding shown in **Figure 6A** could also be an artifact of small errors in the LiDAR data.
- During a typical summer high tide of about 8.5 feet, tidal water enters the site through the culvert in the southeast of the project area, and this water remains within the small channels on site (**Figure 6B**). This is also consistent with observations.
- During a typical winter high tide close to 10 feet elevation (**Figure 6C**) tidal water overflows the small channels in McCoy marsh and inundates much of the project area. This is probably due to

a combination of water through entering through the culvert along with water flowing over low points in the Bott's-McCoy Levee.

- During king tides, tidal water overtops large portions of the levees and fills most of the site up to the Highway 101 road prism, and subsequently drains slowly through the 12-inch culvert. This is also consistent with observations and photos of the site.
- From a restoration perspective, breaching the levees without excavation on the interior would allow fish to access the site only a small percentage of the time during the highest tides in winter. To provide significant fish benefit, interior grading of channels on the property would be necessary.

3.0 ALTERNATIVES EVALUATION

As described in Section 1, Lower Nehalem Community Trust and Wild Salmon Center led a collaborative process among the design team and technical advisory team to define the project goals and objectives, and the group adopted the following four primary ecological objectives for the project designs:

1. Reintroduce salt water tidal exchange on the property
2. Provide off-channel rearing habitat at higher tides (above 7.5 feet elevation)
3. Create “high marsh” habitat similar to the non-channelized parts of Bott’s Marsh
4. Provide off-channel rearing habitat at moderate tides (above 4 feet)

Based on the objectives, the project team considered three basic alternatives. These are laid out in an Alternatives Deliverable (**Appendix E**), which includes drawings and rough cost estimates, and are summarized in **Figure 7** below. **Appendix E** also contains an annotated slide show that was presented to the Technical Advisory Team and landowner representatives to assist in evaluating the alternatives and selecting a preferred alternative. The slides include a discussion of each alternative, potential costs and benefits, engineering challenges, modeling of each of the Alternatives, and evaluation of how each alternative meets or does not meet the project objectives. The full alternatives evaluation is provided in the Appendix and briefly summarized below.

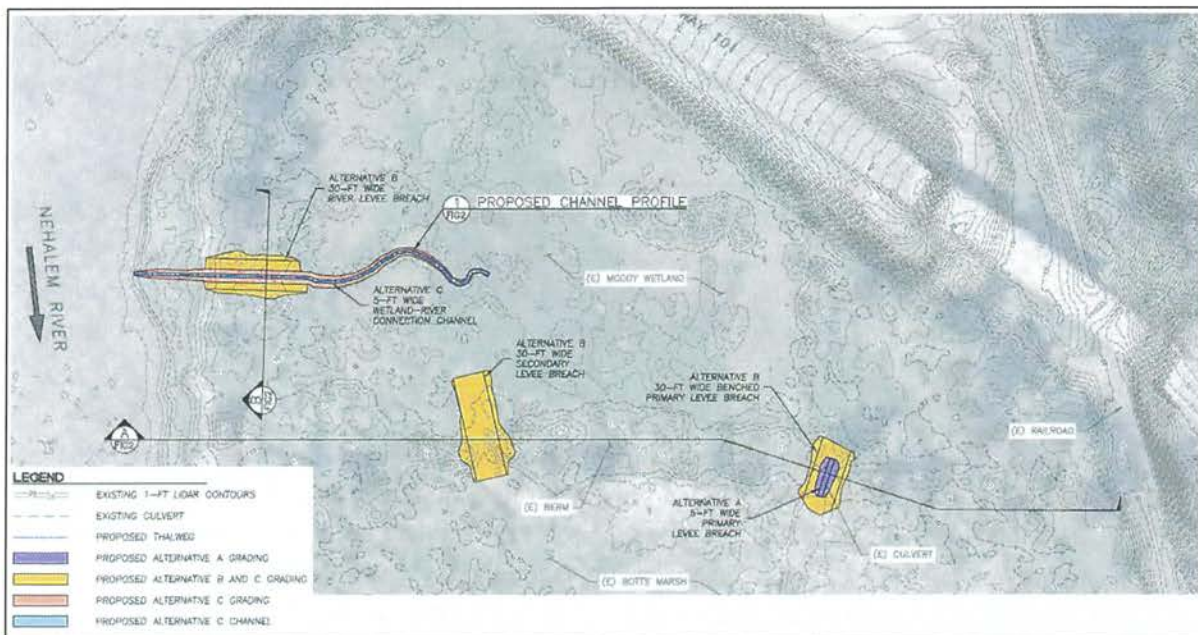


Figure 7. Primary Alternatives Considered

Alternative A: Single Breach at McCoy-Botts Levee

Alternative A is the option to reconnect McCoy Marsh to Bott's Marsh with a minimum of excavation, shown in purple in **Figure 7**. This alternative would create a single breach in the McCoy-Bott's levee at or near the existing culvert, while avoiding disturbance to mature spruce trees. This would be the smallest and lowest impact of the three alternatives. The estimated construction cost was about \$75,000.

Modeling of Alternative 1 (**Figure 8B and 9B**) shows this option would moderately increase tidal exchange during high and very high tides (8 feet and above), which would provide little to no fish access to the marsh. One risk noted for Alternative A is that logs could accumulate at the breach and reduce the connectivity over time.

Alternative A would partially address Objectives 1 and 3 above, as it would reintroduce limited tidal exchange through a single breach. Alternative A would not achieve Objectives 2 and 4, as it would have little to no fish benefit.

Alternative B: Breaches at Both McCoy/Bott's and Nehalem River Levees

Alternative B would include three separate levee breaches (gold in **Figure 7**) to allow for more tidal exchange and connectivity between the Nehalem River, McCoy Marsh, and Bott's Marsh. Two of the breaches would be in the McCoy/Bott's levee, and one would be in the Nehalem River levee. The work would focus on removing artificial fill with no interior grading or enhancements, such as excavating tidal channels or installing large wood. This option would cost around \$160,000 to construct (not including design, oversight, permitting, revegetation, or other costs).

Alternative B would not provide much more connectivity compared with Alternative A, as shown in **Figures 8C and 9C**). During higher tides, there would be slightly more connectivity, but this option would also not provide much fish access. This option would likely achieve Objectives 1, 2, and 3 – reintroducing tidal exchange, restoring high marsh habitat, and providing limited fish rearing opportunities during high and very high tides. Objective 4, providing fish rearing at moderate tides, would not be met.

Alternative C: Breaches and Interior Grading

Alternative C would include the three breaches along with excavating a small tidal channel network that would provide more access to fish during moderate tides. The channels would be graded to tie into the bed of the Nehalem River, which is at an elevation of around 2 feet (NAVD88) near the project site. Tidal channel grading could be supplemented by adding large wood to the tidal channels, and through building hummocks and floodplain log structures to enhance the tidal channels and high marsh floodplain. The construction costs for grading related to this option are close to \$200,000 (this does not include costs for log structures).

Alternative C is the only alternative that will provide fish access during moderate tides (**Figure 8C**) and will meet all the Objectives 1 through 4.

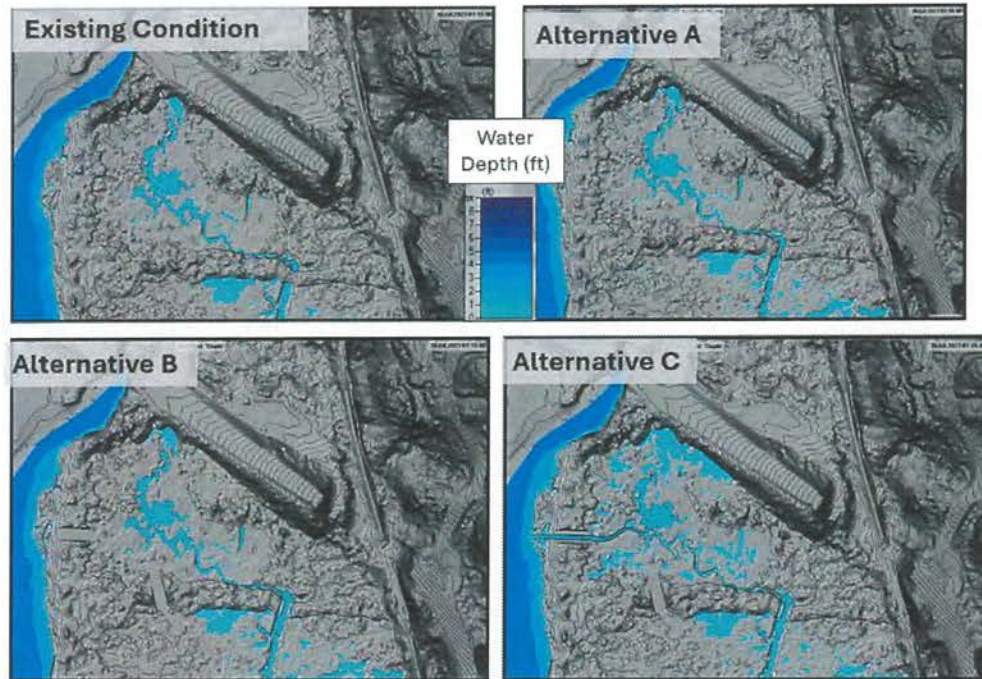


Figure 8. Comparison of Alternatives in a Typical Summer High Tide (about 8.5')

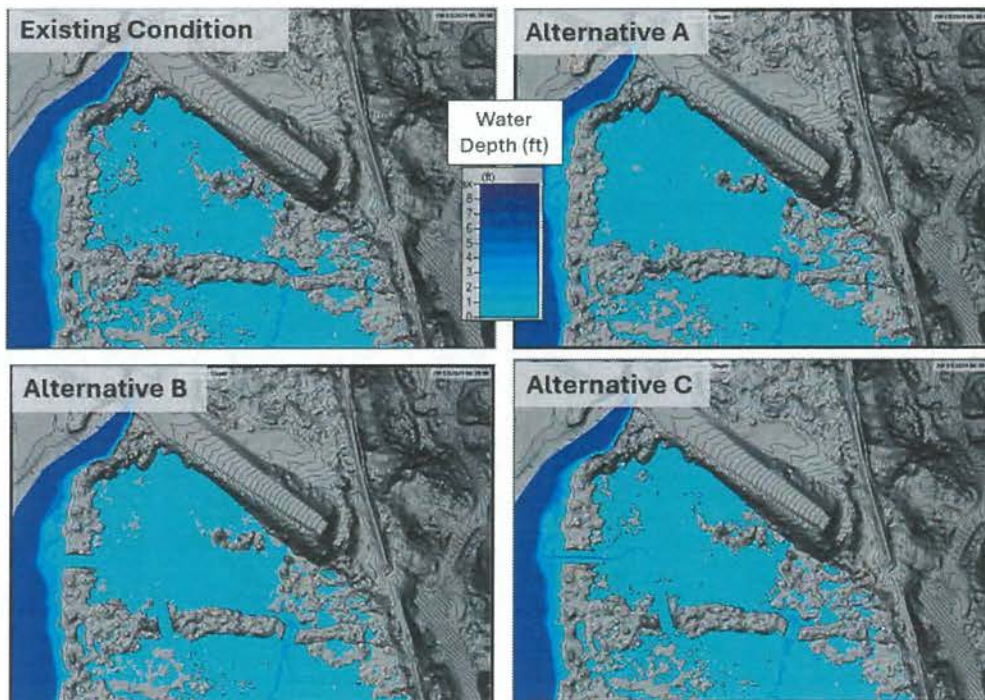


Figure 9. Comparison of Alternatives in a Typical Winter High Tide (about 10.0').

4.0 BASIS OF DESIGN

The design team (consisting of LNCT, WSC, and Waterways) and technical advisory team (including ODFW, TEP, and NBWC) reviewed the project alternatives (**Appendix E**) and provided written comments prior to a video conference at which the group discussed the three alternatives and selected an enhanced version of Alternative C as the preferred Alternative. Alternative C includes three levee breaches, tidal channel excavation, hummocks and large wood, and meets all four of the primary project objectives (Section 1.2). The 60% (permit-ready) designs are provided as **Appendix A**. The plans identify the proposed project elements and layout. This section provides a more detailed explanation of the rationale for the various design elements.

4.1 Levee Breaches and Tidal Channels

Levees would be breached in three locations to allow tidal exchange on McCoy Marsh (gold shaded areas on **Figure 10**): one breach on the west side of the property connecting it with the Nehalem River, and two breaches on the south side of the property connecting it with Bott's Marsh. The breaches will include removing the artificial fill material down to near the ground surface around 8 to 9 feet elevation to allow high tides to enter the McCoy property. The Nehalem River breach will be 50 feet wide at its widest point, and the breaches to the south will each be 30 feet wide. The purpose of the wide breaches is to allow woody debris to more easily enter the McCoy property to provide additional habitat complexity once the construction is completed.

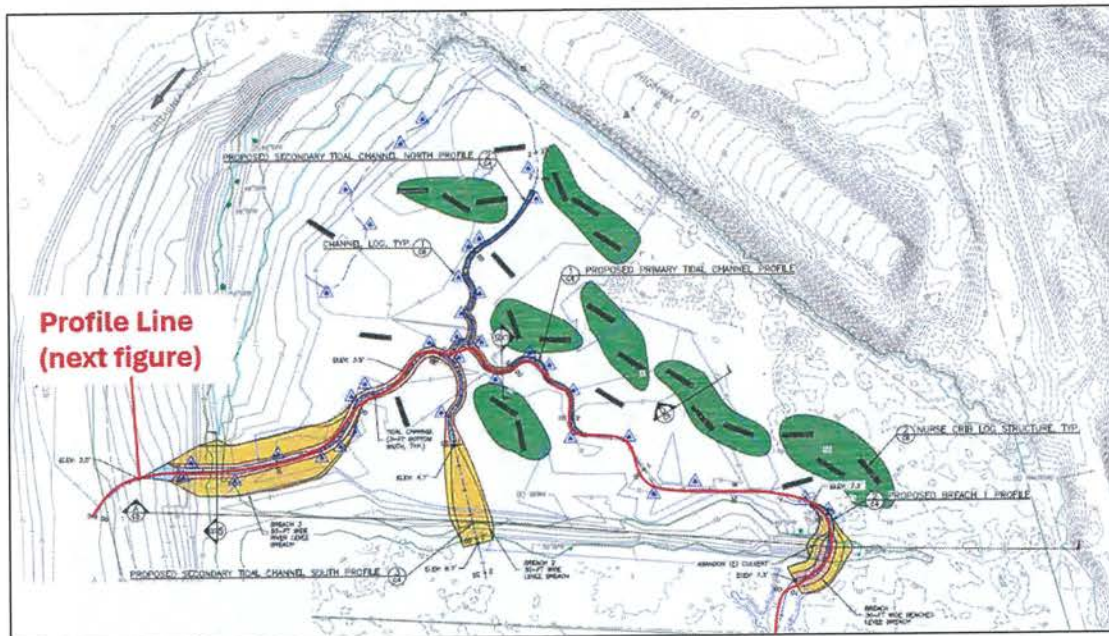


Figure 10. Design Overview Showing Breaches (Gold), Tidal Channels (Pink), Hummocks (Green), and Log Structures (Brown Rectangles and Blue Triangles). Red line shows the location of the profile in Figure 11 (next page).

A small tidal channel network will be excavated into the surface of the marsh with a connection point on the southwest corner of the property. The tidal channel network will tie into the Nehalem Bay at an elevation of around 2 feet (**Figure 11**), allowing at least some inundation during most tidal water levels. The channel bottom will be graded at a slope of 0.5% for about 365 feet, which is flat enough to ensure that part of the channel retains water much of the time, while still allowing positive drainage. The main tidal channel bifurcates at a distance of about 400 feet from the Nehalem Bay, with one secondary channel to the north and another channel that continues to the east. The east channel steepens to a slope of 1.5% to intersect with the ground surface at a distance of 625 feet (**Figure 11**), where it ties into the existing small channel that connects to the eastern breach connection with Bott's Marsh.

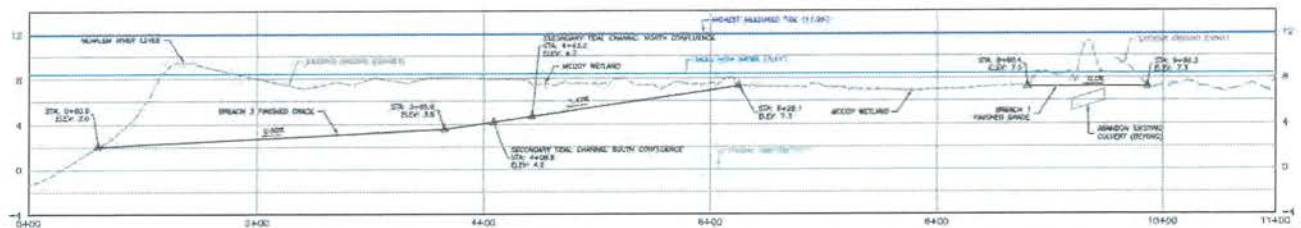


Figure 11. Profile of the Main Tidal Channel from Nehalem Bay to Bott's Marsh (Profile Line Shown in Red in Previous Figure).

4.2 Hummocks

A series of "hummocks" will be built from material excavated to create the breaches and tidal channels (**Figure 10**, green shading). The hummocks are low, oval shaped mounds of soil rising from the marsh surface to a maximum of 2 feet above adjacent wetland elevations (10 feet elevation) (**Figure 12**). The hummocks will have low side slopes of about 5 H: 1 V and are meant to serve multiple purposes including providing topographic diversity, creating more edge habitat, catching drift logs in advantageous locations, and allowing woody vegetation (willow and spruce) and shrubs to establish on the high marsh surface. Floodplain logs and nurse crib structures (discussed below) will be installed on the hummock surfaces to enhance their ability to support willow and to trap drift logs within the project area.

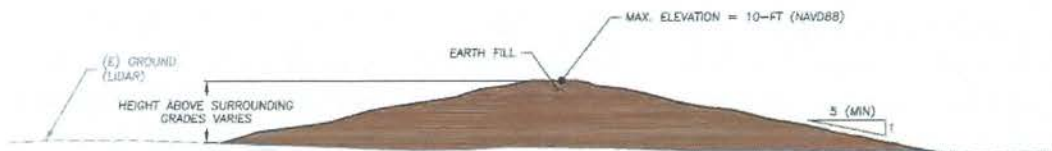


Figure 12. Typical Section of a Hummock

Initially, several small hummocks were planned as a minor feature in the 30% designs. They were specifically located in areas where the vegetation quality is relatively less healthy (as mapped by Ash

Creek) to reduce their impact on existing high quality wetland vegetation assemblages. Following Oregon Department of Transportation's review of the 30% design, ODOT requested that the designs include measures to prevent drift logs and wave energy from impacting and eroding the road prism. Rather than armoring the base of the road with riprap, the design team proposed that the hummocks be expanded and arranged in a way that will reduce the possibility of drift logs and waves impacting the road. The arrangement of the hummocks shown in **Figure 10** and in the 60% plan set (Appendix A, Sheet C3) aims to balance disturbance of wetlands, meeting ODOT's requests, and providing areas where wood will rack close to the tidal channels.

The specific locations and shapes of the hummocks may be modified in later stages of the design process in consultation with design team, technical advisory team, wetland and vegetation experts (CEG and Ash Creek), and permitting agencies (primarily DSL), to maximize their benefits and minimize any potential negative impacts to existing wetlands. The extent of hummocks shown in the 60% designs in **Appendix A** represents a maximum. Any changes made to the hummock arrangement in later stages of the design will either maintain or reduce, not increase, the volume and aerial extent of the hummocks within areas mapped as wetlands.

4.3 Large Wood

An important feature of the fish habitat improvements will be installing large wood. Two types of wood installations are included in the designs (**Figures 13** and **14** and **Appendix A**, sheet C6):

- **Channel Logs.** Proposed channel logs (blue triangles in **Figure 10**) are individual logs with root wads attached, driven into the excavated banks of the tidal channels (**Figure 13**). The logs will vary in size but are anticipated to average around 18 inches diameter and about 15 feet long. They are primarily meant to provide cover and complexity for fish in the tidal channels, and therefore, the larger the root wads the better. They will be placed individually or in clusters as illustrated conceptually in **Figure 13** (plan view) and in the locations specified in the plans (**Figure 10**)
- **Nurse Crib Log Structures.** The "Nurse Crib Log Structures" are pairs of logs anchored into the marsh surface or hummock surfaces using pile logs, with the space between the two logs filled with amended soil and planted (**Figure 14**). The purposes of the nurse cribs are to provide suitable microenvironments for the establishment of woody vegetation and to trap drift logs. The nurse crib structures will be placed at a variety of locations and orientations on the marsh surface and would be concentrated on the hummocks, where they are most likely to be at elevations that could allow spruce establishment.

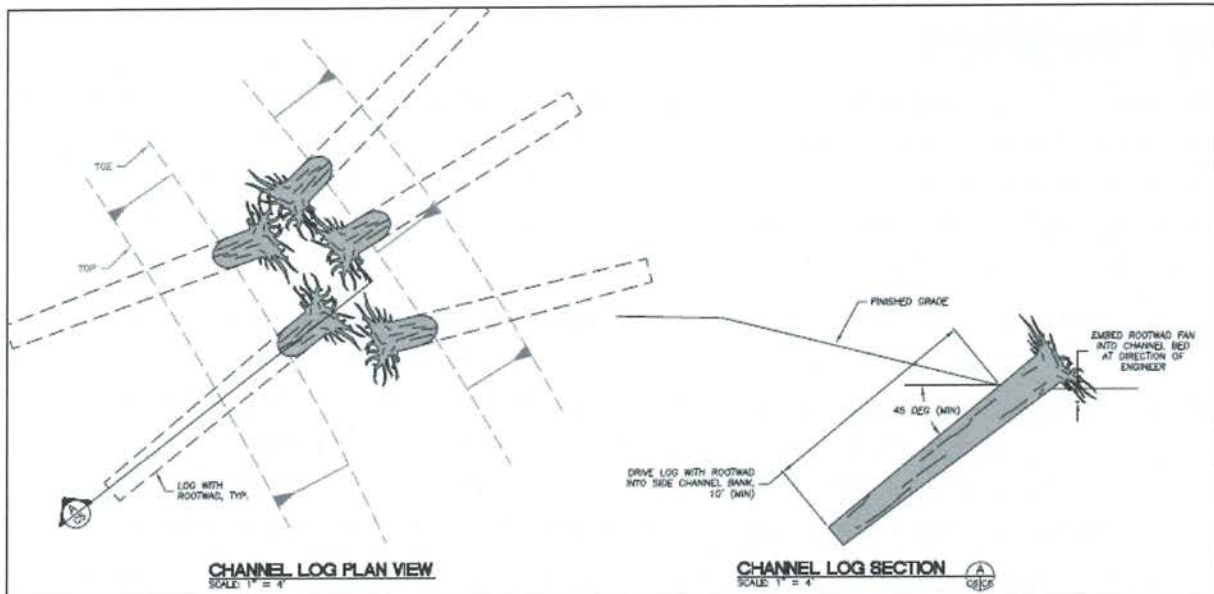


Figure 13. Sketches Showing Channel Logs

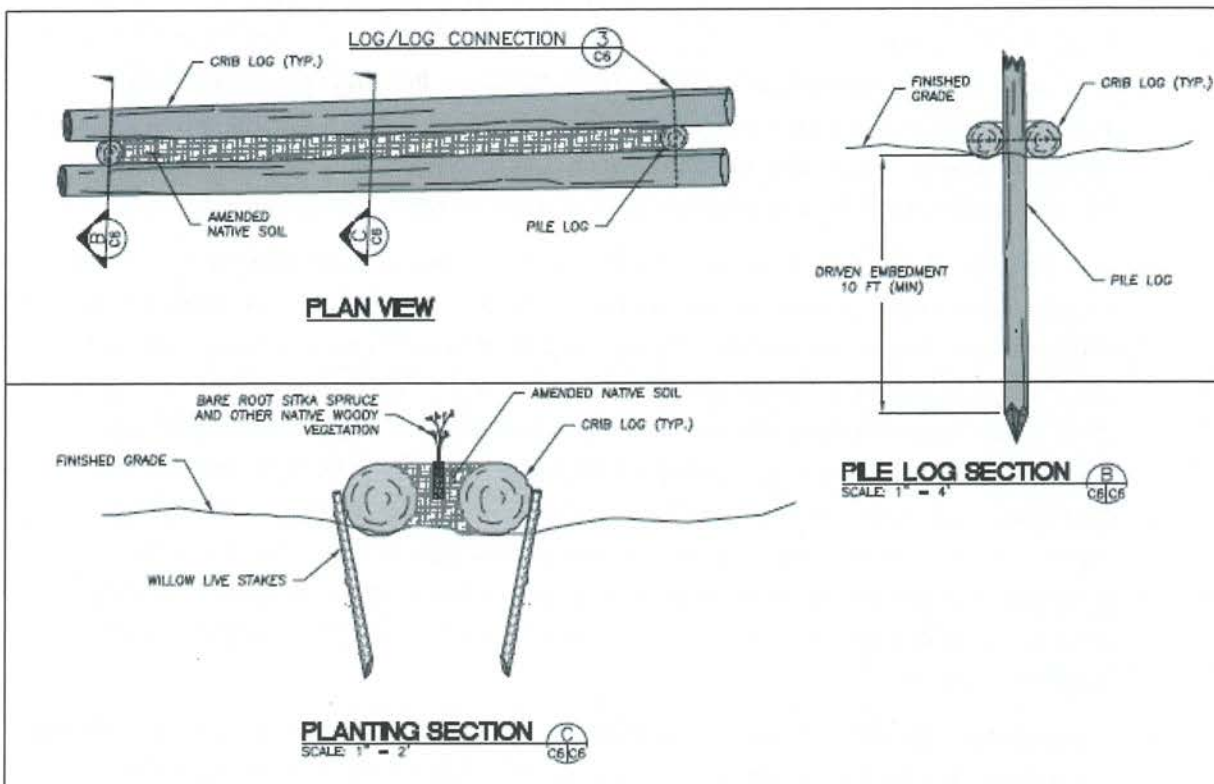


Figure 14. Nurse Crib Log Structure Details

4.4 Revegetation

Ash Creek provided a Vegetation Enhancement Plan (**Appendix D**), or revegetation plan, for the site that provides guidelines for revegetation following construction, and invasive species removal prior to, during, and following construction. The revegetation plan specifies recommendations for site preparation, planting, and maintenance in four types of treatment areas: wetland channels, hummocks, dike uplands, and access routes.

- **Wetland Channels:** This includes the excavated portions of the tidal channels within the site. No site preparation for these areas is recommended and plug planting will take place immediately following construction to reduce erosion on the newly exposed bank surfaces and reduce invasive species colonization of the disturbed ground. Three years of seasonal maintenance will take place following planting, which will include herbicide treatments, hand pulling, and winter interplanting. The wetland channel plugs include seven species of herbaceous sedge and rush.
- **Hummocks:** This includes the areas shown as hummocks on the design. No site preparation is recommended for these areas either, as they will not exist prior to project implementation. Planting and seeding will occur immediately after construction to limit erosion and invasive species colonization. Three years of monitoring and maintenance are recommended following planting, and it is acknowledged that the hummocks have a high risk of invasive species pressure. The plant table for hummocks includes trees (Sitka spruce plugs and willow cuttings), shrubs (twinberry, rose, and spirea potted plants), several types of herbaceous plugs, and a herbaceous seed mix dominated by spike bentgrass (40%) and tufted hairgrass (40%).
- **Dike Uplands:** The current dikes above the native ground level already have some knotweed, blackberry and other invasive species. Pre-treatment of these areas is recommended in summer 2025. The specifics and costs of the knotweed treatment and blackberry management are described in **Appendix D**. Immediately after construction, the areas of disturbed soil on the dikes will be seeded and planted. Seasonal maintenance should be done for three years following construction, including spring and fall herbicide treatments, summer knotweed treatments, and winter interplanting. It is acknowledged by Ash Creek that this zone has the highest risk of invasive species pressure, so adaptive management must be done to ensure the disturbed areas are not recolonized by invasive species. The disturbed area plant list includes potted trees (alder, spruce, and cedar) and willow cuttings, along with potted shrubs and herbaceous plants.
- **Access Routes:** The access routes are to allow machinery to conduct the dike breaches, channel excavation, hummock construction, and log placement. Although the project will follow guidelines meant to minimize the disturbance along these routes, for the purpose of revegetation they will be treated as disturbed areas and will be planted in high density to return

them to their pre-construction condition. Immediately after construction, the uplands and wetlands along the access routes will be seeded with the seed mixes specified in **Appendix D**. Three years of seasonal maintenance should occur following construction, including spring and fall herbicide treatments, summer knotweed treatments, and interplantings in winter. Adaptive management must take place to ensure that these areas are not recolonized by invasives. The upland seed mixes include common yarrow, spike bentgrass, tufted hairgrass, and lupine, whereas the wetland seed mixes also include slough sedge and bullrush. These would be supplemented by upland shrubs and pole cuttings including red osier dogwood, Sitka spruce, and piper willow. Revegetation is not planned for the existing staging area on ODOT property on the opposite side of Highway 101.

5.0 ANTICIPATED PROJECT OUTCOMES

Following construction, brackish tidal water will enter the site immediately through the breaches during moderate and high tides. A Proposed Conditions model was developed that simulates water movement and inundation patterns under proposed conditions (**Figure 15**). It should be noted that the Proposed Conditions model is based on the limited ground survey data, rather than LiDAR, because for the evaluation below, elevational accuracy of the surveyed points is considered more important than the details provided by the LiDAR, and the LiDAR may contain systematic elevation errors (artificially high elevations) due to the presence of vegetation. The Proposed Conditions model also does not include the hummocks, which will impact some of the detailed inundation patterns. The purpose here is to provide a general picture of anticipated project outcomes, rather than a detailed map of inundated areas.

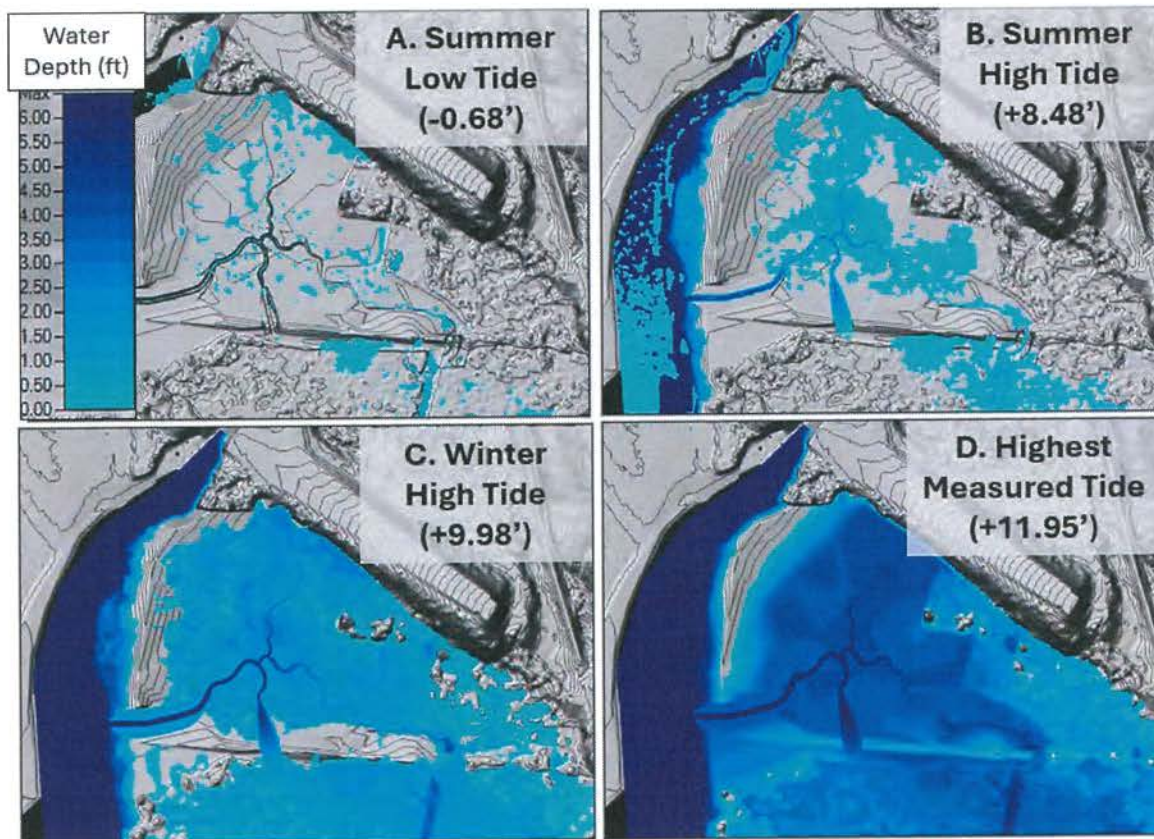


Figure 15. *Proposed Conditions Modeled Water Depths for A Range of Tidal Scenarios*

Based on the model, the channels and floodplain will mostly empty during summer low tides (**Figure 15A**), except in areas that retain shallow ponded water due to microtopographic barriers. During a typical summer high tide of about 8.5 feet elevation, water will fill the tidal channels and inundate parts

of the marsh with zero to one foot of water (**Figure 15B**). During moderately high tides such as those seen in summer, water will enter the site through the western breach and channel, fill the channels and slightly spill out onto the marsh surface. Some water may also enter the site through the channel in the southeastern breach in the McCoy-Bott's levee, which will have a bottom elevation of about 7.25 feet.

During an example winter high tide of about 10 feet (**Figure 15C**), the model shows that the entire site will be inundated with water depths of about 1.5 to 3 feet over the marsh surface, and a maximum of about 7 feet in the main constructed tidal channel. In the "highest measured tide" scenario (11.95 feet water surface elevation) (**Figure 15D**), the model shows water overtops the southern levee entirely, and overtops the western levee over much of its length. The formerly enclosed basin will be filled with water equilibrated to the high water levels in Nehalem Bay. This outcome is essentially the same as what currently occurs during very high tides that overtop the levees.

Inundation Frequency. Under current conditions, McCoy Marsh is almost always isolated from tidal exchange, except following very high tides that overtop the artificial levees and fill the enclosed basin. Under proposed conditions, the site will be restored to a more natural tidal exchange through levee breaches. The levee breaches alone will allow high tides above about 7.5 feet to enter the high marsh, which occurs about 10 to 15 percent of the time over the course of a typical year (**Figure 16**). Adding the excavated tidal channels will significantly increase the amount of time that tidal water and fish are able access the marsh. About 350 feet of the main tidal channel is below 4 feet elevation (see **Figure 11**). The tidal water elevation exceeds 4 feet about 65 percent of the time (**Figure 16**), ensuring that fish should have access to at least some of the property most of the time.

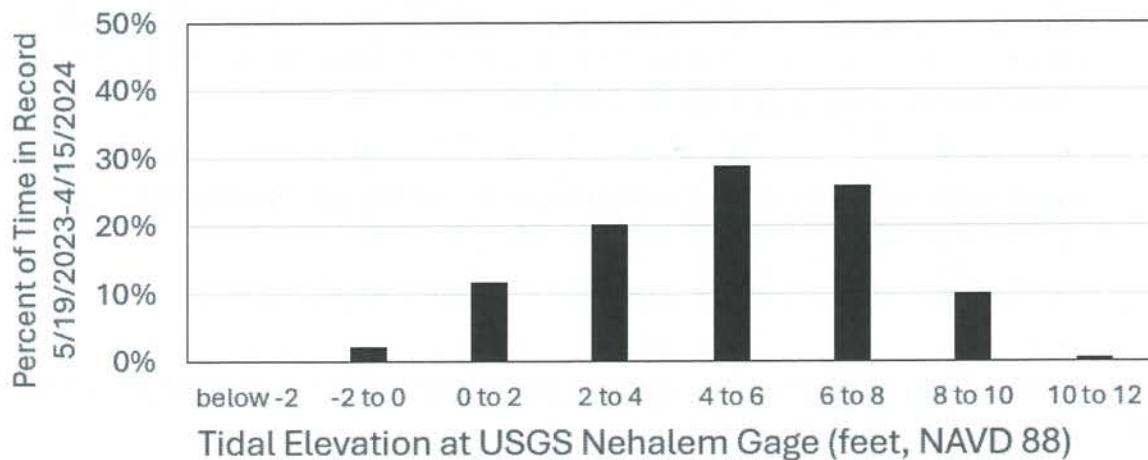


Figure 16. Proposed Conditions Modeled Water Depths for A Range of Tidal Scenarios

6.0 PROJECT PLANNING RISKS AND CONSIDERATIONS

This section discusses several issues, considerations, and risks associated with the project. These issues have been discussed among the design team, technical advisory team, funders, and agencies throughout the design process, and are summarized below.

6.1 Log Structure Ballasting Calculations

This project includes an important component of installing large wood to enhance fish benefit of the project, to encourage racking of drift logs, and to improve the chances of woody vegetation establishing in the high marsh. Two types of wood structures are planned: channel logs and nurse crib log structures. To ensure the stability of the logs following construction, both structures will rely on soil friction to provide resistance against buoyancy. The channel logs will be secured by driving their trunks beneath the marsh surface, and the nurse crib logs will be secured by mechanically attaching them to vertical wood piles driven into the marsh soils.

This project is considered high risk from a log stability perspective given the fact that there is public use adjacent to this site for recreation/marine navigation and there is state property (Highway 101) that could be impacted should the log structures become unstable. Given this risk assessment, the 100-year return event flood is the design event for the ballasted log structures (water surface elevation 13.1 feet based on FEMA FIRM maps). The factor of safety for the ballasted log structures is 2.0 the buoyancy force. Stability calculations for each log structure type are based on the following assumptions:

- The failure potential of the nurse crib log structures and channel logs from sliding are considered negligible given the low tidal velocities, so factors of safety for sliding were not calculated. All structures will be keyed into the stream bank or attached to pile logs, which will prevent them from sliding from the low lateral forces of currents.
- The failure potential of the nurse crib log structures and channel logs from rotation is considered negligible given that all structures are wide and flat, so factors of safety for rotation were not calculated.
- The ballasting calculations assume Sitka spruce as the wood species.

Stability of the structures will be achieved via passive ballasting methods using a combination of stream bank substrate and log piles. Nurse crib log structures will be bolted together to ensure that the ballast is evenly distributed over the entire structure.

The log structure stability calculations are included as **Appendix F** of this report.

6.2 Vegetation Impacts

The project aims to hydraulically reconnect the property to the larger Nehalem Bay, which will fundamentally alter the hydrology, salinity, nutrient inputs, and other physical, chemical, and biologic characteristics of the site. These induced changes are an overarching goal of the project, so they cannot be avoided, and they will certainly impact the existing vegetation on the site, which is currently fairly healthy as a non-tidal wetland (see Section 2.2). There will also be ground disturbance due to construction, and this will provide surfaces where non-native vegetation could colonize. Therefore, this project presents a risk of allowing non-native/invasive plants to establish where they don't currently exist.

Currently, invasives on the site include knotweed and blackberry, but most of these are limited to the uplands along the levees, and some limited areas in the wetland itself. The revegetation plan (**Appendix D**) was prepared by Ash Creek primarily to try to prevent the expansion of invasives such as knotweed, blackberry, and reed canary grass. The revegetation plan prescribes both pre-treatment activities as well as a seasonal maintenance plan to help reduce colonization by non-native plants. Nevertheless, the actual outcome will depend on the success of ongoing maintenance at the site and other factors that cannot be anticipated at this time.

6.3 Pollution from Gallagher Slough

The inlet to the tidal network is close to the outlet of Gallagher Slough, a tidal slough draining an area used for dairy farming. During the design process, a concern was raised about bacteria and other pollutants entering McCoy Marsh following breaching the levee. Initial modeling during the alternatives analysis process showed that water entering McCoy Marsh will likely move through the site and enter Bott's Marsh during a high tide (**Figure 17**). This highlights the possibility that bacteria or other pollutants that enter McCoy Marsh could move into Bott's Marsh because of the breaching both levees. The design and advisory team discussed these concerns several times during the design process, and the joint decision was made to move ahead with the project despite these concerns. The discussions and decisions made included the following points:

- The pollutant issue in Gallagher Slough has not been clearly established. While TEP has been recently collecting water quality data in Gallagher Slough, it is not yet known for certain whether there is really a pollutant concern.
- If there are pollutants of concern coming from Gallagher Slough, those pollutants would be moving out of the slough and be present near the McCoy tidal channel entrance during falling tides, when water is also emptying out of the project area. Water will only enter the project area during incoming tides. During incoming tides, the water that will enter the proposed breach will presumably be coming from the direction of the ocean in Nehalem Bay, not from

Gallagher Slough. Therefore, the water entering McCoy Marsh during high tides should not contain bacterial pollutants from the Gallagher Slough drainage.

The landowner and technical team judged that based on these points, the problem is not a significant enough concern to prevent the project from moving forward.

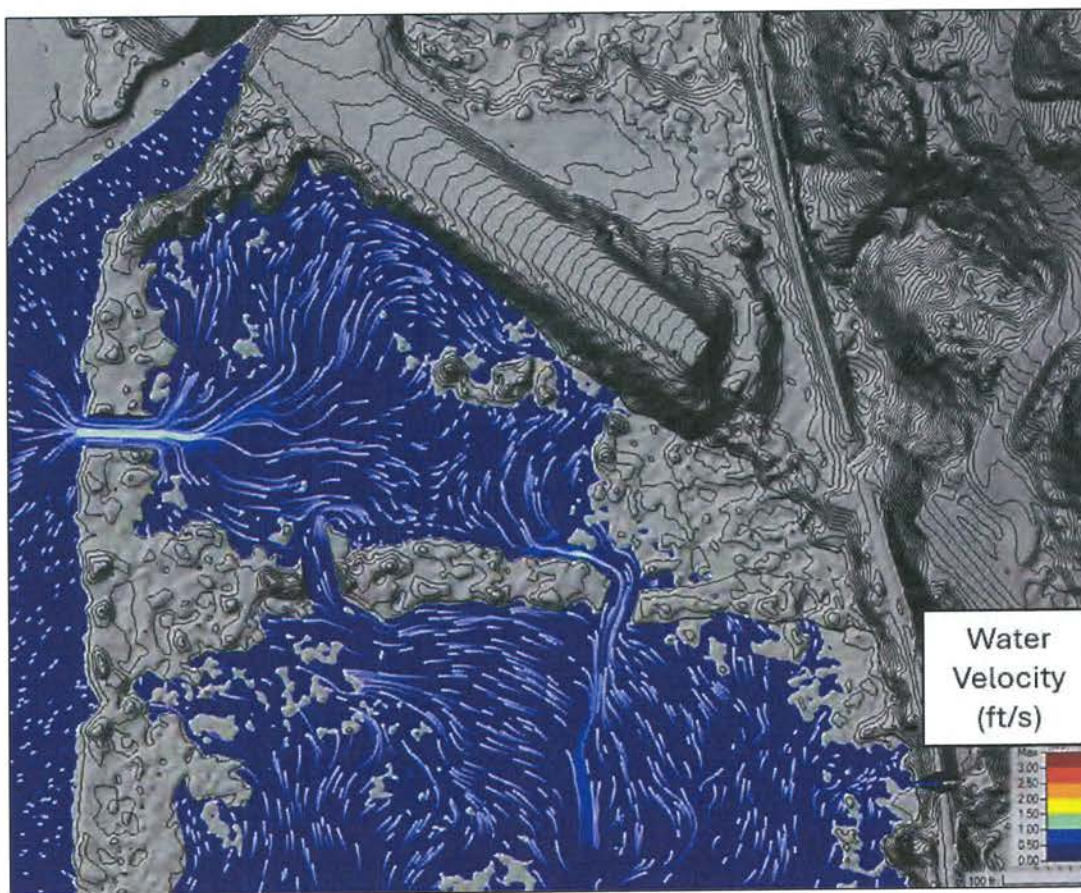


Figure 17. Modeled Water Velocities and Flow Tracking Showing Flow Patterns During Incoming King Tide

6.4 US Army Corps of Engineers 408 Process

The project is near the U.S. Army Corps of Engineers (USACE) Sunset levee system, which protects the agricultural area to the north of the project and to the east of Highway 101 (**Figure 18**). Because the project is close to a USACE federal civil works project, Waterways applied for a determination whether the project would be covered under Section 14 of the Rivers and Harbors Act of 1899, which is codified at 33 U.S.C. § 408 (referred to as “Section 408”). The Portland District of USACE reviewed the application and determined that the proposed project “will not alter, occupy, or use a USACE federally authorized

project”, and would therefore not require permission from the USACE under Section 408 (determination received February 27, 2025).

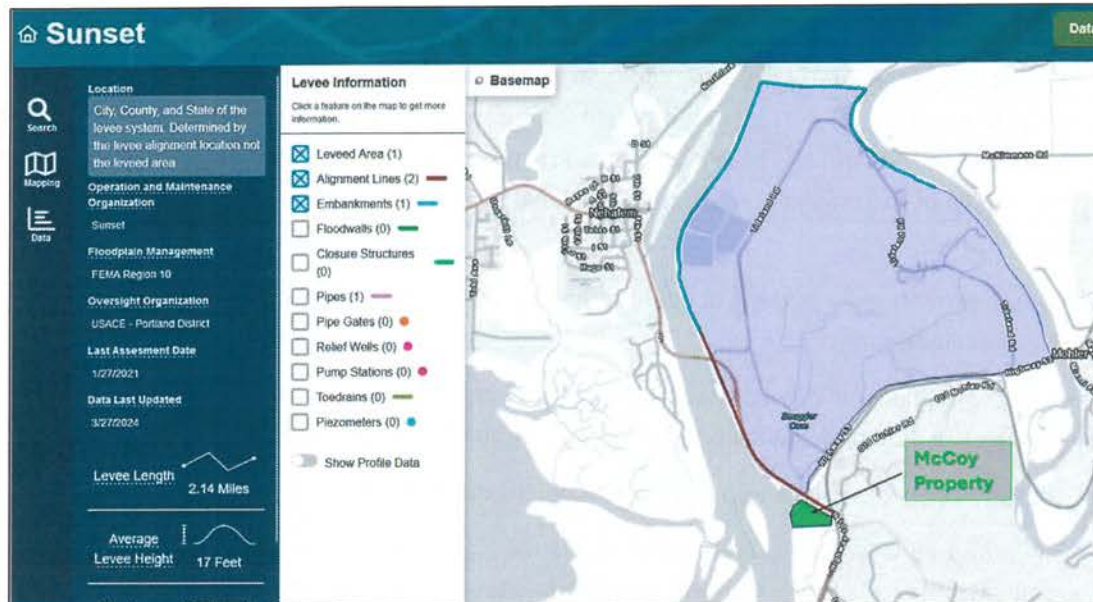


Figure 18. Annotated Screen Shot of the USACE’s National Levee Database Showing Proximity to the Sunset Levee Project

6.5 Oregon Department of Transportation

The project is adjacent to the Highway 101 road prism which is managed by the Oregon Department of Transportation (ODOT). Waterways shared an early version of the design drawings (30% plan set) with ODOT and met with representatives of ODOT to explain the project and receive feedback and concerns. At that meeting, ODOT communicated that their primary requirements for this project were that (1) the project would not increase flooding on the ODOT right-of-way; (2) the project would not result in increased erosion due to wood racking at the toe of the road prism; (3) the project would not result in increased erosion due to increased wave activity after breaching the dikes; and (4) the project would not include log structures or other habitat features within the ODOT right-of-way. ODOT also confirmed that the project could use the ODOT staging area to the east of Highway 101 and south of Highway 53 during construction.

Following the meeting with ODOT, the project plans were modified to better meet requirements #2 and #3 above. Several analyses and modifications were made to meet ODOT’s requirements for the project:

- Floodplain logs were initially planned to be unballasted at the request of technical advisory team members. The plans were modified so there would not be any unballasted wood in the project that could be floated during high tides and accumulate at the toe of the road prism.
- We increased the number and size of the hummocks and nurse crib structures, and modified their arrangement in a way that will create a series of obstructions to prevent floating logs from reaching the road prism. These hummocks and nurse cribs will trap incoming drift logs closer to the middle of the project area where they would have more benefit to the project (see **Figure 10**).
- Hydraulic modeling was done to confirm that the project would not increase flooding per ODOT's requirements.

The plans were modified and resubmitted as draft 60% plans. ODOT responded that they accepted the proposed project as modified, but required a hydraulic report certifying the following

- “1. The existing levees provide no flood protection to the Highway.
2. The proposed levee breach does not increase the highest measured tide elevation along the roadway prism due to the increase volume of water entering the wetland. It is worth investigating because if the tide can rise and fall before the wetland is fully inundated with tidewater, then by breaching the levee and allowing more water in, it may have an impact on how much water the road prism sees, and therefore would require at a minimum riprap protection.
3. If confirmed, please state in your report: ‘The proposed changes do not alter flood flows at the toe of the embankment in a manner that increases flow velocities or risk of embankment scour due to flooding.’ “

The requested hydraulic memo will be provided as **Appendix G** of this current report.

(Note: at the time of writing this report draft, Waterways has performed initial hydraulic modeling to confirm the project meets the requirements as specified by ODOT, but the hydraulic memo has not yet been completed.)

7.0 CONSTRUCTION CONSIDERATIONS

7.1 Construction Cost Estimate

The engineer's construction cost estimate is provided in **Table 3** below. This includes the earthwork, revegetation site preparation and planting, and the 3 years of recommended vegetation monitoring and maintenance. The cost estimate assumes the Contractor will be responsible for supply of all logs. The primary cost drivers on the project are for earthwork, log sourcing and placement, and for implementing the revegetation plan supplied by Ash Creek (**Appendix C**). The costs associated with supplying logs would be expected to be reduced by approximately 50% in the event free logs can be secured by the project proponents. Consultant costs associated with final design, permitting, and construction phase services is not included in the construction cost estimate.

MCCOY WETLAND TIDAL RECONNECTION PROJECT 60% DESIGN SUBMITTAL

ENGINEER'S ESTIMATE OF PROBABLE CONSTRUCTION COSTS

Job No. 21-049 7/1/2025

ITEM NO.	SPECIFICATION	ITEM	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL
1	015000	MOBILIZATION	1	LS	\$58,400	\$58,400
2	311100	TEMPORARY EROSION CONTROL AND BMP'S	1	LS	\$20,000	\$20,000
3	311100	CLEARING AND GRUBBING	1	LS	\$13,000	\$13,000
4	312319	DEWATERING	1	LS	\$20,000	\$20,000
5	312316	EXCAVATION	1,100	CY	\$45	\$49,500
6	312316	HUMMOCK FILL	900	CY	\$25	\$22,500
7	312316	SOIL OFFHAUL	200	CY	\$25	\$5,000
8	354200	SUPPLY LOGS WITH ROOTWADS	36	EA	\$1,200	\$43,200
9	354200	SUPPLY NURSE CRIB LOGS	100	EA	\$1,000	\$100,000
10	354200	SUPPLY PILE LOGS	100	EA	\$800	\$80,000
11	354200	INSTALL CHANNEL LOGS	36	EA	\$1,200	\$43,200
12	354200	INSTALL NURSE CRIB LOG STRUCTURES	50	EA	\$888	\$44,400
13	329000	SEEDING	3	AC	\$17,000	\$51,000
14	329000	REVEGETATION INSTALLATION	1	LS	\$81,500	\$81,500
15	329000	PLANT MAINTENANCE AND MONITORING	3	YR	\$10,720	\$32,160
SUBTOTAL						\$662,860
CONTINGENCY (20%)						\$132,572
TOTAL						\$795,432

NOTES:

1. Cost estimate does not include aquatic organism relocation.
2. Cost estimate assumes all logs are supplied by the Contractor.

Table 3. Engineer's Construction Cost Estimate

7.2 Disturbance Impacts

Within the Project Area, there is approximately 4.5 acres within the limits of disturbance, triggering the need for a 1200C Permit and Temporary Erosion and Sediment Control Plan to be developed prior to construction. Much of the disturbance is associated with the levee breaches, channel excavation, hummock placement, site access, and the staging area, which is outside of the project area on ODOT's right of way.

7.3 Material Quantities

The project design includes approximately 1,100 cubic yards of excavation from the breaches and channel excavation, and about 900 cubic yards of fill (hummock construction), with the remaining 200 cubic yards needing to be hauled off site. There will be a total of 236 logs used for the channel logs and nurse crib log structures. Plant quantities are included in **Appendix C**.

7.4 Temporary Water Management

Temporary water management will consist of isolating the marsh from Bott's Marsh by installing a temporary tide gate on the existing culvert to allow the site to drain, then blocking off the Bott's Marsh channel with sandbag berms, then pumping any remaining water from within the work area and salvaging aquatic organisms. Once the interior channel network is excavated and hummocks are formed, breaches into Bott's March and the Nehalem River will be made during favorable tidal conditions when the water surface elevations are below elevations of excavations.

7.5 Construction Staging and Access

The staging area will be on the opposite side of the Highway 101 bridge, with equipment access the site from on both the west and east sides (Appendix A, Sheet C7).

7.6 Implementation Schedule

Based on our experience, we believe the work currently proposed can be completed in one construction season (4 to 6 weeks). The in-water work period for the project site in the Nehalem River Estuary is in the winter (November 1- February 15; ODFW, 2024), but a variance may be requested to allow the work inside the levees to proceed during the drier months and connected at the beginning of the in-water work window.

The specific implementation schedule will be determined later, in consultation with the selected construction contractor.

7.7 Permit Conditions

Lower Nehalem Community Trust and Wild Salmon Center are leading the permitting effort for this project with support from Waterways and Cascade Environmental Group. Based on the current schedule, we anticipate obtaining all state and federal permits well ahead of the construction, which is anticipated in 2026 pending permit approval and implementation funding.

Prior to construction, Waterways will incorporate agency comments into the Drawings and Technical Specifications. Waterways will prepare a draft 1200-C construction stormwater permit Erosion and Sediment Control Plan that will be transferred to the Contractor prior to construction.

7.8 Construction Monitoring

Due to the variability of materials and sensitive site conditions, projects of this nature require construction observation by an engineer, geomorphologist, biologist, and archaeologist with relevant project experience and understanding of the project intent. Key phases requiring observation would include:

- Grading Associated with Interior Tidal Channels and Hummocks
- Installation of Channel Logs and Nurse Crib Structures
- Levee Breaches
- Temporary Erosion and Sediment Control Measure Removal

8.0 REFERENCES

Nehalem Basin Partnership. 2023. Strategic Action Plan for the Protection and Restoration of Coho Salmon Habitat in the Nehalem River.

Oregon Department of Fish and Wildlife. 2024. Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources. March 2024.

Attachment 5.



Megan Hilgart
NOAA Restoration Center NW
1201 NE Lloyd Blvd, Suite 1100
Portland, OR 97232
megan.hilgart@noaa.gov

December 30, 2025

Emily Akdedian
Lower Nehalem Community Trust
532 Laneda Ave
Manzanita, OR 97130

Dear Emily:

The NOAA Restoration Center (RC) has awarded funds to the Lower Nehalem Community Trust through a subaward from the Wild Salmon Center for the restoration of the McCoy Marsh along the lower Nehalem River on the Oregon Coast through the Community-based Restoration Program. This federal funding constitutes a federal nexus under the Endangered Species Act (ESA). Under Section 7 of the ESA, consultation with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) is required for any federal action that could affect ESA-listed species or their habitats. In addition, consultation with NMFS is required under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) for any federal action that could affect designated Essential Fish Habitat (EFH) for coho, pink, and Chinook salmon, groundfish, and coastal pelagic species.

In December 2013 and May 2015, the Programmatic Restoration Opinion for Joint Ecosystem Conservation by the Services (PROJECTS) were issued by NMFS and USFWS, respectively. PROJECTS concludes that the restoration activities most commonly implemented with RC funding are not likely to jeopardize NMFS or USFWS species in the Pacific Northwest. PROJECTS provides non-discretionary terms and conditions intended to minimize the potential for incidental take of listed species. The document also includes measures intended to avoid and minimize potential impacts on EFH, and satisfies the consultation requirement for eligible activities under the MSA.

Your project has been reviewed by RC staff and a NMFS fish passage engineer, and it has been determined that the proposed activities are eligible for inclusion under PROJECTS. The project has also received fish passage approval from the NOAA engineering services. This means that if you follow the terms and conditions and meet the requirements outlined in this letter, you will satisfy the ESA/EFH consultation obligation for the RC-funded portion of your project. Please note that ESA/EFH coverage under PROJECTS does not satisfy any other federal, state, or local laws or permit requirements.

Your obligations under PROJECTS are as follows:

- 1) As the responsible project manager, you must ensure that the terms and conditions attached to this letter are followed, in their entirety, as applicable to your project. If you do not understand any of the terms and conditions, or believe that they cannot be implemented for any reason, you must contact RC staff immediately and obtain guidance.

- 2) If before or during project implementation you become aware of new information or unforeseen circumstances such that the project cannot be completed according to the scope of effects or the terms and conditions in the Opinion, you must inform RC staff. You must stop all project operations, except for efforts to avoid or minimize resource damage, pending completion of an individual consultation on the project.
- 3) If at any time during or after project implementation you identify a sick, injured, or dead specimen of a threatened or endangered species, you must notify NMFS Office of Law Enforcement at (503) 231-6240 or (206) 526-6133. The finder must take care in handling of sick or injured specimens to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder also has the responsibility to carry out instructions provided by the Office of Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.
- 4) Within 60 days of completing a capture and release action in a given year, you must submit a complete Salvage Reporting Form to your NOAA RC technical monitor. Please find the Salvage Report Form as an appendix to the PROJECTS Action Notification and Completion Forms (attached).
- 5) Within 60 days of completing all work below ordinary high water in a given year, you must provide an Action Completion Report that describes your success in meeting the conservation measures, reasonable and prudent measures, and associated terms and conditions of the Opinion. Please find the Action Completion Report as an appendix to the PROJECTS Action Notification and Completion Forms (attached). As part of this report, you will need to determine the area restored/treated, among other information, as well as conduct turbidity monitoring (see an excerpt in the pages below from the Opinion that outlines the required turbidity monitoring).

The following conservation measures and terms and conditions are applicable to your project. These sections of the NMFS and USFWS Biological Opinions are enclosed with this letter.

- Project Design Criteria - General Construction Measures 1.3.1.2 (NMFS, p. 10, 2013)
- Project Design Criteria - Types of Restoration Actions 1.3.1.3 (NMFS, p. 22, 2013)
- Turbidity Monitoring (NMFS, p. 174, 2013)
- Conservation Measures for Northern Spotted Owl and Marbled Murrelet

Once you have read, understood, and made provisions to implement these measures, you are authorized to proceed with your project. If you have questions or need additional information, please contact me at 971-245-2605.

Sincerely,

Megan Hilgart

Megan Hilgart
Regional Supervisor

1.3.1.2 Project Design Criteria - General Construction Measures

13. Project Design

- a. Use the best available scientific information regarding the likely effects of climate change on resources in the project area, including projections of local stream flow and water temperature, to ensure that the project will be adaptable to those changes.
- b. Obtain all applicable regulatory permits and official project authorizations before beginning construction.
- c. Minimize the extent and duration of earthwork, *e.g.*, compacting, dredging, drilling, excavation, and filling.
 - i. Avoid use of heavy equipment, vehicles or power tools below bankfull elevation unless project specialists determine such work is necessary, or will result in less risk of sedimentation or other ecological damage than work above that elevation.
 - ii. Complete earthwork in wetlands, riparian areas, and stream channels as quickly as possible.
- d. Cease project operations when high flows may inundate the project area, except for efforts to avoid or minimize resource damage.

14. Site Contamination Assessment

- a. The level of detail and resources committed to such an assessment will be commensurate with the level and type of past or current development at the site. Assessments may include the following:
 - i. Review available records, such as former site use, building plans, and records of any prior contamination events.
 - ii. If the project site was used for industrial processes (*i.e.*, mining or manufacturing with chemicals), inspect to determine the environmental condition of the property.
 - iii. Interview people who are knowledgeable about the site, *e.g.*, site owners, operators, and occupants, neighbors, or local government officials.
- b. Retain contaminant survey information in the project file. Consult with NMFS if ground disturbance to accomplish the proposed project will potentially release contaminants to aquatic habitat that supports listed fish species.

15. Site Layout and Flagging

- a. Before any significant ground disturbance or entry of mechanized equipment or vehicles into the construction area, clearly mark with flagging or survey marking paint the following areas:
 - i. Sensitive areas, *e.g.*, wetlands, water bodies, ordinary high water, spawning areas
 - ii. Equipment entry and exit points
 - iii. Road and stream crossing alignments
 - iv. Staging, storage, and stockpile areas
- b. Before the use of herbicides, clearly flag no-application buffer zones.

16. Staging, Storage, and Stockpile Areas

- a. Designate and use staging areas to store hazardous materials, or to store, fuel, or service heavy equipment, vehicles and other power equipment with tanks larger than 5 gallons, that are at least 150 feet from any natural water body or wetland, or on an established paved area, such that sediment and other contaminants from the staging area cannot be deposited in the floodplain or stream.
- b. Natural materials that are displaced by construction and reserved for restoration, *e.g.*, LW, gravel, and boulders, may be stockpiled within the 100-year floodplain.

- c. Dispose of any material not used in restoration and not native to the floodplain outside of the functional floodplain.
- d. After construction is complete, obliterate all staging, storage, or stockpile areas, stabilize the soil, and revegetate the area.¹

17. Erosion Control

- a. Use site planning and site erosion control measures commensurate with the scope of the project to prevent erosion and sediment discharge from the project site.
- b. Before significant earthwork begins, install appropriate, temporary erosion controls downslope to prevent sediment deposition in the riparian area, wetlands, or water body.
- c. During construction, if eroded sediment appears likely to be deposited in the stream during construction, install additional sediment barriers as necessary.
- d. Temporary erosion control measures may include fiber wattles, silt fences, jute matting, wood fiber mulch and soil binder, or geotextiles and geosynthetic fabric.
- e. Soil stabilization utilizing wood fiber mulch and tackifier (hydro-applied) may be used to reduce erosion of bare soil if the materials are noxious weed free and nontoxic to aquatic and terrestrial animals, soil microorganisms, and vegetation.
- f. Remove sediment from erosion controls if it reaches 1/3 of the exposed height of the control.
- g. Whenever surface water is present, maintain a supply of sediment control materials and an oil-absorbing floating boom at the project site.
- h. Stabilize all disturbed soils following any break in work unless construction will resume within four days.
- i. Remove temporary erosion controls after construction is complete and the site is fully stabilized.

18. Hazardous Material Spill Prevention and Control

- a. At the project site:
 - i. Post written procedures for notifying environmental response agencies, including an inventory and description of all hazardous materials present, and the storage and handling procedures for their use.
 - ii. Maintain a spill containment kit, with supplies and instructions for cleanup and disposal, adequate for the types and quantity of hazardous materials present.
 - iii. Train workers in spill containment procedures, including the location and use of the spill containment kits.
- b. Temporarily contain any waste liquids generated under an impervious cover, such as a tarpaulin, in the staging area until the wastes can be properly transported to, and disposed of, at an approved receiving facility.

19. Equipment, Vehicles, and Power Tools

- a. Select, operate and maintain all heavy equipment, vehicles, and power tools to minimize adverse effects on the environment, *e.g.*, low pressure tires, minimal hard-turn paths for track vehicles, use of temporary mats or plates to protect wet soils.
- b. Before entering wetlands or working within 150 feet of a waterbody, replace all petroleum-based hydraulic fluids with biodegradable products.²

¹ Road and path obliteration refers to the most comprehensive degree of decommissioning and involves decompacting the surface and ditch, pulling the fill material onto the running surface, and reshaping to match the original contour.

² For additional information and suppliers of biodegradable hydraulic fluids, motor oil, lubricant, or grease, see Environmentally Acceptable Lubricants by the U.S. EPA (2011); *e.g.*, mineral oil, polyglycol, vegetable oil, synthetic ester; Mobil® biodegradable hydraulic oils, Total® hydraulic fluid, Terresolve Technologies Ltd.® bio-based

- c. Invasive species prevention and control.
 - i. Before entering the project site, power wash all heavy equipment, vehicles and power tools, allow them to fully dry, and inspect them to make certain no plants, soil, or other organic material is adhering to their surface.
 - ii. Before entering the water, inspect any watercraft, waders, boots, or other gear to be used in or near water and remove any plants, soil, or other organic material adhering to the surface.
- d. Inspect all equipment, vehicles, and power tools for fluid leaks before they leave the staging area.
- e. Before operation within 150 feet of any waterbody, and as often as necessary during operation, thoroughly clean all equipment, vehicles, and power tools to keep them free of external fluids and grease and to prevent leaks and spills from entering the water.
- f. Generators, cranes or other stationary heavy equipment operated within 150 feet of any waterbody will be maintained and protected as necessary to prevent leaks and spills from entering the water.

20. Temporary Access Roads and Paths

- a. Whenever reasonable, use existing access roads and paths preferentially.
- b. Minimize the number and length of temporary access roads and paths through riparian areas and floodplains.
- c. Minimize removal of riparian vegetation.
- d. When it is necessary to remove vegetation, cut at ground level (no grubbing).
- e. Do not build temporary access roads or paths where grade, soil, or other features suggest slope instability.
- f. Any road on a slope steeper than 30% will be designed by a civil engineer with experience in steep road design.
- g. After construction is complete, obliterate all temporary access roads and paths, stabilize the soil, and revegetate the area.
- h. Temporary roads and paths in wet areas or areas prone to flooding will be obliterated by the end of the in-water work window. Decompact road surfaces and drainage areas, pull fill material onto the running surface, and reshape to match the original contours.

21. Dust Abatement

- a. Employ dust abatement measures commensurate with soil type, equipment use, wind conditions, and the effects of other erosion control measures.
- b. Sequence and schedule work to reduce the exposure of bare soil to wind erosion.
- c. Maintain spill containment supplies on-site whenever dust abatement chemicals are applied.
- d. Do not use petroleum-based products.
- e. Do not apply dust-abatement chemicals, *e.g.*, magnesium chloride, calcium chloride salts, ligninsulfonate, within 25 feet of a water body, or in other areas where they may runoff into a wetland or water body.
- f. Do not apply ligninsulfonate at rates exceeding 0.5 gallons per square yard of road surface, assuming a 50:50 solution of ligninsulfonate to water.

biodegradable lubricants, Cougar Lubrication® 2XT Bio engine oil, Series 4300 Synthetic Bio-degradable Hydraulic Oil, 8060-2 Synthetic Bio-Degradable Grease No. 2, *etc.* The use of trade, firm, or corporation names in this opinion is for the information and convenience of the action agency and applicants and does not constitute an official endorsement or approval by the U.S. Department of Commerce or NMFS of any product or service to the exclusion of others that may be suitable.

22. Temporary Stream Crossings

- a. No stream crossing may occur at active spawning sites, when holding adult listed fish are present, or when eggs or alevins are in the gravel.
- b. Do not place temporary crossings in areas that may increase the risk of channel re-routing or avulsion, or in potential spawning habitat, *e.g.*, pools and pool tailouts.
- c. Minimize the number of temporary stream crossings; use existing stream crossings whenever reasonable.
- d. Install temporary bridges and culverts to allow for equipment and vehicle crossing over perennial streams to access construction areas.
- e. Wherever possible, vehicles and machinery will cross streams at right angles to the main channel.
- f. Equipment and vehicles may cross the stream in the wet only where the streambed is bedrock where the streambed is naturally stable, or where mats or off-site logs are placed in the stream and used as a crossing.
- g. Obliterate all temporary stream crossings as soon as they are no longer needed, and restore any damage to affected stream banks or channel.

23. Surface Water Withdrawal and Construction Discharge Water

- a. Surface water may be diverted to meet construction needs, but only if developed sources are unavailable or inadequate.
- b. Diversions may not exceed 10% of the available flow and will have a juvenile fish exclusion device that is consistent with NMFS' criteria ([NMFS 2011a](#)).³
- c. Treat all construction discharge water using best management practices to remove debris, sediment, petroleum products, and any other pollutants likely to be present (*e.g.*, green concrete, contaminated water, silt, welding slag, sandblasting abrasive, grout cured less than 24 hours, drilling fluids), to ensure that no pollutants are discharged to any perennial or intermittent waterbody.

24. Fish Passage

- a. Provide fish passage for any adult or juvenile ESA-listed fish likely to be present in the action area during construction, unless passage did not exist before construction, stream isolation and dewatering is required during project implementation, or the stream is naturally impassable at the time of construction.
- b. After construction, provide fish passage that meets NMFS' fish passage criteria for any adult or juvenile ESA-listed fish ([NMFS 2011a](#)), for the life of the action.

25. Timing of In-Water Work

- a. The in-water work window will be identified as the limit to in-water construction specified in the project notification form. The construction schedule will conform to the windows established in Oregon, Washington, and Idaho by the Oregon Department of Fish and Wildlife ([ODFW 2008](#)), Washington Department of Fish and Wildlife ([WDFW 2010](#)), and Idaho Department of Fish and Game, respectively. Any exceptions to in-water work windows recommended by ODFW, WDFW, or IDFG will be approved by NMFS. In the Willamette River below Willamette Falls, the winter work window (December 1 – January 31) is not approved for actions under this opinion.
- b. Hydraulic and topographic measurements and placement of LW, boulders, or gravel may be completed anytime, provided the affected area is not occupied by adult fish congregating for spawning, or in an area where redds are occupied by eggs or pre-emergent alevins.

³ National Marine Fisheries Service. 2011. Anadromous salmonid passage facility design. Northwest Region.

26. **Fisheries, Hydrology, Geomorphology, Wildlife, Botany, and Cultural Surveys in Support of Aquatic Restoration** include assessments and monitoring projects that are associated with planning, implementation, and monitoring of aquatic restoration projects covered by this opinion. Such support projects may include surveys to document the following aquatic and riparian attributes: fish habitat, hydrology, channel geomorphology, water quality, fish spawning, fish presence⁴, macroinvertebrates, riparian vegetation, wildlife, and cultural resources (including excavating test pits less than 1 m² in size). This also includes effectiveness monitoring associated with projects implemented under this opinion, provided the effectiveness monitoring is limited to the same survey techniques described in this section.
- a. Train personnel in survey methods to prevent or minimize disturbance of fish. Contract specifications should include these methods where appropriate.
 - b. Avoid impacts to fish redds. When possible, avoid sampling during spawning periods.
 - c. Coordinate with other local agencies to prevent redundant surveys.
 - d. Locate excavated material from cultural resource test pits away from stream channels. Replace all material in test pits when survey is completed and stabilize the surface.
 - e. Does not include research projects that have or should obtain a permit pursuant to section 10(a) of the ESA.
27. **Work Area Isolation**
- a. Isolate any work area within the wetted channel from the active stream whenever ESA-listed fish are reasonably certain to be present, or if the work area is less than 300 feet upstream from known spawning habitats. However, work area isolation may not always be necessary or practical in certain settings; *i.e.*, dry streambeds and tidal zones, respectively.
 - b. Engineering design plans for work area isolation will include all isolation elements.
 - c. Dewater the shortest linear extent of work area practicable, unless wetted in-stream work is deemed to be minimally harmful to fish, and is beneficial to other aquatic species.⁵
 - i. Use a coffer dam and a by-pass culvert or pipe, or a lined, non-erodible diversion ditch to divert flow around the dewatered area. Dissipate flow energy to prevent damage to riparian vegetation or stream channel and provide for safe downstream reentry for fish, preferably into pool habitat with cover.
 - ii. Where gravity feed is not possible, pump water from the work site to avoid rewatering. Maintain a fish screen on the pump intake to avoid juvenile fish entrainment (NMFS 2011a).
 - iii. Pump seepage water to a temporary storage and treatment site, or into upland areas, to allow water to percolate through soil or to filter through vegetation before reentering the stream channel with a treatment system comprised of either a hay bale basin or other sediment control device.
 - iv. Monitor below the construction site to prevent stranding of aquatic organisms.
 - v. When construction is complete, re-water the construction site slowly to prevent loss of surface flow downstream, and to prevent a release of suspended sediment.
 - d. Whenever a pump is used to dewater the isolation area and ESA-listed fish may be present, a fish screen will be used that meets the most current version of NMFS' fish screen criteria (NMFS 2011a). NMFS approval is required for pumping that exceeds 3 cfs.

⁴ Capture or enumeration by non-lethal techniques, *i.e.*, snorkel, minnow trapping; not hooking or electrofishing.

⁵ For instructions on how to dewater areas occupied by lamprey, see *Best management practices to minimize adverse effects to Pacific lamprey (Entosphenus tridentatus)* (USFWS 2010).

28. Fish Capture and Release

- a. If practicable, allow listed fish species to migrate out of the work area or remove fish before dewatering; otherwise remove fish from an exclusion area as it is slowly dewatered with methods such as hand or dip-nets, seining, or trapping with minnow traps (or gee-minnow traps).
- b. Fish capture will be supervised by a qualified fisheries biologist, with experience in work area isolation and competent to ensure the safe handling of fish.
- c. Conduct fish capture activities during periods of the day with the coolest air and water temperatures possible, normally early in the morning to minimize stress and injury of species present.
- d. Monitor the nets frequently enough to ensure they stay secured to the banks and free of organic accumulation.
- e. Electrofishing will be used during the coolest time of day, and only after other means of fish capture are determined to be not feasible or ineffective.
 - i. Follow the most recent version of NMFS (2000) electrofishing guidelines.
 - ii. Do not electrofish when the water appears turbid, *e.g.*, when objects are not visible at depth of 12 inches.
 - iii. Do not intentionally contact fish with the anode.
 - iv. Use direct current (DC) or pulsed direct current within the following ranges:
 1. If conductivity is less than 100 μ S, use 900 to 1100 volts.
 2. If conductivity is between 100 and 300 μ S, use 500 to 800 volts.
 3. If conductivity greater than 300 μ S, use less than 400 volts.
 - v. Begin electrofishing with a minimum pulse width and recommended voltage, then gradually increase to the point where fish are immobilized.
 - vi. Immediately discontinue electrofishing if fish are killed or injured, *i.e.*, dark bands visible on the body, spinal deformations, significant de-scaling, torpid or inability to maintain upright attitude after sufficient recovery time. Recheck machine settings, water temperature and conductivity, and adjust or postpone procedures as necessary to reduce injuries.
- f. If buckets are used to transport fish:
 - i. Minimize the time fish are in a transport bucket.
 - ii. Keep buckets in shaded areas or, if no shade is available, covered by a canopy.
 - iii. Limit the number of fish within a bucket; fish will be of relatively comparable size to minimize predation.
 - iv. Use aerators or replace the water in the buckets at least every 15 minutes with cold clear water.
 - v. Release fish in an area upstream with adequate cover and flow refuge; downstream is acceptable provided the release site is below the influence of construction.
 - vi. Be careful to avoid mortality counting errors.
- g. Monitor and record fish presence, handling, and injury during all phases of fish capture and submit a fish salvage report (Appendix A) to NMFS within 60 days of capture that documents date, time of day, fish handling procedures, air and water temperatures, and total numbers of each salmon, steelhead and eulachon handled, and numbers of ESA-listed fish injured or killed.

31. Site Restoration

- a. Restore any significant disturbance of riparian vegetation, soils, stream banks or stream channel.
- b. Remove all project related waste; *e.g.*, pick up trash, sweep roadways in the project area to avoid runoff-containing sediment, *etc.*
- c. Obliterate all temporary access roads, crossings, and staging areas.

- d. Loosen soil in compacted areas when necessary for revegetation or infiltration.
- e. Although no single criterion is sufficient to measure restoration success, the intent is that the following features should be present in the upland parts of the project area, within reasonable limits of natural and management variation:
 - i. Human and livestock disturbance, if any, are confined to small areas necessary for access or other special management situations.
 - ii. Areas with signs of significant past erosion are completely stabilized and healed, bare soil spaces are small and well-dispersed.
 - iii. Soil movement, such as active rills and soil deposition around plants or in small basins, is absent or slight and local.
 - iv. Native woody and herbaceous vegetation, and germination microsites, are present and well distributed across the site; invasive plants are minimal or absent.
 - v. Plants have normal, vigorous growth form, and a high probability of remaining vigorous, healthy and dominant over undesired competing vegetation.
 - vi. Plant litter is well distributed and effective in protecting the soil with little or no litter accumulated against vegetation as a result of active sheet erosion ("litter dams").
 - vii. A continuous corridor of shrubs and trees appropriate to the site are present to provide shade and other habitat functions for the entire streambank/shoreline.

32. Revegetation

- a. Plant and seed disturbed areas before or at the beginning of the first growing season after construction.
- b. Use a diverse assemblage of vegetation species native to the action area or region, including trees, shrubs, and herbaceous species. Vegetation, such as willow, sedge and rush mats, may be gathered from abandoned floodplains, stream channels, *etc.* When feasible, use vegetation salvaged from local areas scheduled for clearing due to development.
- c. Use species that will achieve shade and erosion control objectives, including forb, grass, shrub, or tree species that are appropriate for the site and native to the project area or region.
- d. Short-term stabilization measures may include use of non-native sterile seed mix if native seeds are not available, weed-free certified straw, jute matting, and similar methods.
- e. Do not apply surface fertilizer within 50 feet of any wetland or water body.
- f. Install fencing as necessary to prevent access to revegetated sites by livestock or unauthorized persons.
- g. Do not use invasive or non-native species for site restoration.
- h. Conduct post-construction monitoring and treatment to remove or control invasive plants until native plant species are well-established.

1.3.1.3 Project Design Criteria – Types of Restoration Actions

- 34. Large Wood (LW), Boulder, and Gravel Placement** includes LW and boulder placement, ELJs, constructed riffles, porous boulder structures and vanes, gravel placement, and tree removal for LW projects. Such activities will occur in areas where channel structure is lacking due to past stream cleaning (LW removal), riparian timber harvest, and in areas where natural gravel supplies are low due to anthropogenic disruptions. These projects will occur in stream channels and adjacent floodplains to increase channel stability, rearing habitat, pool formation, spawning gravel deposition, channel complexity, hiding cover, low velocity areas, and floodplain function.

a. **Large wood and boulder projects**

- i. Place LW and boulders in areas where they would naturally occur and in a manner that closely mimics natural accumulations for that particular stream type. For example, boulder placement may not be appropriate in low-gradient meadow streams.
- ii. Structure types shall simulate disturbance events to the greatest degree possible and include, but are not limited to, log jams, debris flows, wind-throw, and tree breakage.
- iii. No limits are to be placed on the size or shape of structures as long as such structures are within the range of natural variability of a given location and do not block fish passage.
- iv. Projects can include grade control and streambank stabilization structures, while size and configuration of such structures will be commensurate with scale of project site and hydraulic forces.
- v. The partial burial of LW and boulders is permitted and may constitute the dominant means of placement. This applies to all stream systems but more so for larger stream systems where use of adjacent riparian trees or channel features is not feasible or does not provide the full stability desired.
- vi. LW includes whole conifer and hardwood trees, logs, and rootwads. LW size (diameter and length) should account for bankfull width and stream discharge rates. When available, trees with rootwads should be a minimum of 1.5x bankfull channel width, while logs without rootwads should be a minimum of 2.0 x bankfull widths.
- vii. Structures may partially or completely span stream channels or be positioned along stream banks.
- viii. Stabilizing or key pieces of LW will be intact, hard, with little decay, and if possible have root wads (untrimmed) to provide functional refugia habitat for fish. Consider orienting key pieces such that the hydraulic forces upon the LW increase stability.
- ix. Anchoring LW – Anchoring alternatives may be used in preferential order:
 1. Use of adequate sized wood sufficient for stability
 2. Orient and place wood in such a way that movement is limited
 3. Ballast (gravel or rock) to increase the mass of the structure to resist movement
 4. Use of large boulders as anchor points for the LW
 5. Pin LW with rebar to large rock to increase its weight. For streams that are entrenched (Rosgen F, G, A, and potentially B) or for other streams with very low width to depth ratios (less than 12) an additional 60% ballast weight may be necessary due to greater flow depths and higher velocities.
 6. Anchoring LW by cable is not allowed under this opinion.

39. **Set-Back or Removal of Existing Berms, Dikes, and Levees** will be conducted to reconnect historical fresh-water deltas to inundation, stream channels with floodplains, and historical estuaries to tidal influence. Such projects will take place where estuaries and floodplains have been disconnected from adjacent rivers through drain pipes and anthropogenic fill.

b. **Estuary restoration**

- i. Project implementation shall be conducted in a sequence that will not preclude repairing or restoring estuary functions once dikes/levees are breached and the project area is flooded.

- ii. Culverts and tide gates will be removed using the PDC and conservation measures, where appropriate, as described in Work Area Isolation (PDC 27), Surface Water Withdrawals (PDC 23), and Fish Capture and Release (PDC 28) and Fish Passage Restoration (PDC 33) above.
- iii. Temporary roads within the project area should be removed to allow free flow of water. Material either will be placed in a stable area above the ordinary high water line or highest measured tide or be used to restore topographic variation in wetlands.
- iv. To the extent possible, remove segmented drain tiles placed to drain wetlands. Fill generated by drain tile removal will be compacted back into the ditch created by removal of the drain tile.
- v. Channel construction may be done to recreate channel morphology based on aerial photograph interpretation, literature, topographic surveys, and nearby undisturbed channels. Channel dimensions (width and depth) are based on measurements of similar types of channels and the drainage area. In some instances, channel construction is simply breaching the levee. For these sites, further channel development will occur through natural processes.
- vi. Fill ditches constructed and maintained to drain wetlands. Some points in an open ditch may be over-filled, while other points may be left as low spots to enhance topography and encourage sinuosity of the developing channel.

Section 2.8.1, Amount or Extent of Take: Harm due to habitat-related effects

USFWS and NOAA RC will complete and record the following water quality observations to ensure that any increases in suspended sediment do not exceed background levels:

1. Take a turbidity sample using an appropriately and regularly calibrated turbidimeter, or a visual turbidity observation, every 4 hours when work is being completed, or more often as necessary to ensure that the in-water work area is not contributing visible sediment to water, at a relatively undisturbed area approximately 100 feet upstream from the project area, or 300 feet from the project area if it is subject to tidal or coastal scour. Record the observation, location, and time before monitoring at the downstream point.
2. Take a second visual observation, immediately after each upstream observation, approximately 50 feet downstream from the project area in streams that are 30 feet wide or less, 100 feet from the project area for streams between 30 and 100 feet wide, 200 feet from the discharge point or nonpoint source for streams greater than 100 feet wide, and 300 feet from the discharge point or nonpoint source for areas subject to tidal or coastal scour. Record the downstream observation, location, and time.
3. Compare the upstream and downstream observations. If more turbidity or pollutants is/are observed downstream than upstream, the activity will be modified to reduce pollution. Continue to monitor every 4 hours.
4. If the exceedance continues after the second monitoring interval (after 8 hours), the activity will stop until the levels returns to background.

3.5.7 Conservation Measures for Northern Spotted Owl

The proposed conservation measures for spotted owl are:

- a. To reduce adverse effects to spotted owl, projects will not generally occur during the critical breeding period between March 1 to July 15. Exact timing for a given location may vary and deviations from the above breeding period can be modified with approval of the local Service office. Projects should (a) be delayed until after the critical breeding season (unless the action

involves Type I helicopters, which extends the critical nesting window to September 30); (b) delayed until it is determined that young are not present.

b. The Service wildlife biologist may extend the restricted season based on site-specific information (such as a late nesting attempt).

c. Table 12 shows disruption distances applicable to the equipment types proposed in the BA. These distances can be locally altered based on current information.

d. No activity within this proposed action will cause adverse effects to spotted owl critical habitat when analyzed at the appropriate local scale as determined by the Service wildlife biologist.

e. For (LW) projects, follow conservation measures as outlined in the Tree Removal for LW Projects under PDC 34f.

f. No hovering or lifting within 152 m (500 feet) of the ground within occupied northern spotted owl habitat during the critical breeding season by Incident Command System

1. Action Completion Report

A) RESTORATION PROJECT ACTIVITIES: Within 60 days of completing all restoration work as part of an action completed under PROJECTS, submit the completed Action Completion Form with the following information to your NOAA contact.

Actual Start and End Dates for the Completion of Work:	Start:	End:
Actual Start and End Dates for the Completion of In-water Work:	Start:	End:
Turbidity Monitoring/Sampling Completed	Yes No	Not Required

TURBIDITY MONITORING. Provide records of turbidity monitoring (visual or by turbidimeter) including dates, times and location of monitoring. Include any exceedances and steps taken to reduce turbidity observed.

Type here to enter text.

Take/Amount of effect: Please provide the amount of take observed, or assumed, or "calculated"- use the same units as take statement:

[illegible]

EROSION AND CONTAMINANT INFORMATION: For aquatic projects, include a summary of the results of pollution and erosion control inspections, including any erosion control failure, contaminant release, and correction effort.

Type to enter text.

COMMENTS AND RECOMMENDATIONS: Please provide feedback that would improve the implementation of this BO and or minimize negative effects to listed species in the future. Examples include suggestions to improve PROJECTS, PDCs, or Conservation Measures (i.e. Lessons Learned); and any deviations from proposed project and how those were addressed. For herbicide use, information on the type of herbicide used and its effectiveness, as well as non-target impacts of the herbicide would also be useful.

Type here to enter text.

2. Fish Salvage Reporting Form

If applicable: Within 60 days of completing a capture and release as part of an action completed under PROJECTS, the applicant must submit a complete Salvage Reporting Form, with the following information to your NOAA contact.

Date(s) of Fish Salvage

Operation(s):

Supervisory Fish Biologist:

Address:

Telephone Number:

Waterbody/Location:

Describe methods that were used to isolate the work area and remove fish

Type here to enter text.

Fish Salvage Data

Water Temperature:

Air Temperature:

Time of Day:

ESA-Listed Species	Number Handled		Number Injured		Number Killed	
	Juvenile	Adult	Juvenile	Adult	Juvenile	Adult

Lower Columbia River Chinook salmon						
Upper Willamette River Chinook salmon						
Upper Columbia R. spring-run Chinook salmon						
Snake River spring/summer-run Chinook salmon						
Snake River fall-run Chinook salmon						
Puget Sound Chinook salmon						
Lake Ozette sockeye salmon						
Columbia River chum salmon						
Hood Canal chum salmon						
Lower Columbia River coho salmon						
Oregon Coast coho salmon						
S. Oregon/N. California Coasts coho salmon						
Snake River sockeye salmon						
Lower Columbia River steelhead						
Upper Willamette River steelhead						
Middle Columbia River steelhead						
Upper Columbia River steelhead						
Snake River Basin steelhead						
Puget Sound steelhead						
Eulachon						
Green Sturgeon						
Yelloweye Rockfish						
Canary Rockfish						
Bocaccio Rockfish						

Bull trout (FWS)						
Lahontan cutthroat trout (FWS)						
Warner sucker (FWS)						

PROJECTS Action Notification Form

Project managers shall submit the completed Action Notification (ANF) portion of this form to NMFS and/or USFWS at least 30 calendar days prior to undertaking restoration activities. **If an ANF is not submitted, then the project has no ESA coverage.**

USFWS and/or NMFS will notify project managers within 30 calendar days if the action is approved or disqualified **only** if a response is required based on the project activity category and species affected. When requested, USFWS or NMFS will provide an estimate of the time necessary to complete the review. Approval may be delayed if a substandard design is submitted and significant revision is necessary. These reviews are best initiated during the preliminary project development phase, when project team members are developing goals and objectives.

Additional information may be attached to an e-mail message as necessary, and may include:

- Fish passage approval
- Monitoring and Adaptive Management Plans
- Responses to the 16 RiverRAT questions
- Minor variance approvals
- Erosion and pollution control plan
- Engineering designs
- Fire, herbicide, or forest harvest plans, as warranted
- Comprehensive management plans
- Other approval documentation

Project Reporting. The project manager shall submit the following reports to USFWS and/or NMFS as necessary:

- 1. Action Notification:** at least **30** days prior to undertaking restoration activities.
- 2. Action Completion Reporting:** within **60** days of completing all work below ordinary high water (OHW) or end of construction.
- 3. Fish Salvage Reporting:** within **60** days of completing a capture and release as part of an action completed under PROJECTS.

Completion of the Action Implementation Form. Documents compliance with PROJECTS. It may be used to support, but does not necessarily substitute, for ESA documentation requirements by individual offices.

NOTE: It is the responsibility of the project manager to ensure ESA compliance is properly documented in project files according to each office's policies and procedures.

PROJECTS Action Notification Form**NMFS Tracking #: NWR-2013-10221****USFWS Tracking #: 01EOFW00-2014-F-0222****Lead Action Agency:** NOAA Restoration Center
2025**Date of Request:** November 26,**Project Title:** *McCoy Wetland Project Levee Breach***NOAA RC RCDB number:** 5861**Nature of Habitat:** ☒ Aquatic ☐ Upland**State(s):** ☐ Idaho ☒ Oregon ☐ Washington**County:** Tillamook**Project Lead:** megan hilgart**Project Lead Phone/Email:** (971) 245-2605 / megan.hilgart@noaa.gov**6th field HUC/Name:** 171002 / Northern Oregon Coastal**Latitude and Longitude:** 45.7002, -123.8801**Statutory Authority:** ☒ ESA (USFWS) ☒ ESA (NMFS) ☒ EFH (NMFS)**Proposed work period:** 07/15/2026 — 11/30/2026**Fish salvage Required?** ☒ Yes ☐ No**In water work period?** ☒ Yes ☐ No**Start/end date for In Water Work Period:** 07/15/2026 — 09/15/2026

Check All Required Reviews/Approvals:

Type of Review/Approval	Date Received
☐ RRT review	
☐ Fish Passage Engineer approval	
☐ USFWS Office Approval	
☐ Minor Variance	

USFWS Species/Critical Habitat in Action Area

Species: Marbled murrelet

Critical Habitat: No

Is the project Likely to Adversely Affect (LAA)? NLAA

Species: Northern spotted owl

Critical Habitat: No

Is the project Likely to Adversely Affect (LAA)? NLAA

NMFS Species/Critical Habitat or Essential Fish Habitat in Present in Action Area

Species: Oregon Coast coho salmon

Critical Habitat: Yes

Is the project Likely to Adversely Affect (LAA)? LAA

ANTICIPATED EFFECTS

Number of individuals captured during salvage: 100

Number of individual mortalities during salvage: 5

Length of streambank/channel disturbance or alteration: 110 Feet

The extent of take during in water work for turbidity is estimated by the length of a turbidity plume downstream from the project site.

Based on an approximate reported stream width of **750 ft.** the **plume can extend 300 ft downstream.**

Remember, if turbidity is **over 10%** below this distance, pause operations and reinforce erosion and pollution controls.

Does the project use herbicide in riparian areas: Yes

Estimated area treated with herbicide: 10 Acres

Is this less than 10% of the riparian habitat in the 6th field HUC: Yes

Species: Salmon, Chinook (EFH)

Is the project Likely to Adversely Affect (LAA)? NLAA

Species: Salmon, Coho (EFH)

Is the project Likely to Adversely Affect (LAA)? NLAA

Types of Restoration Actions

The project includes all of the checked actions and will be consistent with the project design criteria in the PROJECTS BO. All actions marked with (**) require approval – see PROJECTS BO for additional detail.

☐	**Fish Passage Restoration (PDC 33a-f)		
☐	**Stream Simulation projects requesting or requiring a minor waiver related to deviating from PROJECTS Stream Simulation criteria (33a)	☐	**Irrigation Diversion Replacement/Relocation (33f)
☐	Headcut and Grade Stabilization (33d; **implementing grade control or scour countermeasures)	☐	**Screen Installation/Replacement (33f)
☐	**Fish Ladder (33e)		
☐	Stream Channel Enhancement (PDC 34)		
☐	Large Wood or Boulders (34a)	☐	Porous Boulder Structures and Vanes (34d)
☐	Engineered Logjams (34b)	☐	Gravel Augmentation (34e)
☐	Constructed Riffles (34c)	☐	Tree Removal for LW Projects (34f)
☐	Dam and Legacy Structure Removal (PDC 35)		
☐	**Dam Removal (35a)	☐	Legacy Structure Removal (35b)
☐	**Fluvial Channel Reconstruction/Relocation (PDC 36)		
☐	Off- and Side Channel Habitat Restoration (PDC 37)		
☐	**Reconstruction is >20% of bankfull flow		
☐	Streambank Restoration (PDC 38)		
☐	Large alluvium placement (38d)	☐	LW placement occupying > 25% of the bankfull cross section (38e)
☒	Set-Back or Removal of Existing Berms, Dikes, and Levees (PDC 39)		
☐	Floodplains & Freshwater Deltas (39a)	☒	Estuary Restoration (39b)
☐	Reduction/Relocation of Recreational Impacts (PDC 40)		
☐	Livestock Fencing, Stream Crossing and Off-Channel Livestock Watering (PDC 41)		
☐	Livestock Fencing (41a)	☐	Off-channel livestock watering (41c)
☐	Livestock stream crossings (41b)		
☐	Piling, Marine Debris, and other Structure Removal (PDC 42)		
☐	Shellfish Bed/Nearshore Habitat Restoration (PDC 43)		
☐	Shellfish bed restoration (43a)	☐	**Beach Nourishment (43c)
☐	Replacing hard armoring w/ alternative (43b)		

☐	In-channel Nutrient Enhancement (PDC 44)		
☐	Road and Trail Erosion Control and Decommissioning (PDC 45)		
☐	Road Decommissioning/ Stormproofing (45a)	☐	Road Relocation (45b)
☐	Juniper Tree Removal (PDC 46)		
☐	Native Fish Protection (PDC 47)		
☐	Electrofishing		
☐	Beaver Habitat Restoration (PDC 48)		
☐	In-channel Structures (48a)	☐	Habitat Restoration (48b)
☐	Wetland Restoration (PDC 49)		
☐	**Tide/Flood Gate Removal, Replacement, or Retrofit (PDC 50)		
☐	**Removal	☐	**Replacement
☐	**Retrofit	☐	**Dike breach or setback
☐	**Culvert or bridge		
☒	Native Vegetation Restoration and Management (PDC 51)		
☒	Manual/ Mechanical	☒	Herbicide Treatments (see also PDC 29)
☐	Grazing	☐	Plant population enhancement/ restoration
☐	Prescribed Fire	☐	Surveys/ Monitoring (see also PDC 26)
☐	Upland Silvicultural Treatments (PDC 52)		
☐	Forest thinning	☐	Limb pruning
☐	Planting of native species (PDC 32)	☐	Control of invasive species (PDC 29)
☐	Install Wildlife Structures (PDC 53)		

General Construction Measures

The project will be consistent with the following measures from PROJECTS BO. All measures marked with (“**”) require approval – see PROJECTS BO for additional detail.

☒	Site Layout and Flagging (PDC 15)	☐	Temporary Fish Passage (PDC 24)
☒	Staging, Storage, and Stockpile Areas (PDC 16)	☒	Timing of In-Water Work (PDC 25)
☒	Erosion Control (PDC 17)	☐	Surveys in Support of Habitat Restoration (PDC 26)
☒	Hazardous Material Spill Prevention and Control (PDC 18)	☒	Work area isolation (PDC 27) ☐ **Fish screen for pump intakes to dewater at >3 cfs
☒	Equipment, Vehicles, and Power Tools (PDC 19)	☒	Fish Capture and Release (PDC 28)
☒	Temporary Access Roads and Paths (PDC 20)	☒	Invasive Species and Nonnative Plant Control (PDC 29) ☒ Mechanical means ☒ Herbicides
☐	Dust Abatement (PDC 21)	☐	**Piling Installation (PDC 30)
☒	Temporary Stream Crossing (PDC 22)	☒	Site restoration (PDC 31)
☐	Surface Water Withdrawal and Construction Discharge Water (PDC 23)	☒	Revegetation (PDC 32)

Project Description

List the project activities and describe the intended result(s); tell when the project is to occur; describe how the activities will be implemented; provide any other pertinent information. **Note: If you are utilizing herbicides during your restoration, please provide specific information regarding:**

- *Herbicide and Surfactants to be used*
- *Targeted non-desired (i.e. invasive, non-native, etc.) species – scientific name (common name)*
- *Application method and timing of application*
- *Site-specific BMPs employed*

The McCoy Marsh wetland is a 9-acre parcel on the east side of Nehalem Bay, just upstream of the community of Wheeler, Oregon. The property was disconnected from tidal influence by the construction of the Nehalem Levee and the McCoy-Botts Levee. The Nehalem Levee is mostly intact but the McCoy-Botts Levee has been abandoned and since eroded; a 12-inch concrete culvert under an eroded part of the levee separating McCoy and Bott's marshes allows some minor tidal exchange at tides above 8 feet elevation. The McCoy Marsh Tidal Reconnection project provides an opportunity to create immediate ecological uplift and reclaim tidal exchange in existing wetlands in the Nehalem River estuary through levee breaching, improving water and habitat quality in the wetland for rearing salmonids as well as salmon prey species that are critical for juvenile salmonid growth and survival.

Levees would be breached in three locations to allow tidal exchange in McCoy Marsh. The breaches will include removing the levee material to near the ground surface around 8 to 9 feet elevation to allow high tides to enter the McCoy property. The purpose of the wide breaches is to allow woody debris to more easily enter the McCoy property to provide additional habitat complexity once the construction is completed. A brief description of project features is as follows:

Breaches

- Breach 1 is located in the southeast corner of the McCoy Marsh, where a 30-foot opening will be made through the McCoy-Botts Levee, and a channel will be graded to connect to an existing tidal channel that currently drains through the concrete culvert. The culvert will be plugged and remain in place.
- Breach 2 is located at the approximate midpoint of the McCoy-Botts Levee and will also be 30-feet wide. The breach will tie into the ground surface elevation of the adjoining Botts Marsh and lower in elevation to the north towards existing tidal wetland areas and converges with the channel at Breach 3.
- Breach 3 is a 50-foot wide opening in the Nehalem Levee and will allow flows from the Nehalem River on the west side of the property connecting it with the Nehalem River. Breach 3 will tie into the Nehalem Bay at an elevation of approximately 2 feet, allowing some inundation during most tidal water levels. The channel bottom will maintain 0.5 %

slope for 365 feet towards the site interior.

- Breach 2 and 3 converge in the marsh interior and branch into a primary and secondary channel that convey tidal flows north and east at a slope of 1.5% gradient. The primary tidal channel terminates into an existing defined channel that connects to Breach 1.

Hummocks

A series of “hummocks” will be built from project spoils of levee material excavated to create the breaches and tidal channels. The hummocks are low, oval shaped mounds of soil rising from the marsh surface to a maximum of 2 feet above existing ground surface elevations (max fill at 10-feet elevation to maintain wetland conditions). The hummocks will serve multiple purposes: providing topographic diversity, creating more edge habitat, support woody vegetation (willow and spruce), and catching drift logs in advantageous locations and eliminate the need for riprap along HWY 101. Floodplain logs and nurse crib structures (discussed below) will be installed on the hummock surfaces to enhance their ability to support Sitka spruce and willow, and to trap drift logs within the project area.

Large Wood

Two types of wood installations are included in the designs: channel logs and nurse crib log structures. Wood structures will be constructed using countersunk threaded rebar and pile logs, no chains will be used.

Remaining Upland Levees

The existing degraded levee segments will be left in place outside of breach areas. The levees support Sitka spruce and other native species and woody debris that compliment site restoration. The existing levees also provide informal highway protection by collecting wood material and providing wave break function during high water events.

Revegetation

Ash Creek Forest Management, LLC provided a Vegetation Enhancement Plan for the site that provides guidelines for invasive species treatments (which was consulted on in a previous ANF submittal) and revegetation following construction. The revegetation plan specifies recommendations for site preparation, planting of native species, and maintenance in four types of treatment areas: wetland channels, hummocks, levee uplands, and access routes.

All in-water work will occur in the work window established by ODFW from July 1 – September 15. Block nets installation, fish salvage, and dewatering will occur prior to construction. Channels excavation, hummocks, and large wood will be constructed first, prior to breaching, to keep areas isolated and minimize impacts to water quality. Isolation devices are not practical during the levee breaching due to daily tidal fluctuations. However, turbidity curtains will be installed at breach location to minimize impacts to water quality. Levee breaching will occur during low tide, to the extent practicable. Planting could occur into the late fall.

PROJECTS Opinion

Appendix B

File(s) uploaded:

McCoy Marsh Tidal Reconnection 60% Designs_Project Description.pdf

McCOY WETLAND DESIGN PROJECT HYDRAULIC ANALYSIS REPORT



prepared for
Lower Nehalem Community Trust



prepared by
Jake Hofeld, P.E.

Jake Hofeld

Digitally signed by Jake
Hofeld, P.E.
DN: cn=US,
email=Erjakeh@waterways.com,
o="Waterways Consulting,
Inc.", cn="Jake Hofeld, P.E."
Reason: I am approving this
document
Date: 2026.02.24
16:50:29-08'00'



WATERWAYS
CONSULTING, INC.

February 24, 2026



EXPIRES: 6/30/2027

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INTRODUCTION	2
HYDRAULIC MODELING METHODOLOGY.....	2
Existing Conditions Model	3
Proposed Conditions Model	3
Boundary Conditions.....	3
Peak Flow Hydrology.....	4
RESULTS	4
CONCLUSIONS	4

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Figure 1: Tax Lot Location

Figure 2: Hydraulic Analysis Overview Map of Proposed Project

List of Attachments

Attachment A – HEC-RAS Model Output Files

INTRODUCTION

Waterways Consulting Inc. (Waterways) was retained by the Lower Nehalem Community Trust (LNCT) to evaluate the hydraulic effects of the proposed McCoy Marsh Tidal Reconnection Project on the Nehalem River during the 100-year base flood discharge. The project site is located on the east (left) bank floodplain of the Nehalem River at Tax Lot 3N10350000200 in Tillamook County, Oregon, immediately north of the town of Wheeler (Figure 1).

The McCoy property consists of approximately 9 acres of diked former tidal wetland that was acquired by LNCT for preservation and ecological restoration. The proposed project presents an opportunity to restore tidal function and achieve immediate ecological benefits within the Nehalem River estuary by breaching existing dikes that no longer serve a functional purpose. Project elements include earthwork associated with three levee breaches, excavation of tidal channels, installation of large wood structures, and construction of floodplain hummocks (i.e. shallow soil mounds).

The McCoy property lies entirely within the Federal Emergency Management Agency (FEMA) designated Zone AE (1-percent annual chance of exceedance), effective September 28, 2018 (Figure 2). A portion of the proposed grading work occurs within the FEMA floodway.

This report has been prepared in support of floodplain development permitting with Tillamook County. It presents the results of a hydraulic analysis of existing and proposed conditions for the 100-year flood event along the Nehalem River in the vicinity of the McCoy property. The analysis was conducted in accordance with Section 3.510(9)(a) of the Tillamook County Land Use Ordinance, which requires certification by a professional registered civil engineer demonstrating, through hydrologic and hydraulic analysis performed in accordance with standard engineering practice, that the proposed encroachment will not result in any increase in flood levels during the base flood discharge.

HYDRAULIC MODELING METHODOLOGY

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) identifies the Nehalem River within the project area as a Special Flood Hazard Area (SFHA), partially within the regulatory floodway and entirely within Zone AE (Figure 2). FEMA provided Waterways Consulting Inc. with an existing hydraulic model of the Nehalem River encompassing the project area that was developed in support of a Letter of Map Revision (LOMR), effective February 11, 2015 (Case No. 14-10-1695P).

The LOMR hydraulic analysis was performed using the U.S. Army Corps of Engineers (USACE) Hydraulic Engineering Center River Analysis System (HEC-RAS) and updated a previous HEC-2 model using revised topographic data and additional hydraulic cross sections. The provided HEC-RAS model is referenced to the North American Vertical Datum of 1988 (NAVD 88) and incorporates flood elevations from the effective FIRM panels dated December 7, 1982. This model served as the baseline for all subsequent hydraulic analyses.

Waterways updated the hydraulic analysis using HEC-RAS version 6.7. A one-dimensional hydraulic model was developed to evaluate existing and proposed conditions at the project site under the 100-year recurrence interval peak flow for the Nehalem River. Two additional cross sections were added within the project area, and two additional cross sections were added downstream of the property to improve model resolution. Two modeling scenarios were evaluated: an Existing Conditions Model ("Ex. Cond." plan identifier) and a Proposed Conditions Model ("Prop. Cond." plan identifier).

Figure 4 illustrates the proposed project location, hydraulic cross-section locations used in the analysis, and the effective FEMA floodplain and floodway boundaries (FEMA, 2018).

Existing Conditions Model

Additional cross sections incorporated into the LOMR-based hydraulic model were developed from a terrain surface generated using a combination of site-specific ground survey data collected by Waterways in 2024 and 2025 and LiDAR data from the Oregon Department of Geology and Mineral Industries (DOGAMI) North Coast dataset collected by Watershed Sciences, Inc. in 2009. Channel bathymetry for the added cross sections was interpolated from adjacent upstream and downstream cross sections within the original LOMR model. The design drawings in Appendix A present the existing topographic data collected at the McCoy property along with the proposed project features.

The hydraulic model extends approximately 1.0 mile downstream of the project area and approximately 2.6 miles upstream of the project area (Figure 4). The Highway 101 bridge crossing located upstream of the project area was incorporated into the model using geometric information provided in the LOMR model. Hydraulic roughness coefficients for the additional cross sections were assigned based on Manning's n values published in the provided LOMR model. A summary of the Manning's roughness values applied in the analysis is provided in Table 1.

Table 1. Manning's Roughness for Different Land Use Types

Land Use Type	Manning's 'n'
Channel	0.026 – 0.03
Overbank	0.06 – 0.2

Proposed Conditions Model

The Proposed Conditions Model incorporates the additional cross sections developed for the Existing Conditions Model. The existing terrain surface was modified to reflect proposed excavation associated with the levee breaches and tidal channel construction (Figure 3).

Boundary Conditions

The downstream boundary condition for both the Existing and Proposed Conditions models was defined using a known water surface elevation of 13.1 feet (NAVD 88), as specified in the FEMA Flood Insurance

Study (FIS). A downstream boundary cross section was added to the Waterways model and located near the river mile corresponding to a location just upstream of the confluence of Vosburg Creek and the Nehalem River. The effective LOMR model does not include cross sections downstream of the McCoy property.

Peak Flow Hydrology

Based on the FEMA FIS and the provided hydraulic model, the 100-year peak flow for this reach of the Nehalem River at the McCoy property is 74,000 cubic feet per second (cfs). Accordingly, a discharge of 74,000 cfs was used as the base flood discharge for all modeled scenarios.

RESULTS

Results of the hydraulic modeling are presented in Attachment A. The analysis indicates that the proposed project will not result in an increase in water surface elevations at any modeled cross section. The absence of a measurable change between the Existing and Proposed Conditions models is attributable to the relatively small extent of excavation at the McCoy property in comparison to the width and conveyance capacity of the Nehalem River.

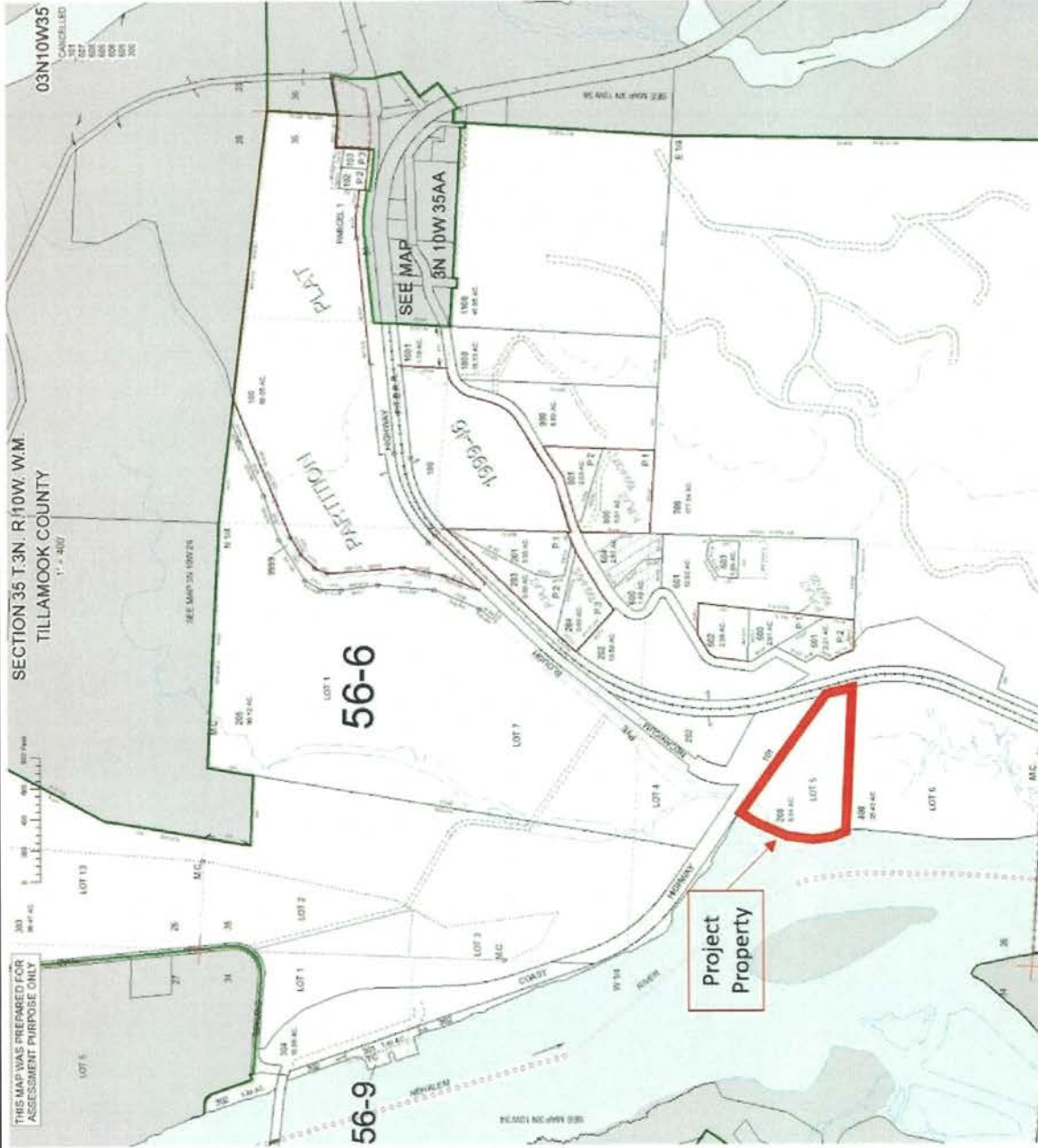
CONCLUSIONS

The hydraulic analysis demonstrates that the Proposed Conditions Model results in no increase in 100-year water surface elevations relative to the Existing Conditions Model. Therefore, the proposed project complies with the requirements of Section 3.510(9)(a) of the Tillamook County Land Use Ordinance.

REFERENCES

- Federal Emergency Management Agency. 2018. Flood Insurance Rate Maps (FIRMs) for Tillamook County (panel 209), Oregon and Incorporated Areas. September 28, 2018.
- Federal Emergency Management Agency. 2018. Flood Insurance Study (FIS) for Tillamook County, Oregon and Incorporated Areas. September 8, 2018.
- U.S. Army Corps of Engineers. Hydrologic Engineering Center. Computer Program HEC-RAS Version 6.7Low Davis, California. June 2023.
- U.S. Army Corps of Engineers. Hydrologic Engineering Center. Hydraulic Reference Manual. Version 5.0 Davis, California. February 2016.
- Watershed Sciences. LiDAR Remote Sensing Data Collection Oregon North Coast. Prepared for Department of Geology and Mineral Industries (DOGAMI). December 21, 2009.

Figures

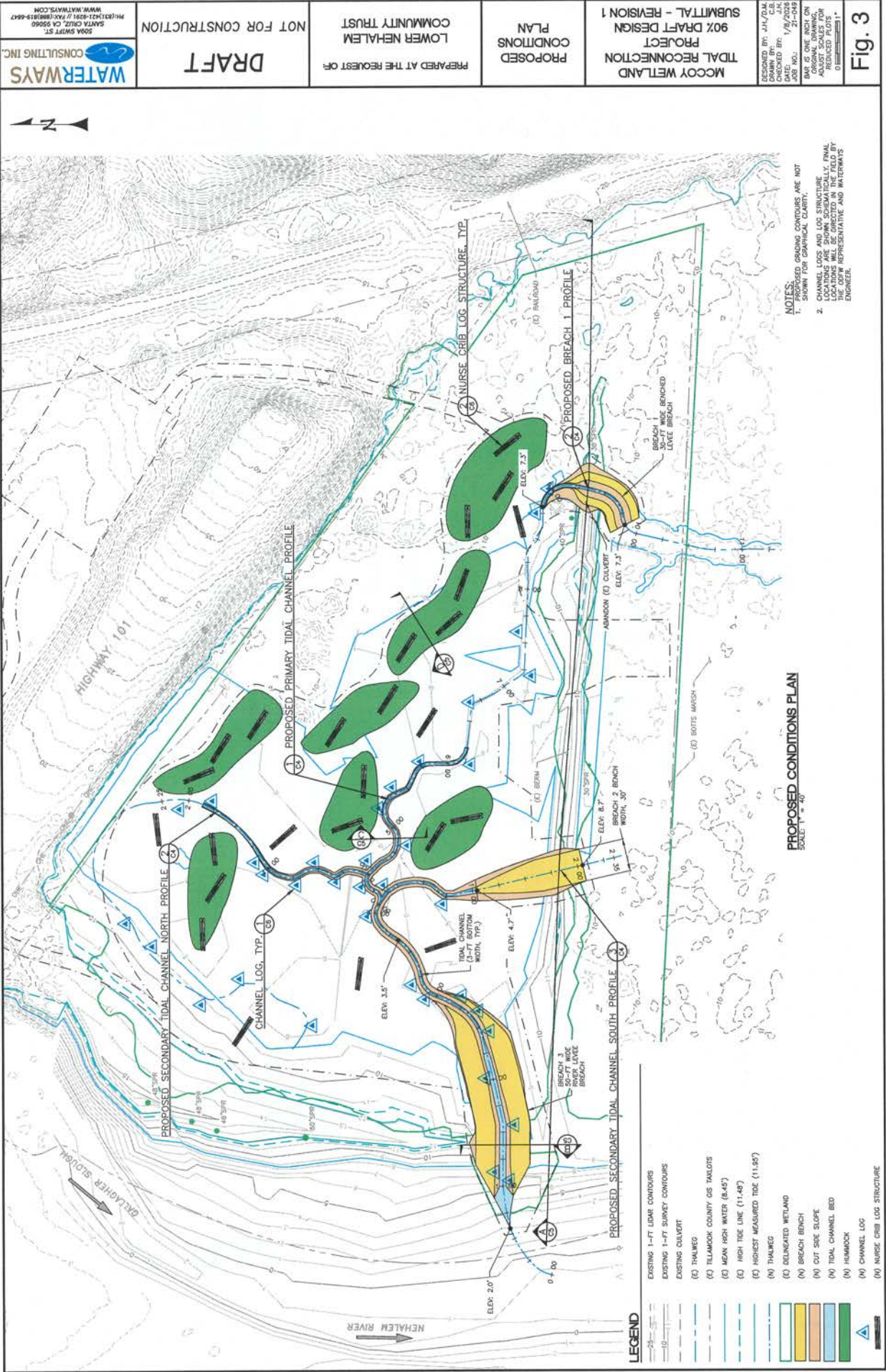


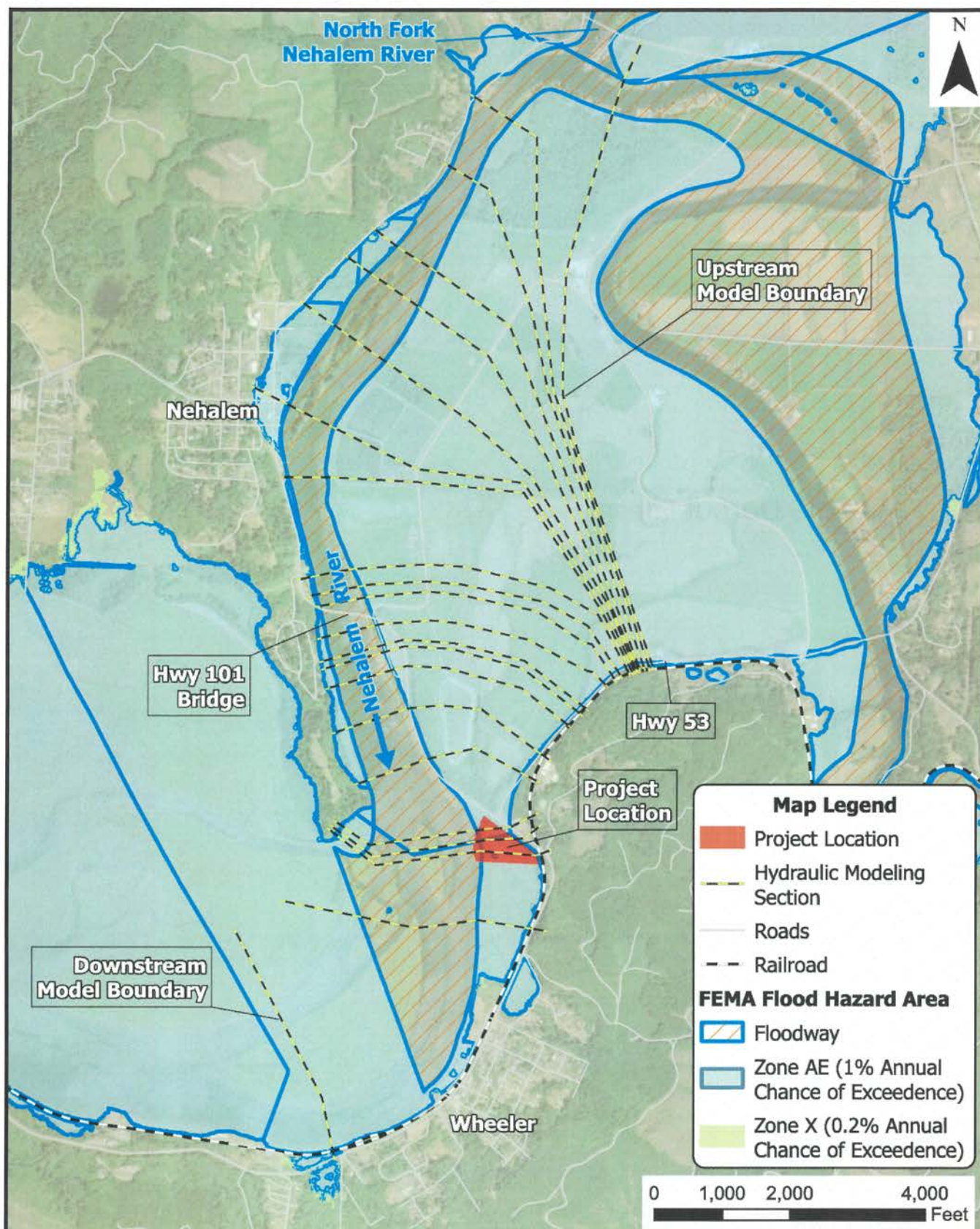
FIGURE

1

Tax Lot Location
(Map Sourced from Tillamook County Assessment and Taxation Website)

McCoy Wetland
Design Project -
Hydraulic Analysis Report





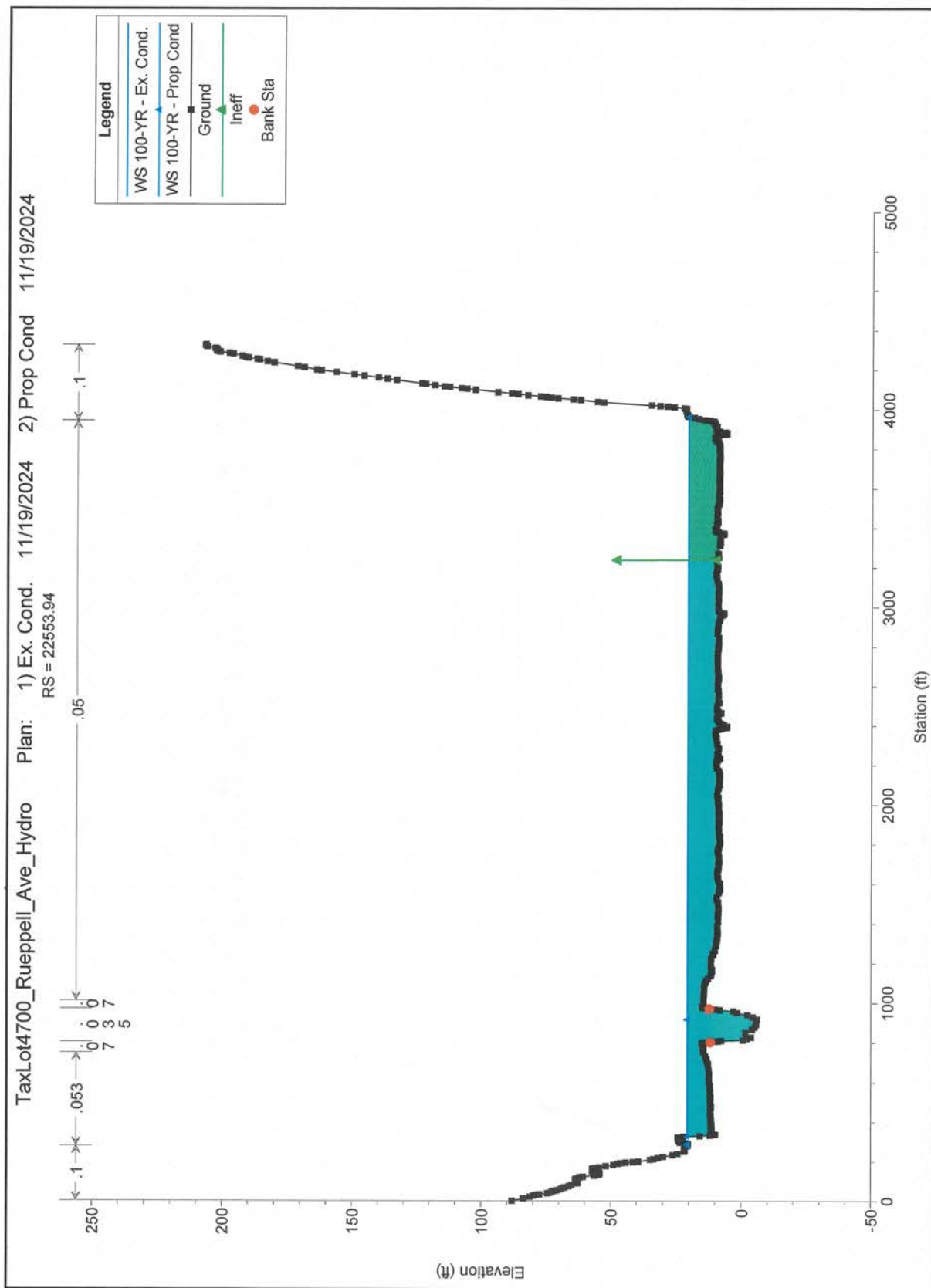
Hydraulic Analysis Overview Map

McCoy Wetland
Design Project -
Hydraulic Analysis Report



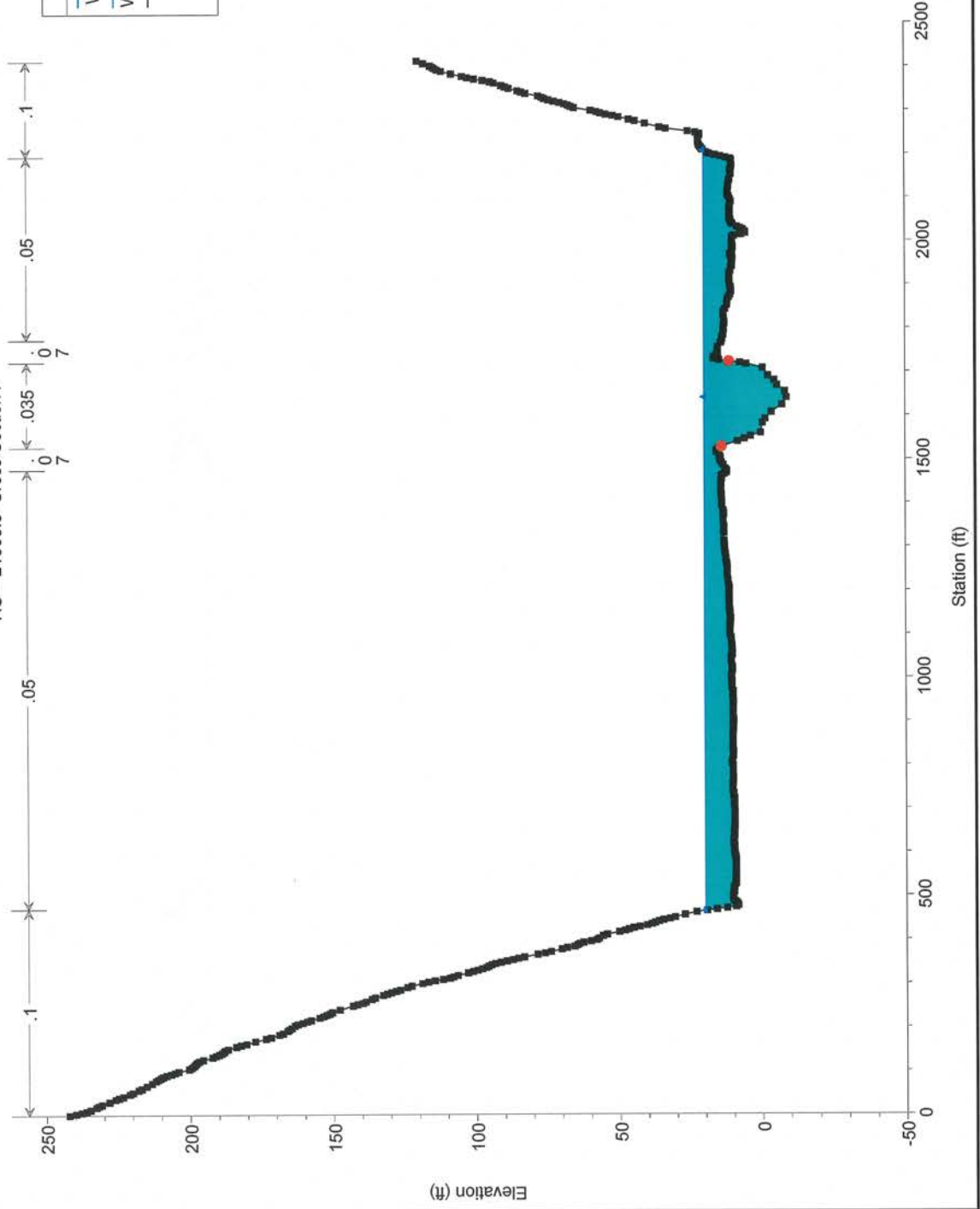
FIGURE
4

Attachment A
HEC-RAS Output Files



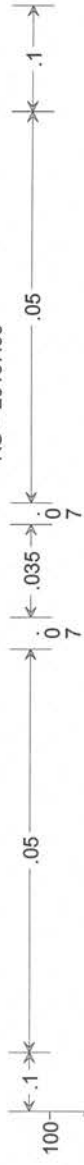
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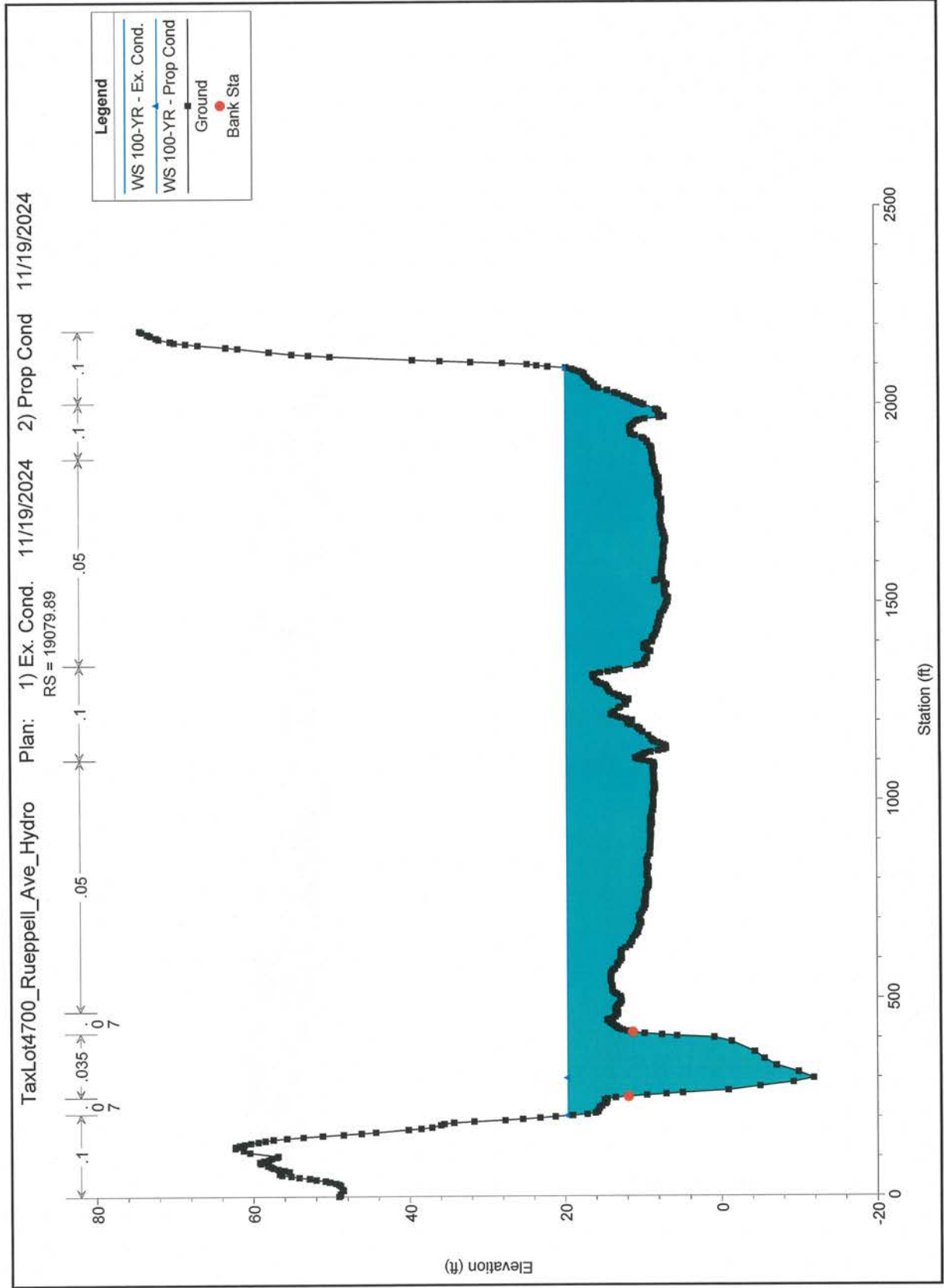
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Ineff	
Bank Sta	

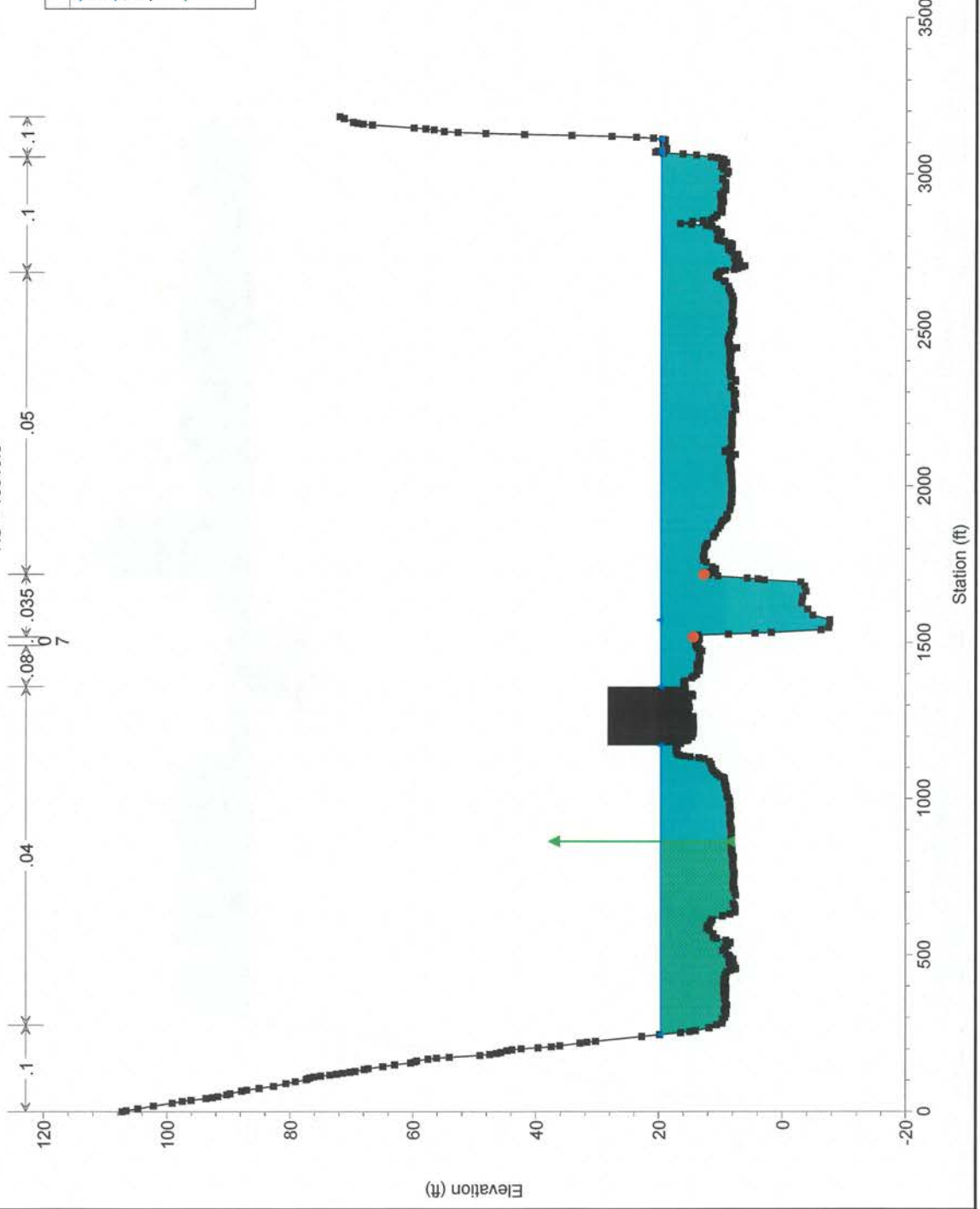
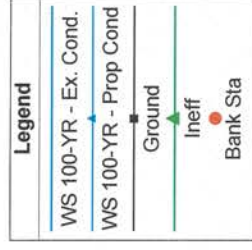
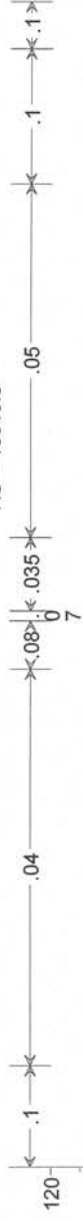
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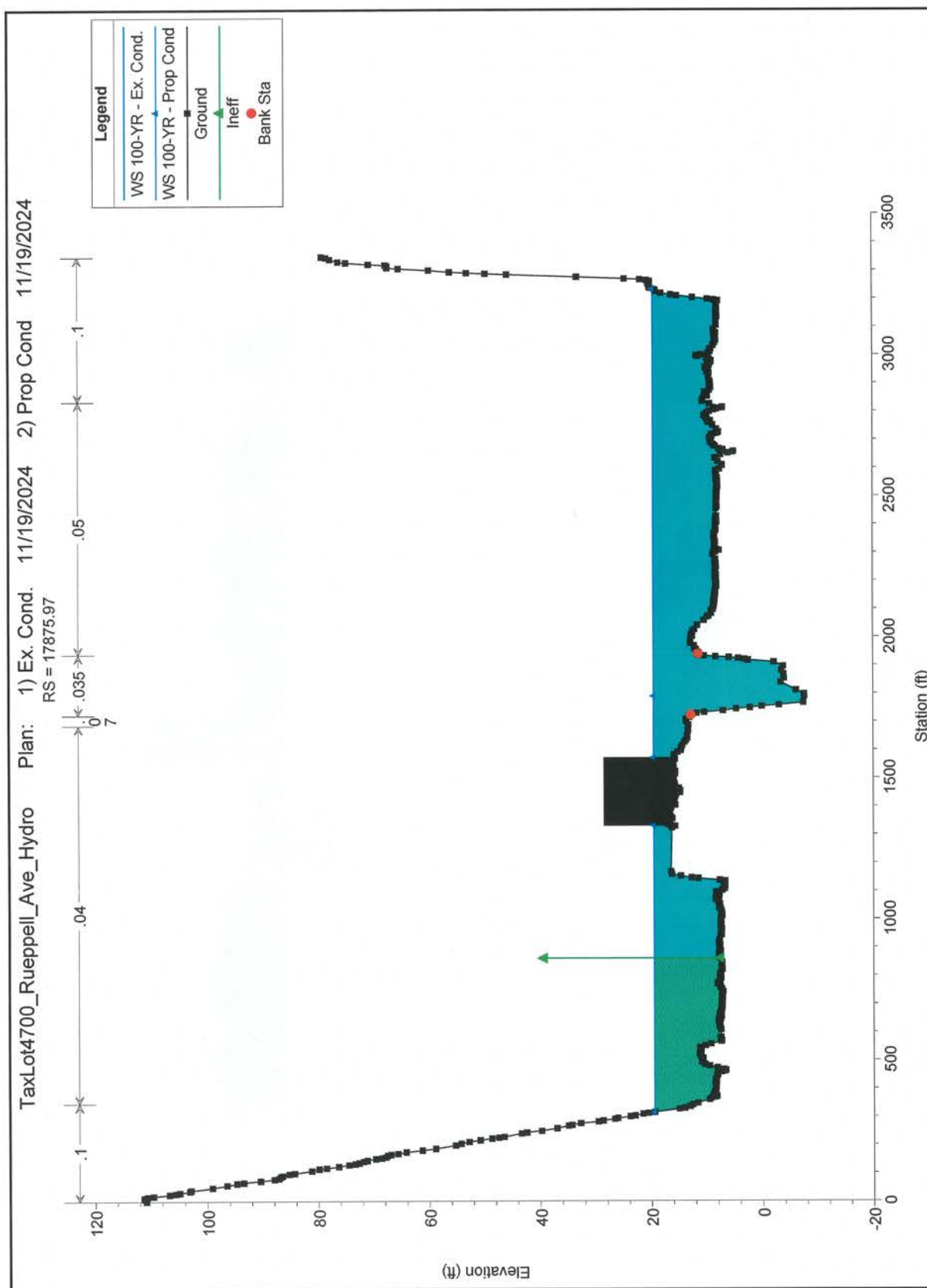
Station (ft)



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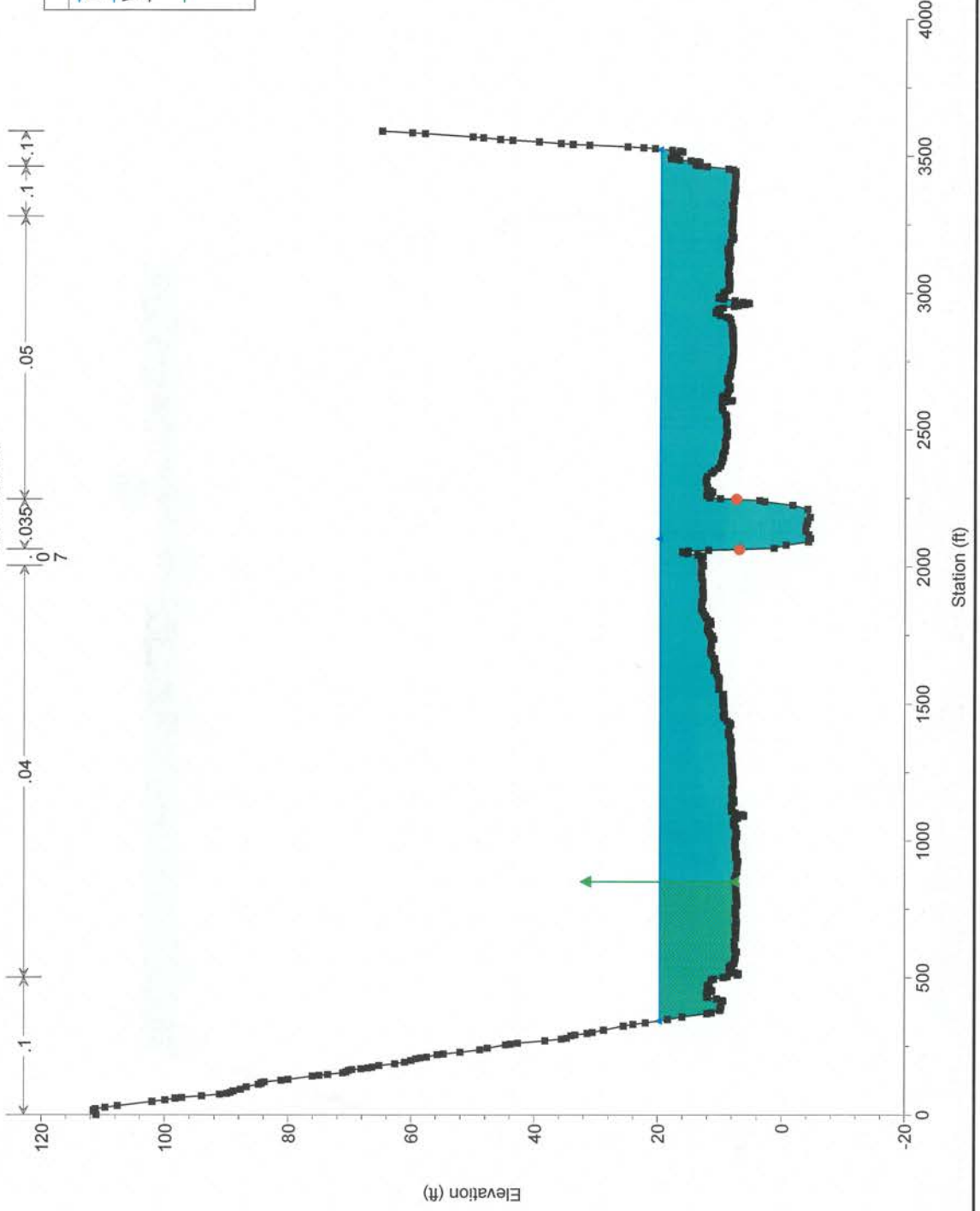


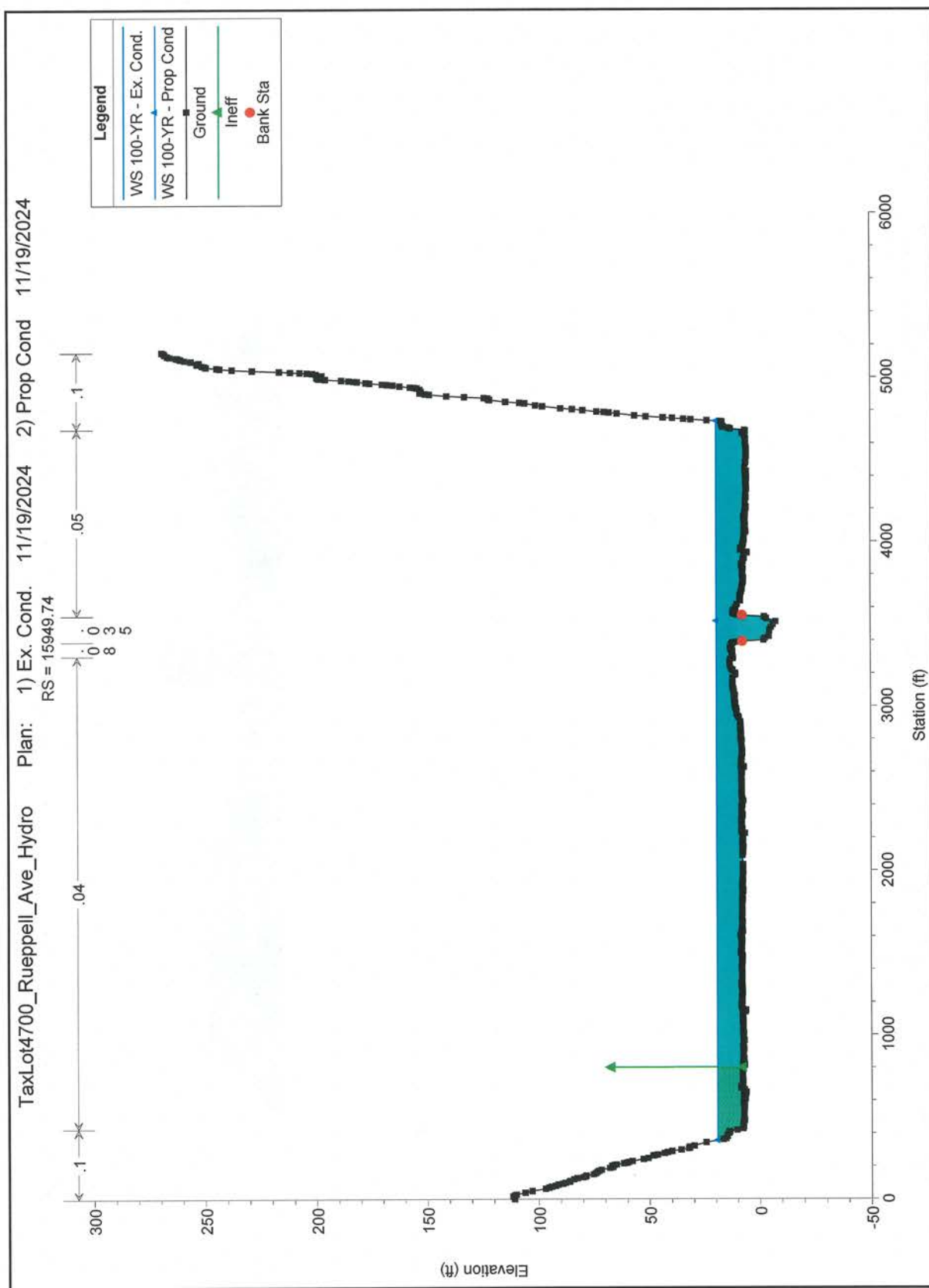
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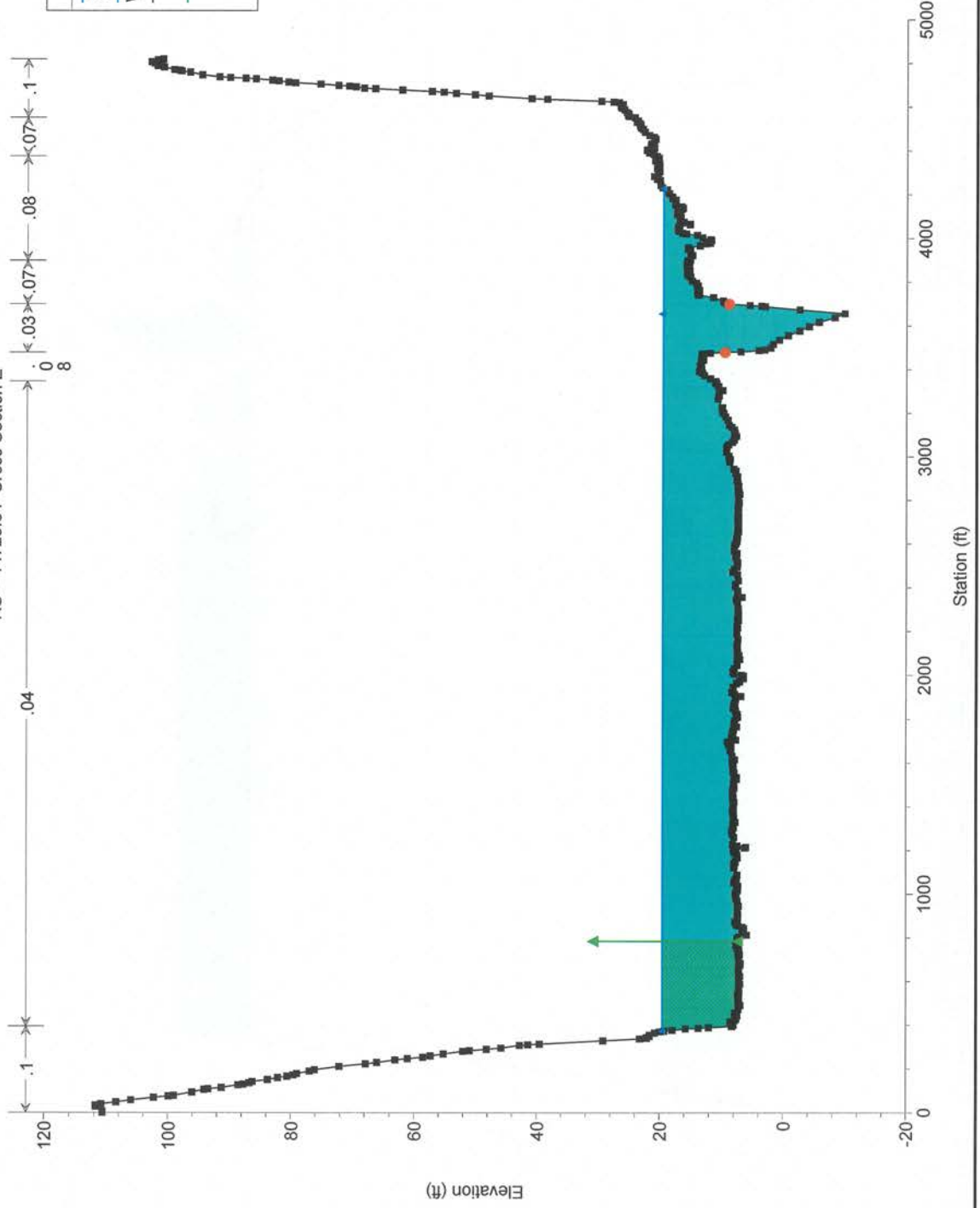
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Ineff	
Bank Sta	





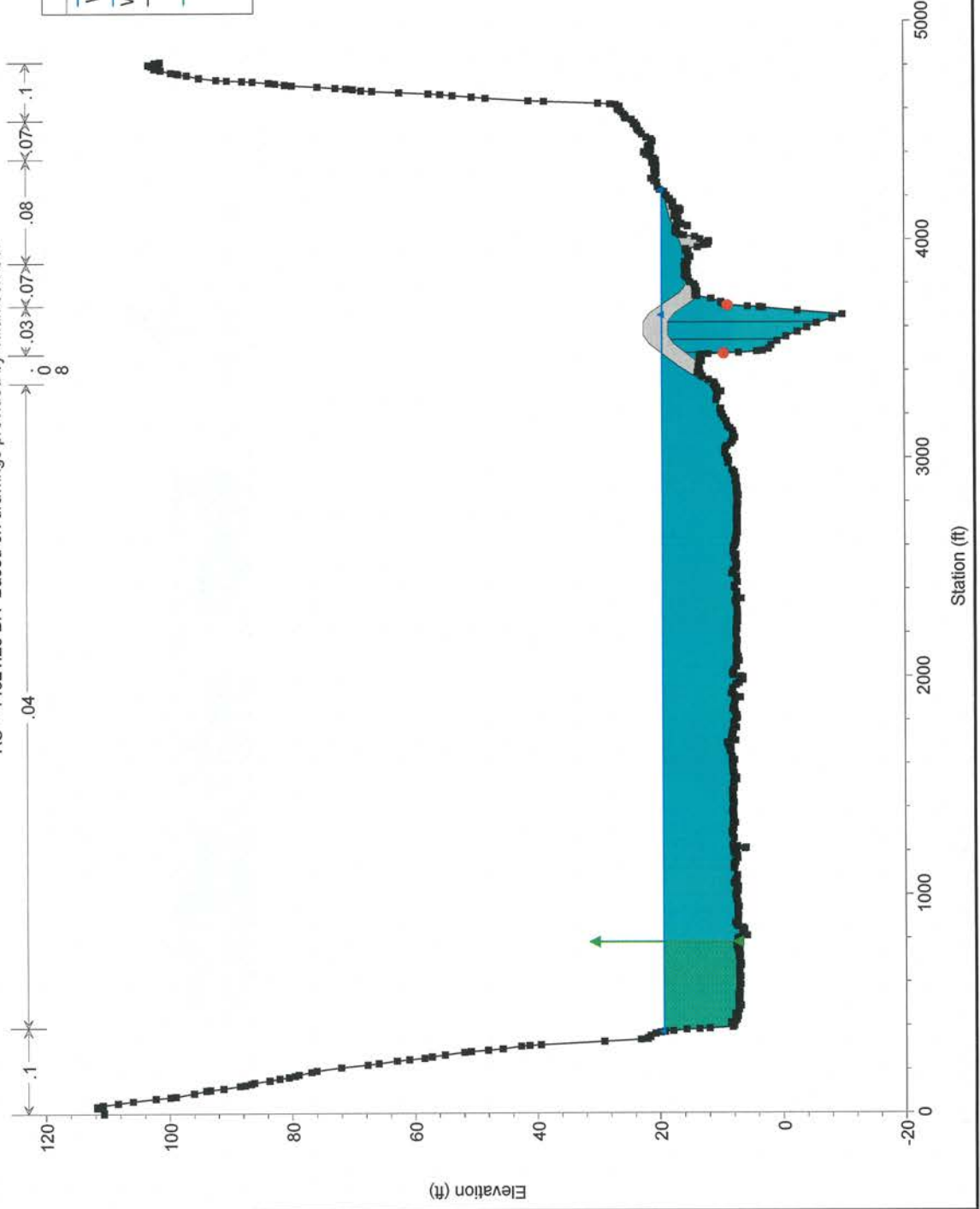
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RS = 14621.23 BR Based on drawings provided by Tillamook Co.

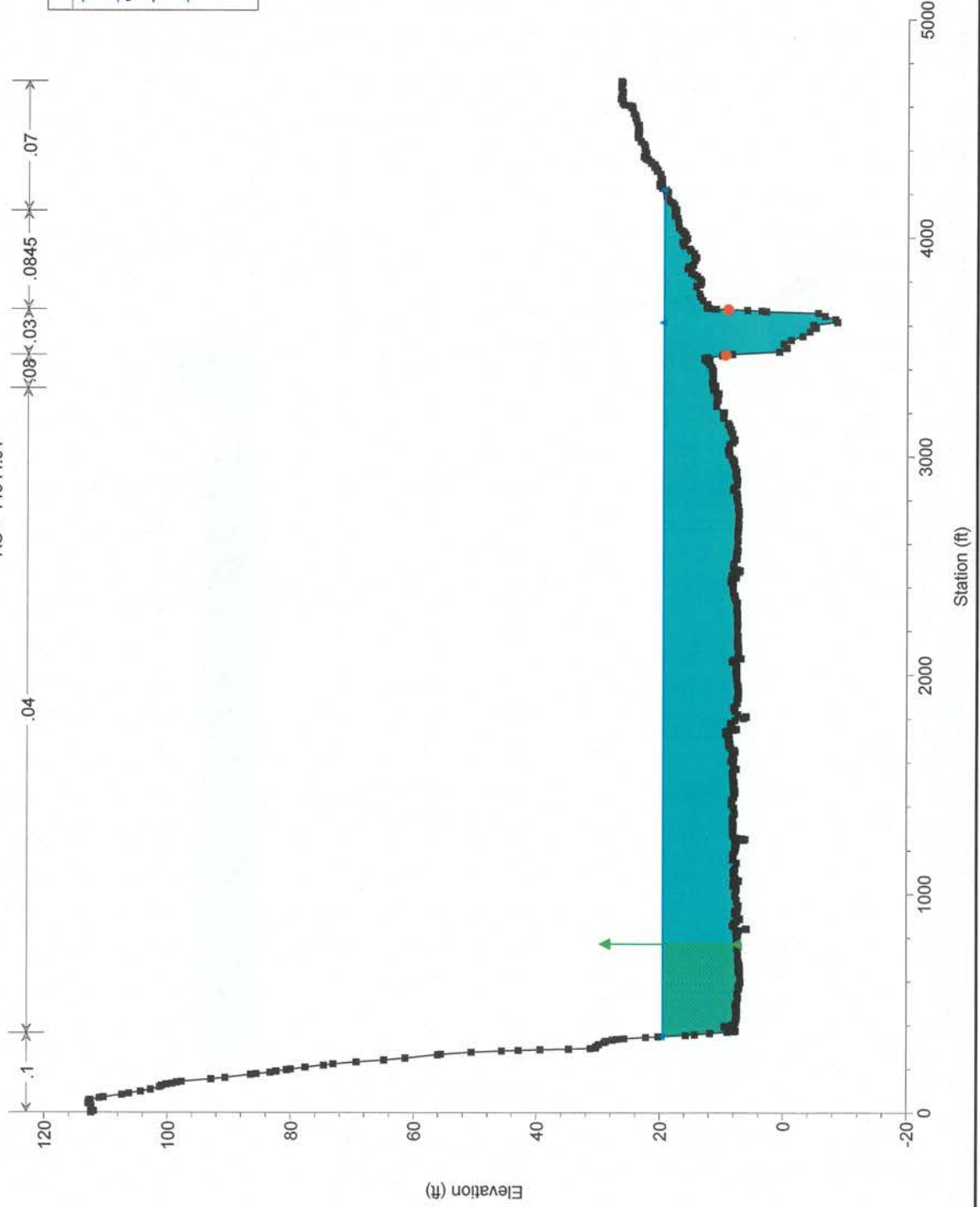


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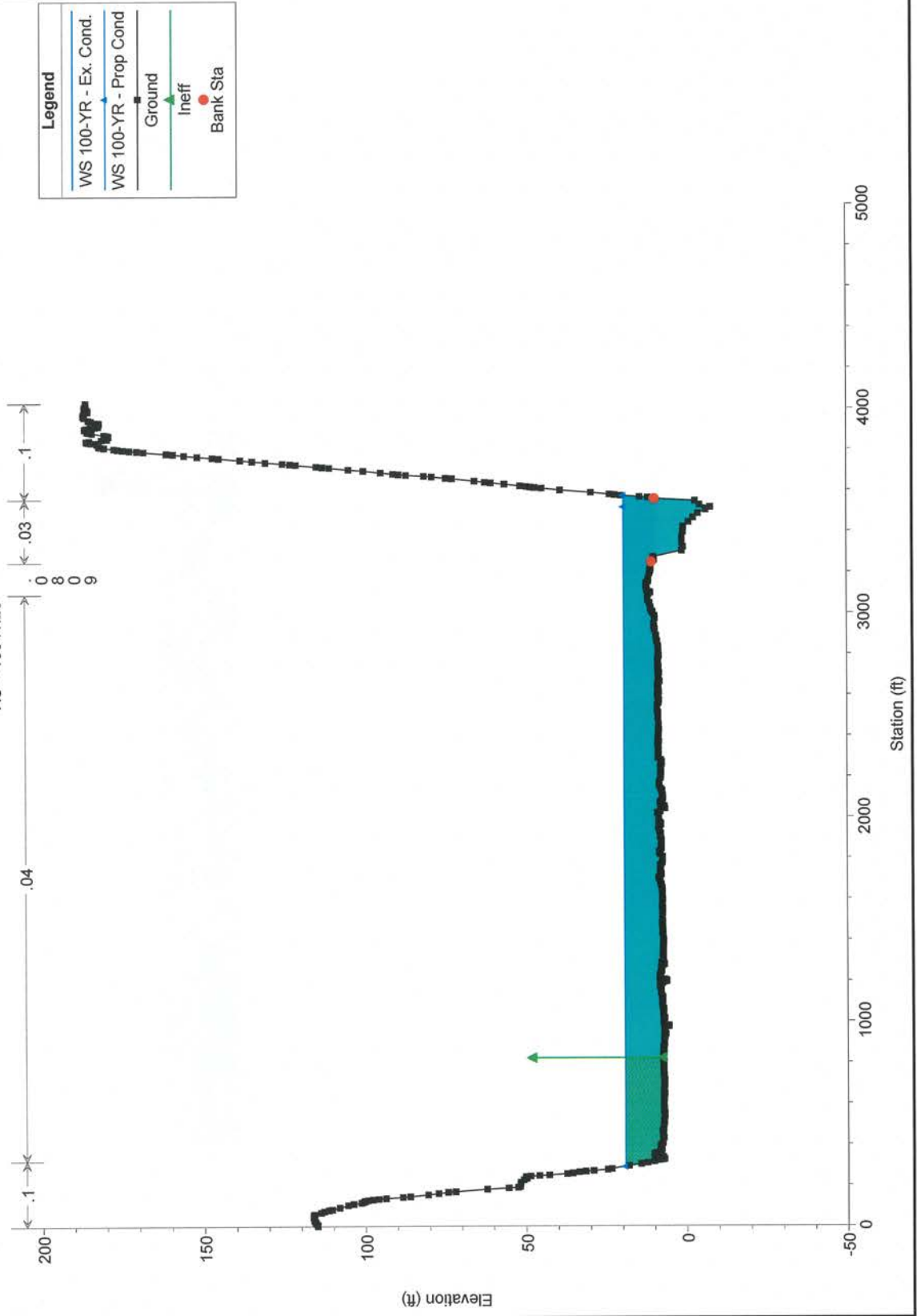
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Bank Sta	—

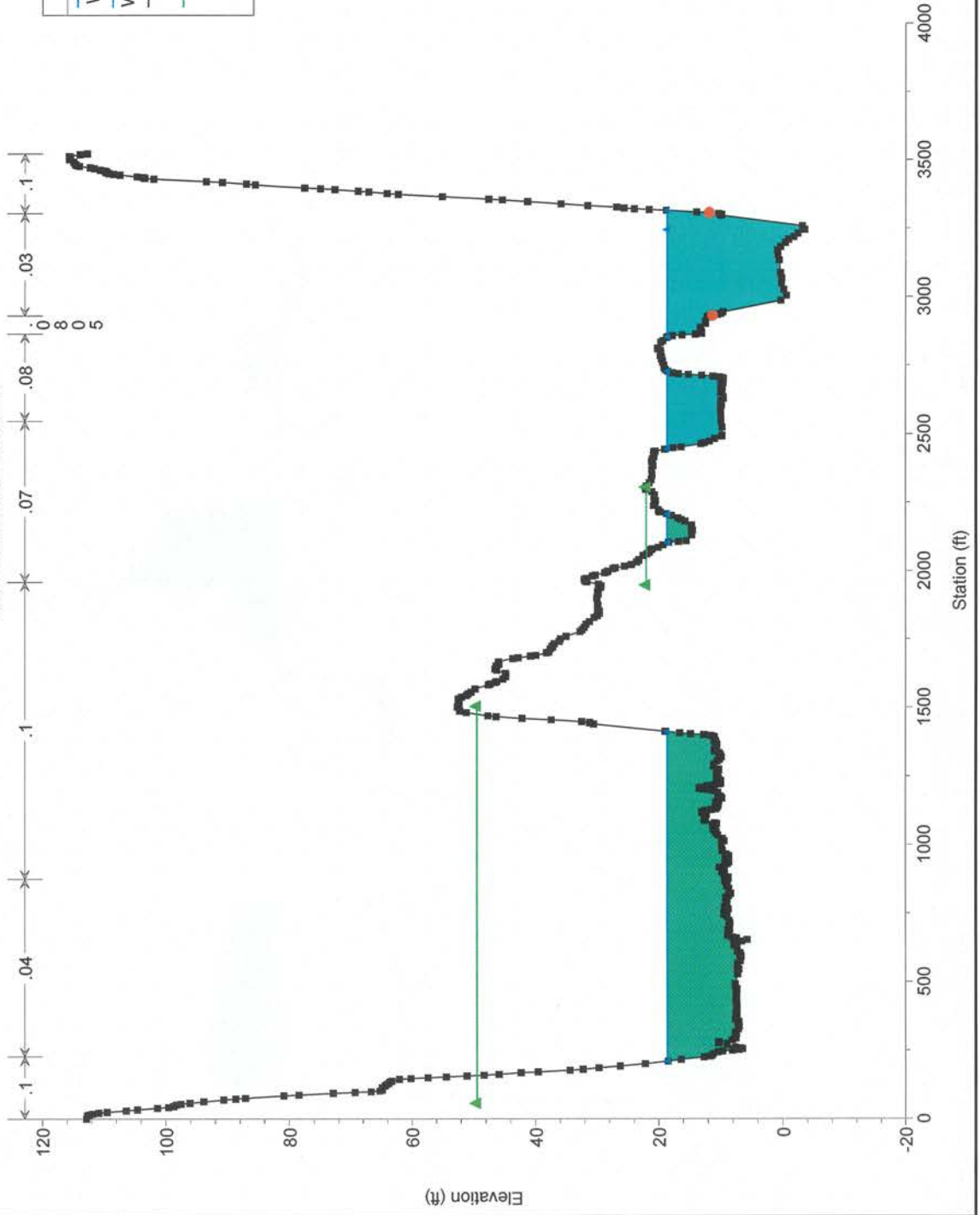


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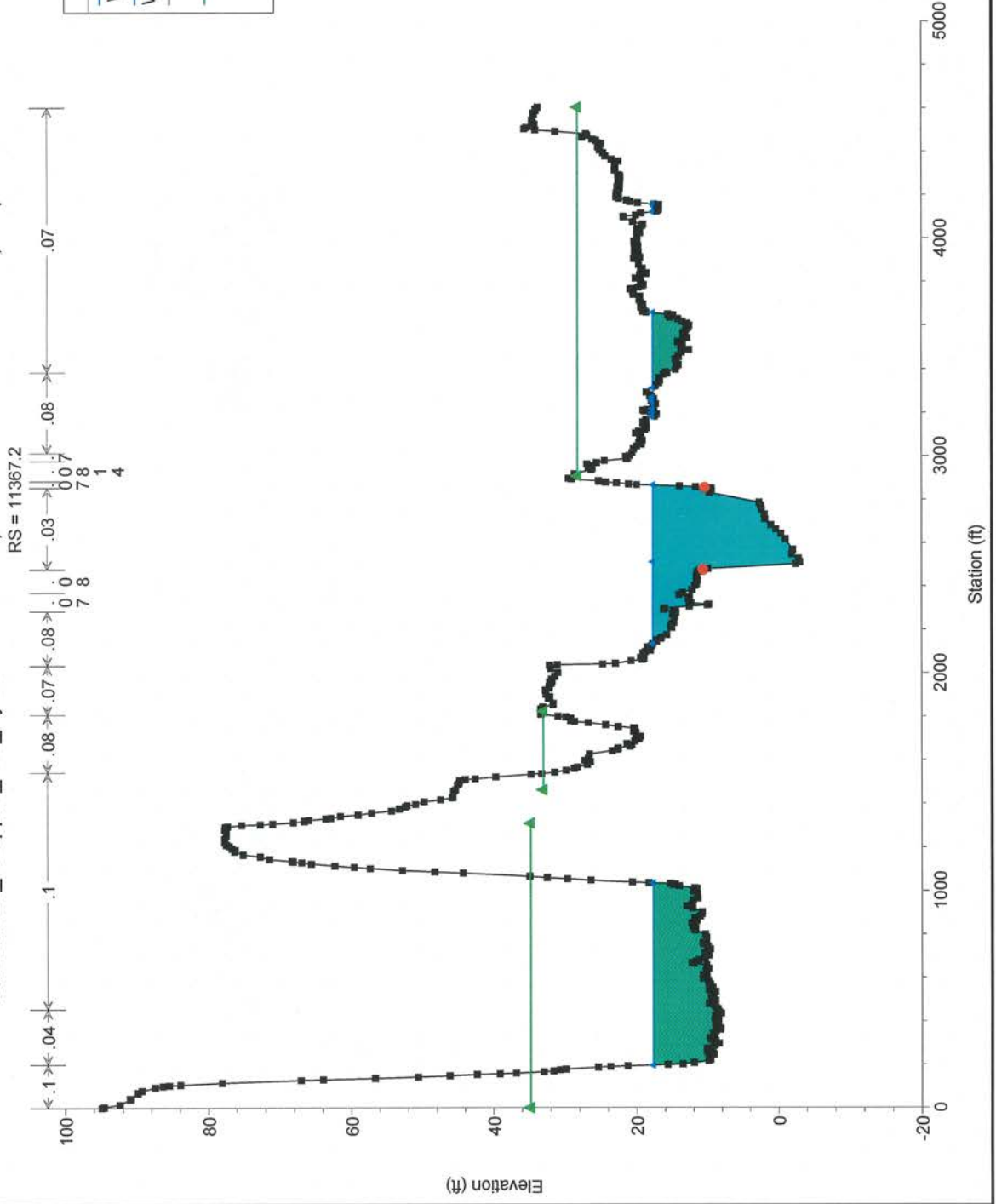


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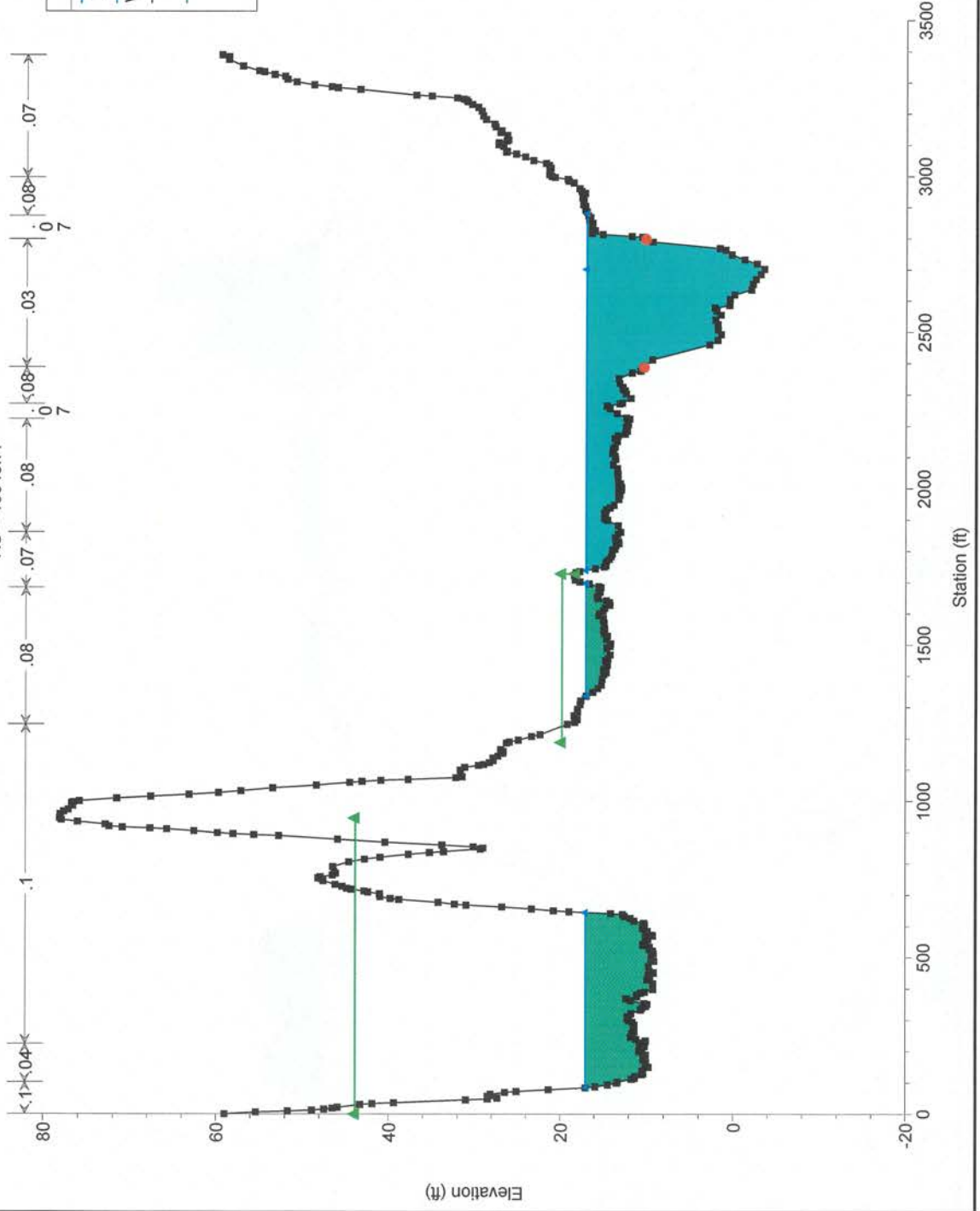


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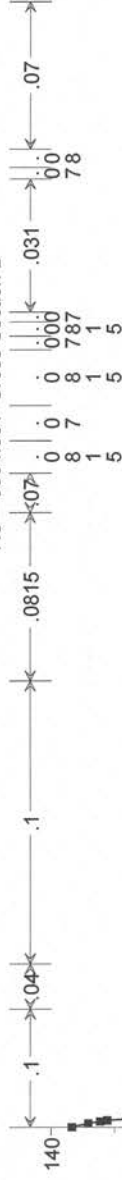
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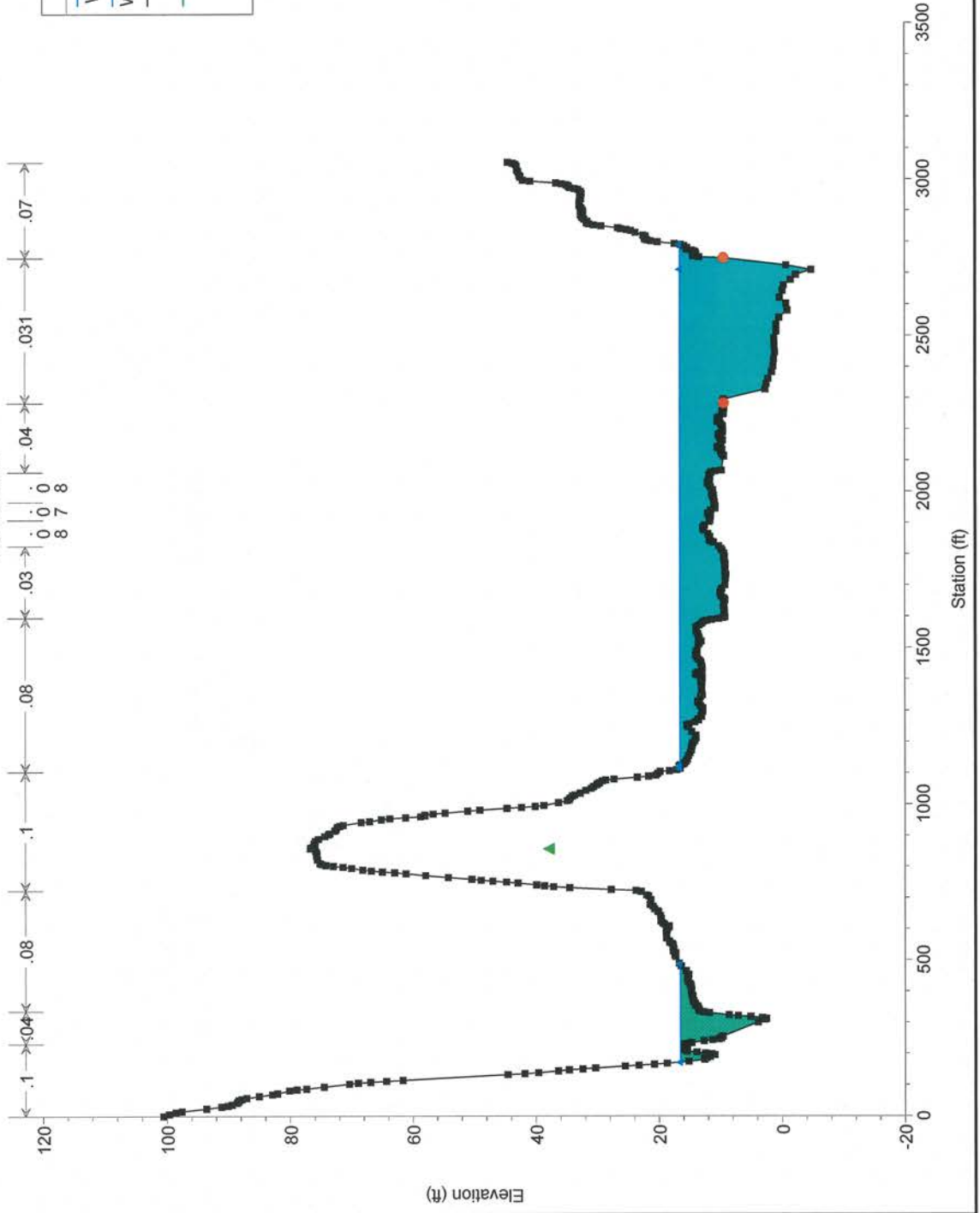
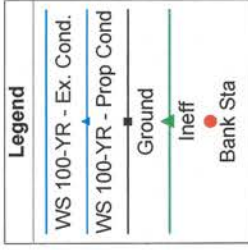
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Ground	
Ineff	
Bank Sta	

Elevation (ft)

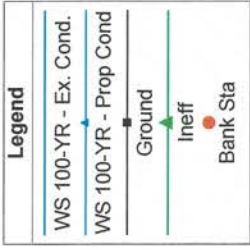
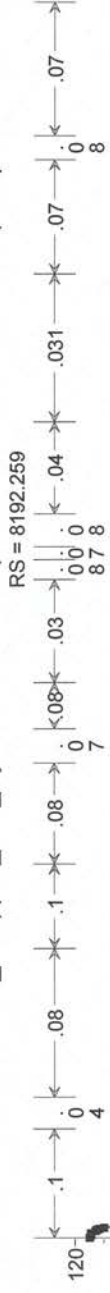
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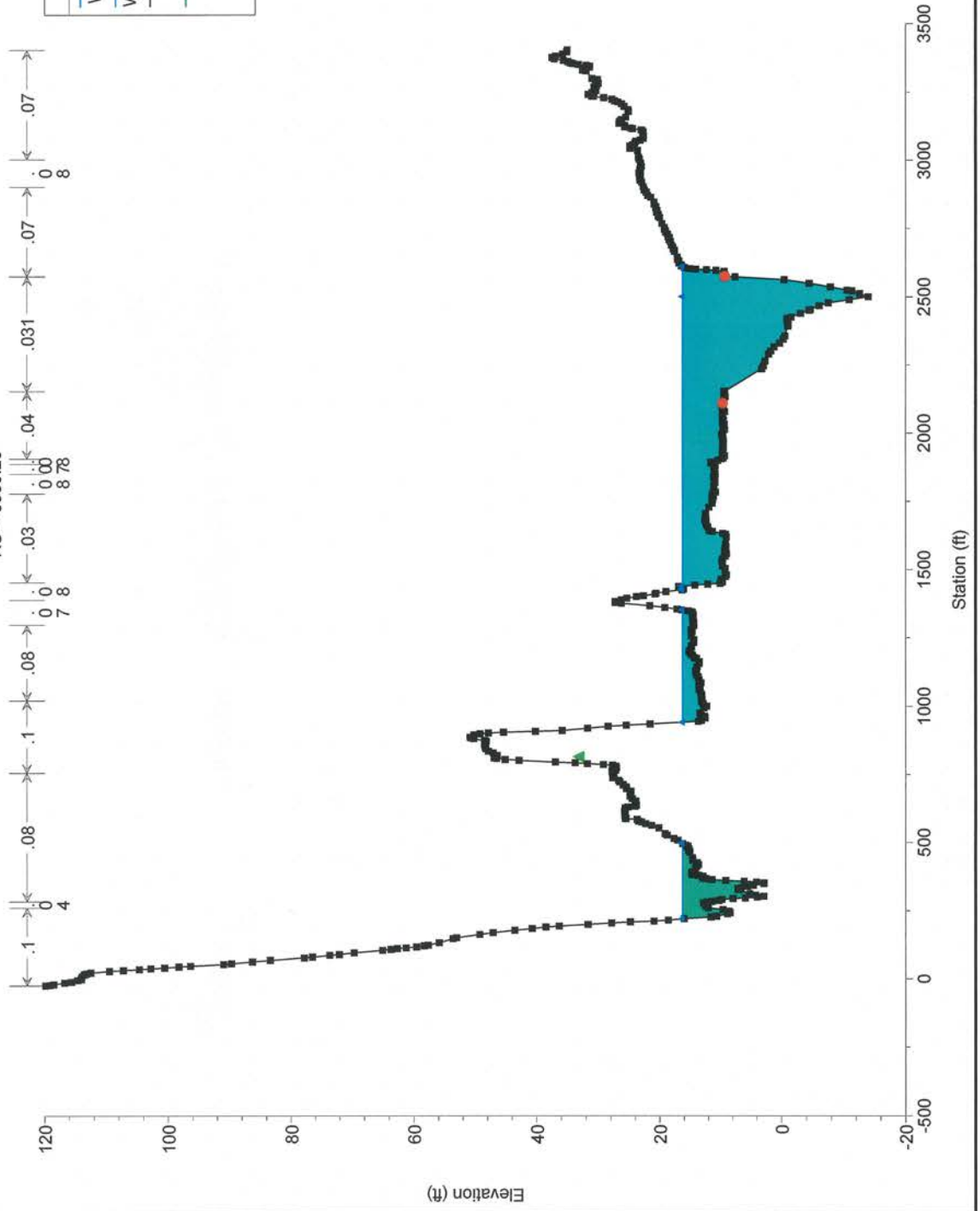


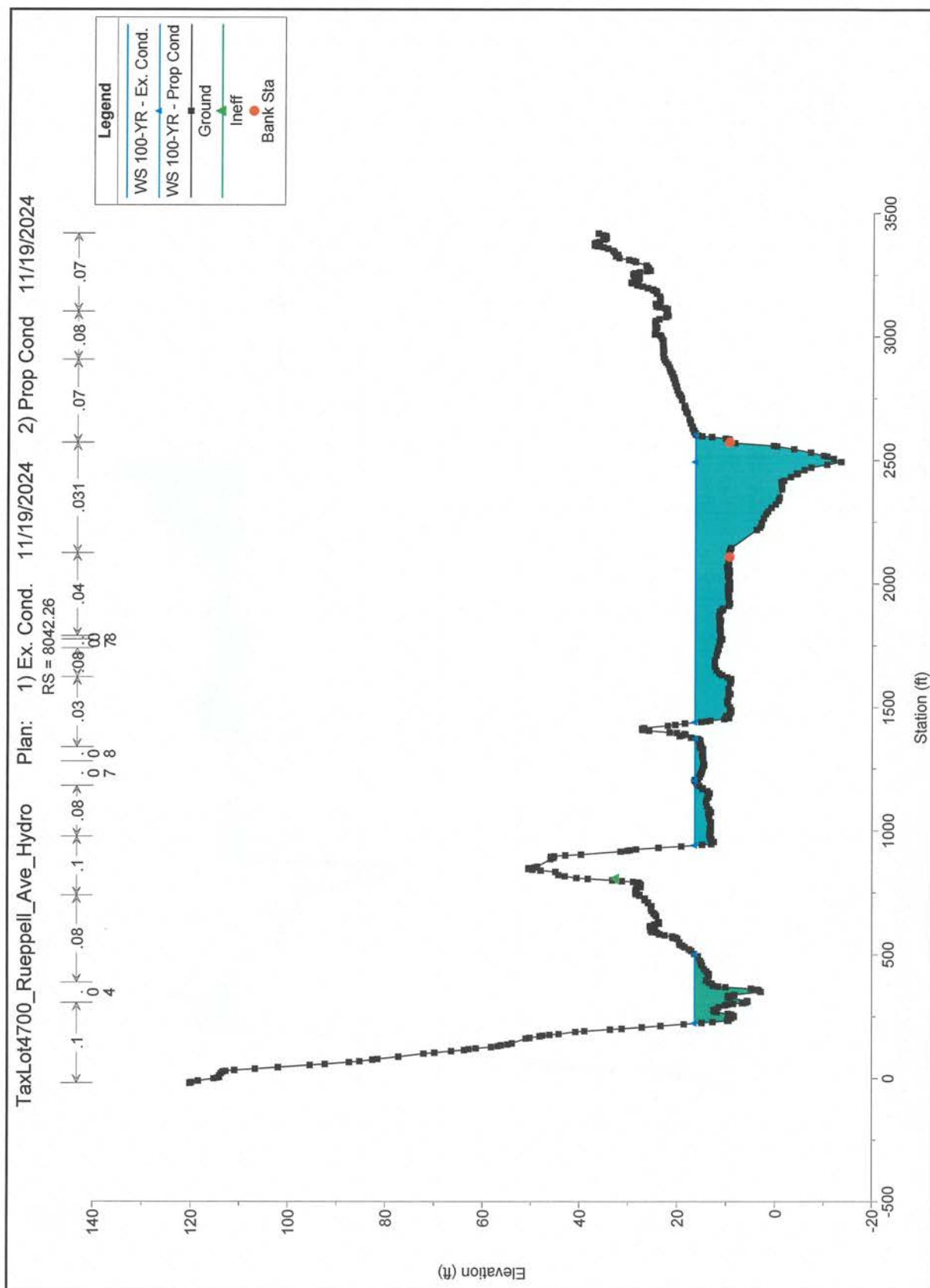
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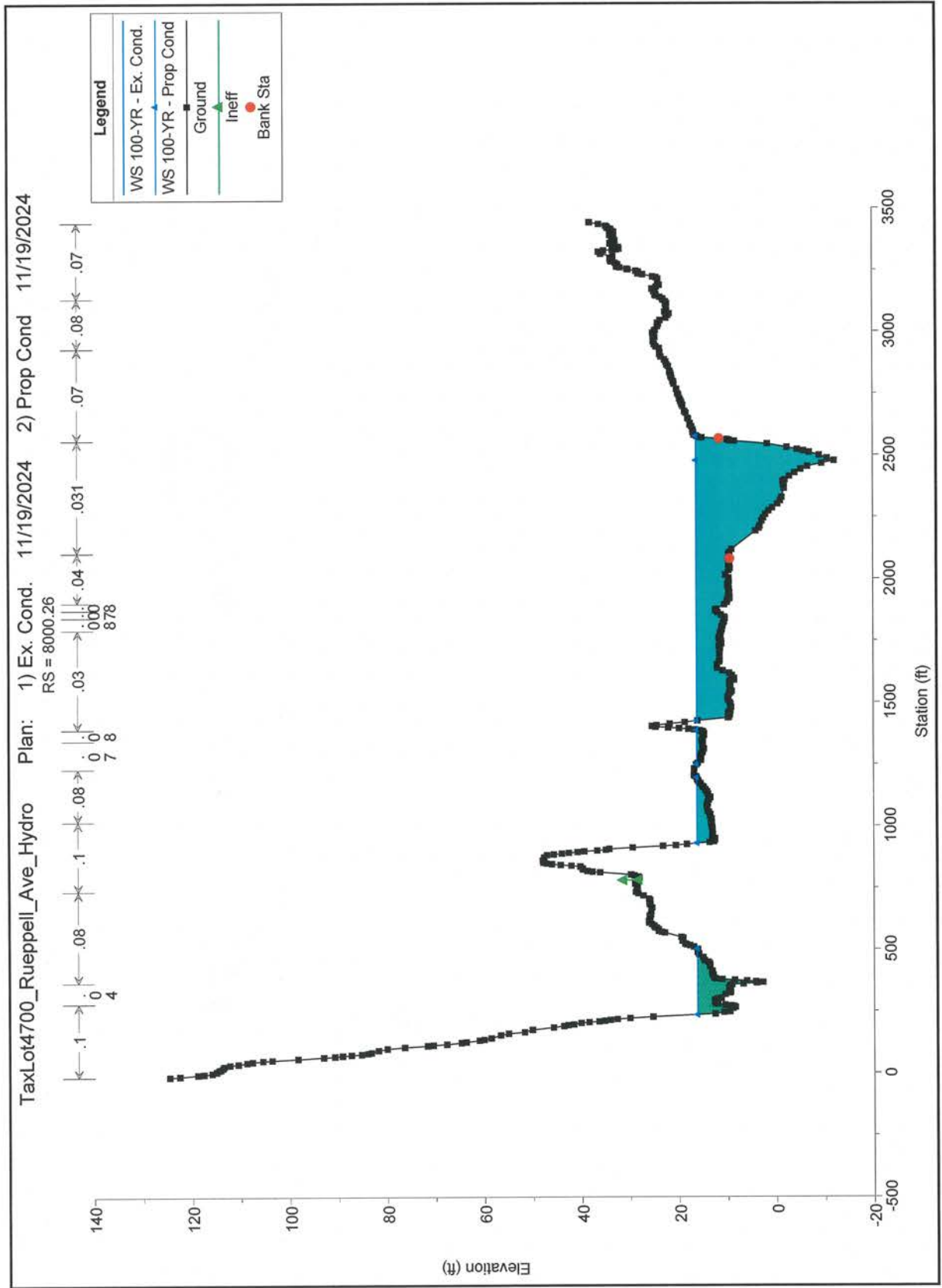


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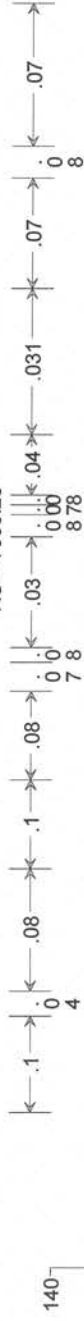




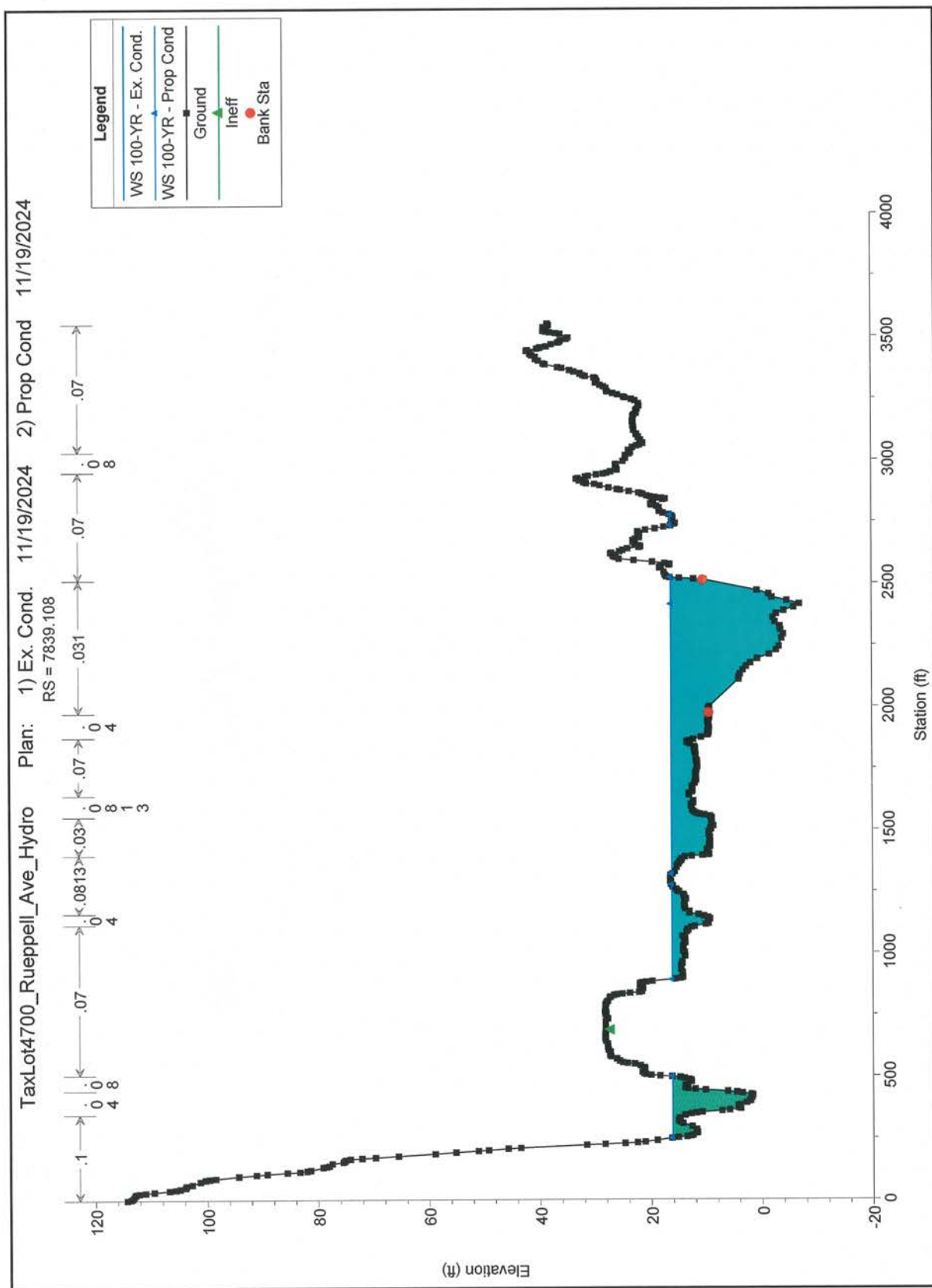


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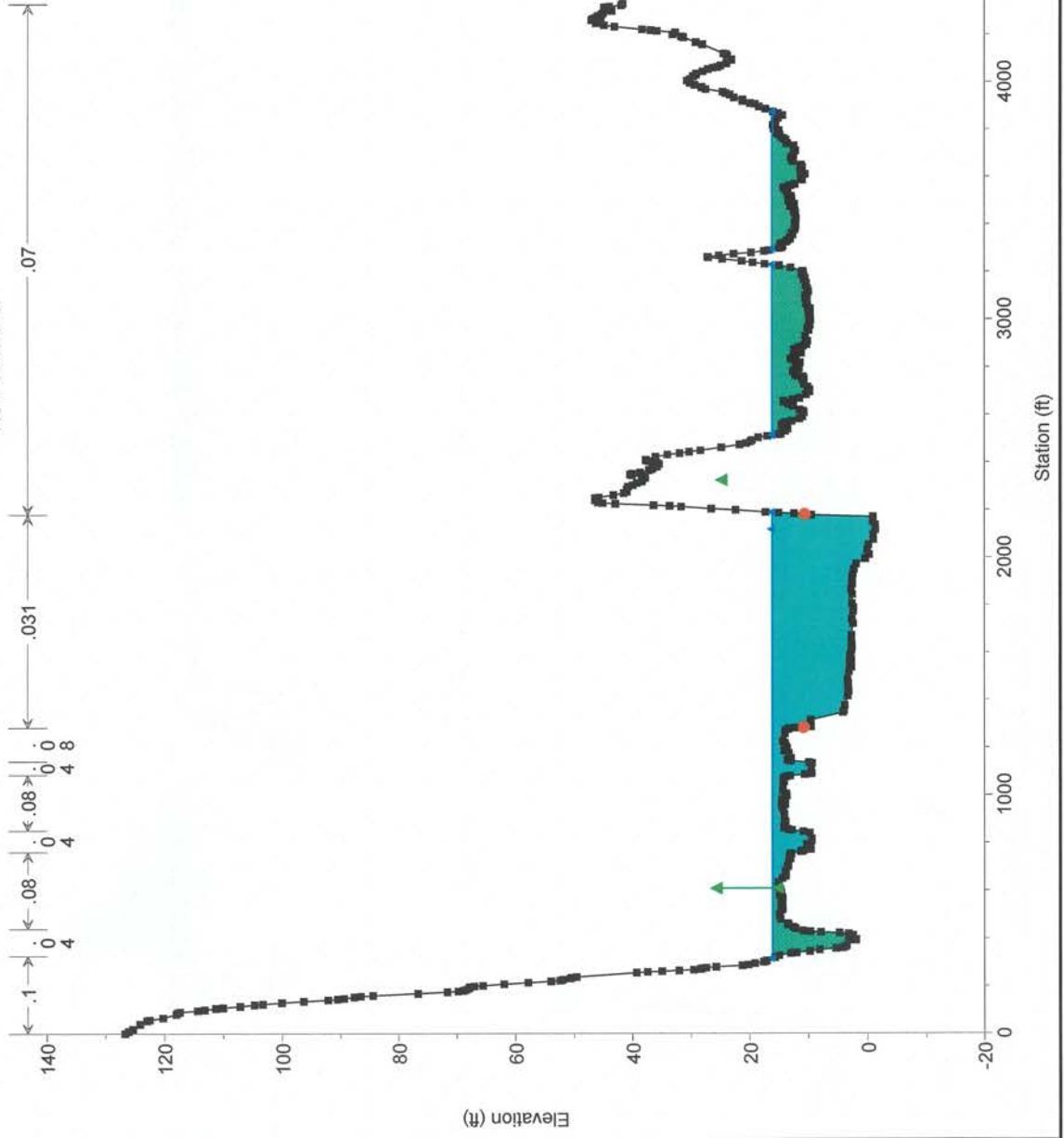


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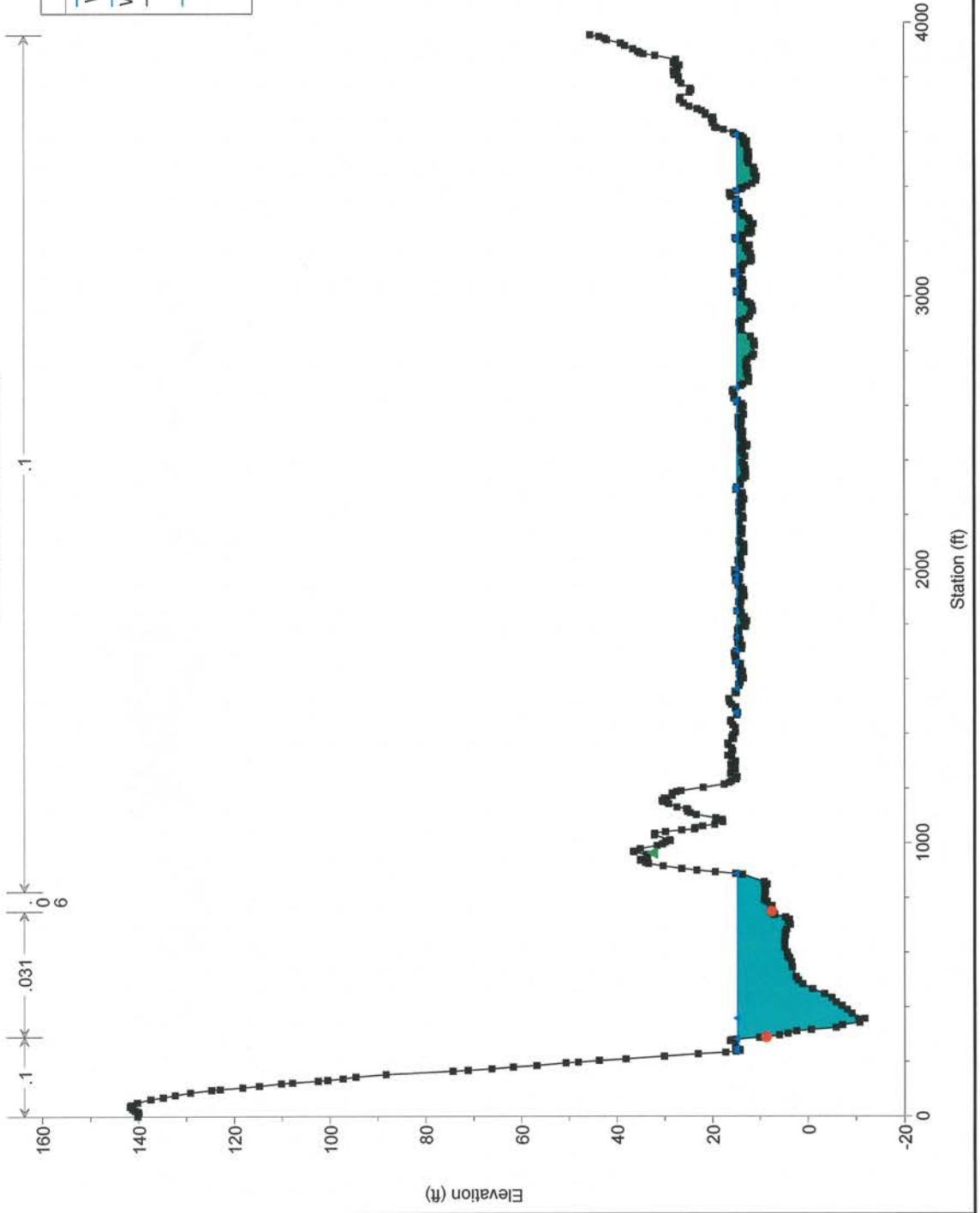


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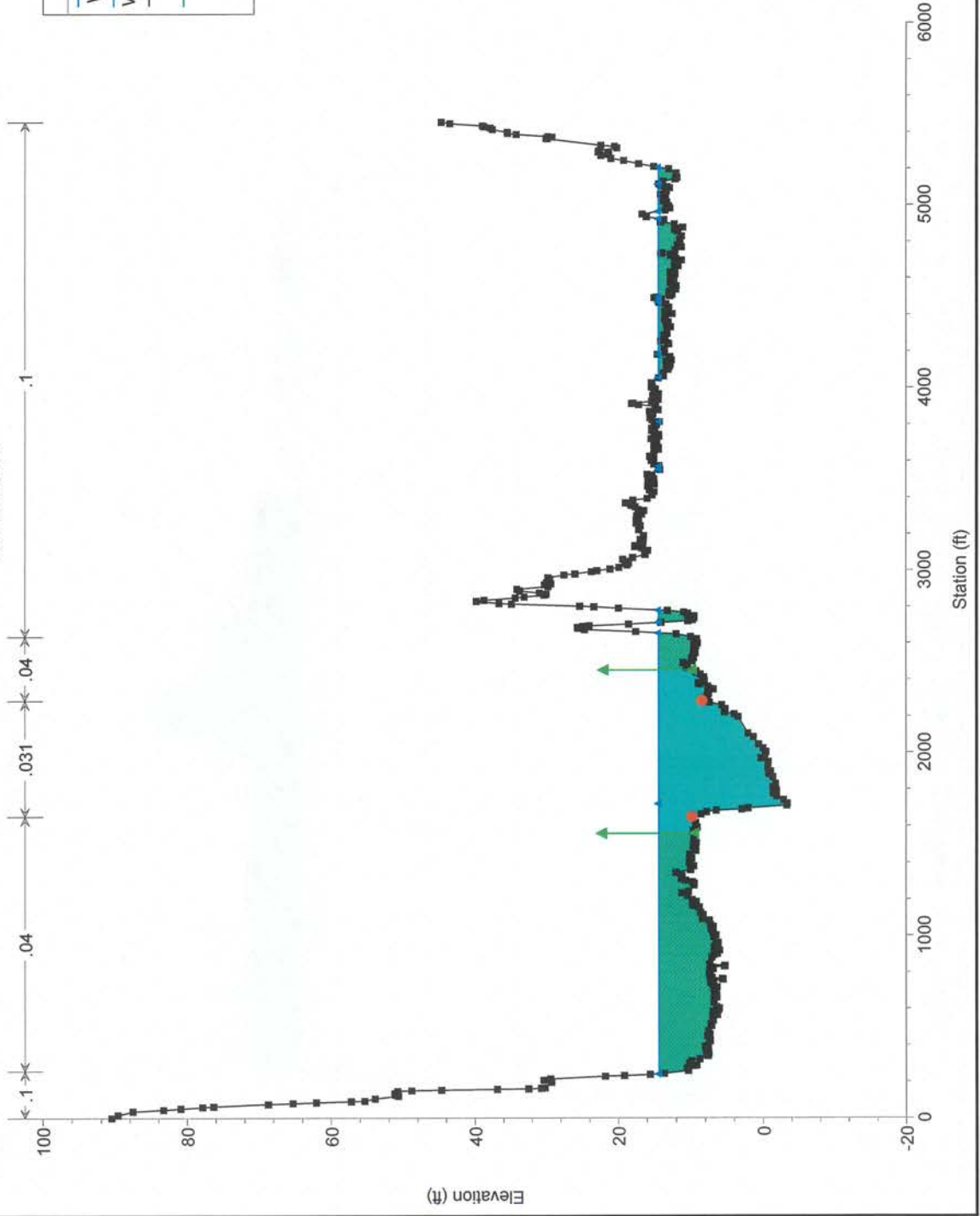


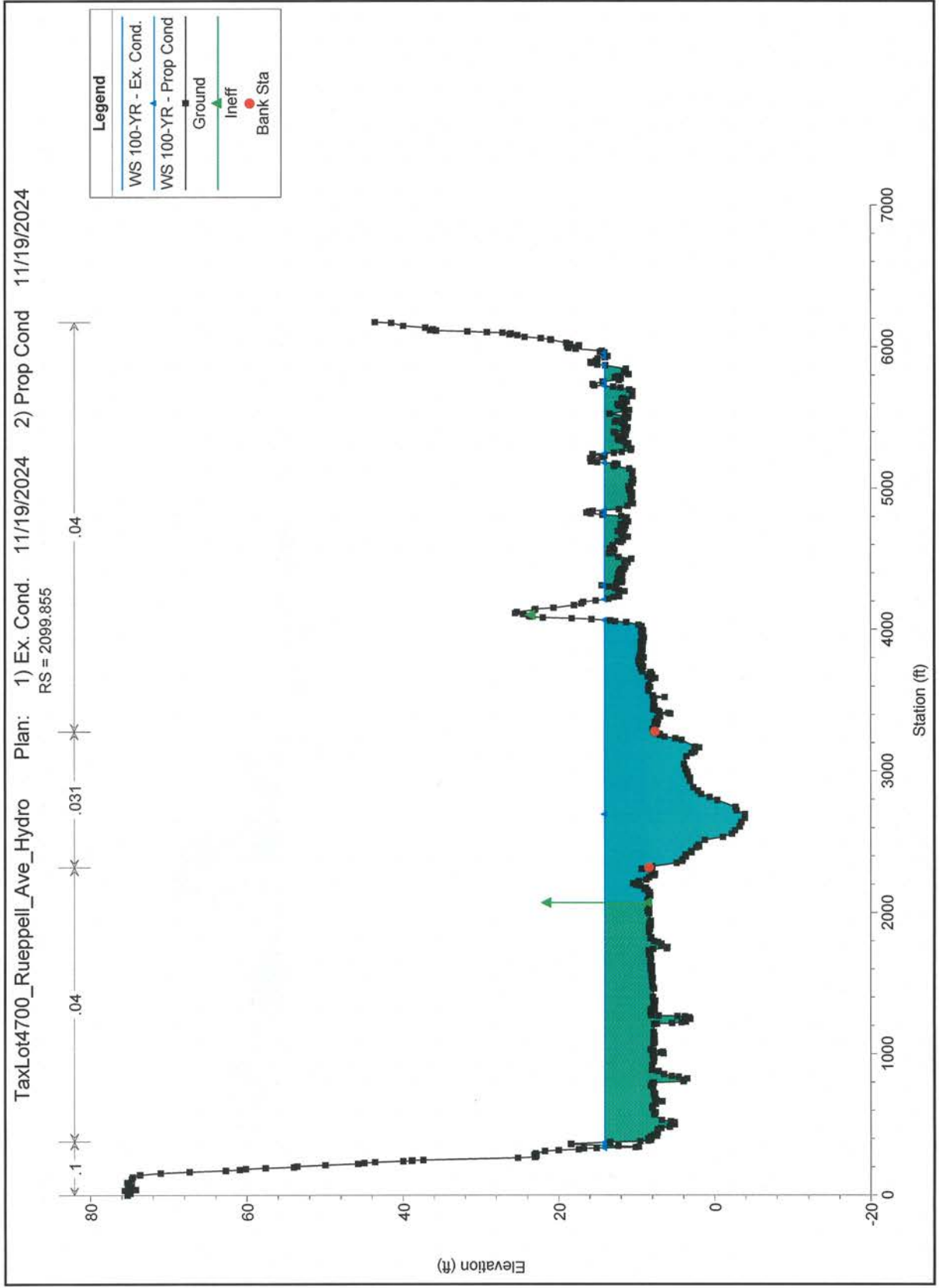
TaxLot4700_Rueppell_Ave_Hydro Plan: 1) Ex. Cond. 11/19/2024 2) Prop Cond 11/19/2024
RS = 4746.314 Cross Section A



TaxLot4700_Rueppell_Ave_Hydro Plan: 1) Ex. Cond. 11/19/2024 2) Prop Cond 11/19/2024

RS = 3370.732

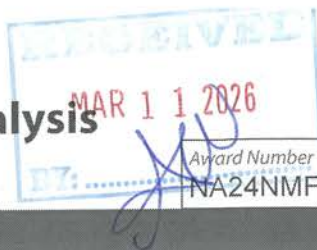




HEC-RAS River: Nestucca River Reach: Lower Profile: 100-YR

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Lower	22553.94	100-YR	Ex. Cond.	49700.00	-5.99	20.50	12.22	20.55	0.000090	3.06	32242.73	3644.56	0.11
Lower	22553.94	100-YR	Prop Cond	49700.00	-5.99	20.50	12.22	20.55	0.000090	3.06	32241.22	3644.53	0.11
Lower	21008.6	100-YR	Ex. Cond.	49700.00	-8.92	20.09		20.31	0.000259	5.18	17862.67	1743.76	0.20
Lower	21008.6	100-YR	Prop Cond	49700.00	-8.92	20.09		20.31	0.000259	5.19	17861.66	1743.76	0.20
Lower	20157.05	100-YR	Ex. Cond.	49700.00	-9.15	19.94	12.36	20.10	0.000212	4.43	20011.35	2302.26	0.17
Lower	20157.05	100-YR	Prop Cond	49700.00	-9.15	19.94	12.36	20.10	0.000212	4.43	20010.22	2302.26	0.17
Lower	19079.89	100-YR	Ex. Cond.	49700.00	-11.85	19.70		19.89	0.000229	5.03	20292.05	1888.75	0.18
Lower	19079.89	100-YR	Prop Cond	49700.00	-11.85	19.70		19.89	0.000229	5.03	20290.84	1888.75	0.18
Lower	18019.8	100-YR	Ex. Cond.	49700.00	-7.69	19.54	11.35	19.68	0.000186	4.32	22186.38	2688.23	0.16
Lower	18019.8	100-YR	Prop Cond	49700.00	-7.69	19.54	11.35	19.68	0.000187	4.32	22185.01	2688.22	0.16
Lower	17875.97	100-YR	Ex. Cond.	49700.00	-7.60	19.52	11.05	19.65	0.000168	4.13	23060.67	2677.02	0.16
Lower	17875.97	100-YR	Prop Cond	49700.00	-7.60	19.52	11.05	19.65	0.000168	4.13	23059.24	2677.02	0.16
Lower	17653.2	100-YR	Ex. Cond.	49700.00	-4.67	19.54	11.28	19.60	0.000095	3.22	29276.81	3181.64	0.12
Lower	17653.2	100-YR	Prop Cond	49700.00	-4.67	19.54	11.28	19.60	0.000095	3.22	29275.02	3181.63	0.12
Lower	15949.74	100-YR	Ex. Cond.	49700.00	-7.67	19.49	9.86	19.51	0.000032	1.90	46740.28	4377.64	0.07
Lower	15949.74	100-YR	Prop Cond	49700.00	-7.67	19.49	9.86	19.51	0.000032	1.91	46737.63	4377.64	0.07
Lower	14728.64	100-YR	Ex. Cond.	49700.00	-9.90	19.44	10.23	19.48	0.000043	2.46	37323.92	3855.74	0.09
Lower	14728.64	100-YR	Prop Cond	49700.00	-9.90	19.44	10.23	19.48	0.000043	2.46	37321.56	3855.73	0.09
Lower	14621.23		Bridge										
Lower	14544.91	100-YR	Ex. Cond.	49700.00	-8.62	19.42	10.32	19.46	0.000045	2.54	36908.18	3871.08	0.10
Lower	14544.91	100-YR	Prop Cond	49700.00	-8.62	19.42	10.32	19.46	0.000045	2.54	36905.81	3871.07	0.10
Lower	13541.26	100-YR	Ex. Cond.	49700.00	-7.81	19.37	10.21	19.42	0.000052	2.50	32790.70	3280.38	0.10
Lower	13541.26	100-YR	Prop Cond	49700.00	-7.81	19.37	10.21	19.42	0.000052	2.50	32788.79	3280.38	0.10
Lower	12396	100-YR	Ex. Cond.	49700.00	-3.59	18.51		19.22	0.000462	7.06	9097.24	2050.16	0.30
Lower	12396	100-YR	Prop Cond	49700.00	-3.59	18.51		19.22	0.000462	7.06	9096.65	2050.11	0.30
Lower	11367.2	100-YR	Ex. Cond.	49700.00	-3.05	17.74	9.51	18.65	0.000620	7.83	7537.51	2018.83	0.34
Lower	11367.2	100-YR	Prop Cond	49700.00	-3.05	17.74	9.51	18.65	0.000620	7.83	7536.81	2018.81	0.34
Lower	10048.77	100-YR	Ex. Cond.	49700.00	-3.49	16.98	9.18	17.81	0.000617	7.53	8685.25	2063.21	0.34
Lower	10048.77	100-YR	Prop Cond	49700.00	-3.49	16.98	9.18	17.81	0.000618	7.53	8683.86	2063.07	0.34
Lower	9942.323		Bridge										
Lower	9904.361	100-YR	Ex. Cond.	49700.00	-8.44	16.83	8.05	17.52	0.000540	6.93	10035.71	2094.17	0.31
Lower	9904.361	100-YR	Prop Cond	49700.00	-8.44	16.83	8.05	17.52	0.000540	6.93	10034.18	2094.16	0.31
Lower	8988.11	100-YR	Ex. Cond.	49700.00	-4.80	16.62	8.14	16.98	0.000328	5.35	12967.10	1987.49	0.24
Lower	8988.11	100-YR	Prop Cond	49700.00	-4.80	16.62	8.14	16.97	0.000329	5.35	12964.76	1987.37	0.24
Lower	8192.259	100-YR	Ex. Cond.	49700.00	-18.19	16.36	6.30	16.73	0.000307	5.46	12941.69	2042.03	0.23
Lower	8192.259	100-YR	Prop Cond	49700.00	-18.19	16.36	6.30	16.73	0.000307	5.46	12939.08	2042.00	0.23
Lower	8060.26	100-YR	Ex. Cond.	49700.00	-13.99	16.33	6.43	16.69	0.000300	5.32	12652.10	1863.66	0.23
Lower	8060.26	100-YR	Prop Cond	49700.00	-13.99	16.32	6.43	16.69	0.000300	5.32	12649.66	1863.57	0.23
Lower	8042.26	100-YR	Ex. Cond.	49700.00	-13.42	16.31	6.44	16.68	0.000311	5.38	12449.58	1871.44	0.24
Lower	8042.26	100-YR	Prop Cond	49700.00	-13.42	16.30	6.44	16.68	0.000314	5.40	12243.84	1822.13	0.24
Lower	8000.26	100-YR	Ex. Cond.	49700.00	-12.08	16.32	6.48	16.66	0.000316	5.15	12454.82	1826.78	0.23
Lower	8000.26	100-YR	Prop Cond	49700.00	-12.08	16.30	6.48	16.66	0.000324	5.21	12232.06	1781.83	0.23
Lower	7990.26	100-YR	Ex. Cond.	49700.00	-11.76	16.30	6.48	16.66	0.000313	5.21	12388.74	1794.44	0.23
Lower	7990.26	100-YR	Prop Cond	49700.00	-11.76	16.30	6.48	16.66	0.000313	5.21	12388.74	1794.44	0.23
Lower	7839.108	100-YR	Ex. Cond.	49700.00	-6.96	16.25	6.76	16.61	0.000310	5.16	12464.76	1879.15	0.23
Lower	7839.108	100-YR	Prop Cond	49700.00	-6.96	16.25	6.76	16.61	0.000310	5.16	12464.76	1879.15	0.23
Lower	6628.945	100-YR	Ex. Cond.	49700.00	-1.36	16.04	6.84	16.27	0.000208	3.91	14212.35	3171.30	0.19
Lower	6628.945	100-YR	Prop Cond	49700.00	-1.36	16.04	6.84	16.27	0.000208	3.91	14212.35	3171.30	0.19
Lower	4746.314	100-YR	Ex. Cond.	49700.00	-11.72	14.76	7.45	15.56	0.000672	7.30	7417.23	2442.34	0.34
Lower	4746.314	100-YR	Prop Cond	49700.00	-11.72	14.76	7.45	15.56	0.000672	7.30	7417.23	2442.34	0.34
Lower	3370.732	100-YR	Ex. Cond.	49700.00	-3.40	14.28	6.63	14.73	0.000430	5.53	9803.55	3594.57	0.27
Lower	3370.732	100-YR	Prop Cond	49700.00	-3.40	14.28	6.63	14.73	0.000430	5.53	9803.55	3594.57	0.27
Lower	2099.855	100-YR	Ex. Cond.	49700.00	-3.90	14.15	5.85	14.31	0.000175	3.42	17693.71	5262.50	0.17
Lower	2099.855	100-YR	Prop Cond	49700.00	-3.90	14.15	5.85	14.31	0.000175	3.42	17693.71	5262.50	0.17

NOAA Restoration Center NEPA Inclusion Analysis



I. IDENTIFYING PROJECT INFORMATION

Project Name Oregon Coho Recovery Plan Implementation: McCoy Wetland Enhancement - Phase 3		Project State OR
Project Proponent / Applicant Wild Salmon Center		Project Contact Cyndi Curtis

II. OTHER FEDERAL PARTNERS AND LEVEL OF NEPA ANALYSIS

Has another Federal agency completed NEPA?	☐ Yes	☒ No
Is NOAA the lead federal agency for this NEPA analysis?	☒ Yes	☐ No

III. PROJECT DESCRIPTION / SCOPE OF ACTIVITIES FOR ANALYSIS

Please check one of the following conditions:

☐ I am analyzing impacts of project planning and design activities, in order to gather all required project information
☒ I have all information needed to complete the final analysis of impacts for the entire project

Has a NEPA review been conducted for prior project activities?	☒ Yes ☐ No	Date of NEPA completion for prior phase 4/22/2025
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Describe the full scope of the project, including historic/ geographic/ ecological context, the type of restoration, and how it will be conducted.

NOAA is providing funding for the Wild Salmon Center to plan, design, and implement 11 projects in four Oregon coast watersheds: the Coquille, Coos, Siuslaw, Siletz, and Nehalem watersheds. All the restoration projects advance the goal of recovering populations for Oregon Coast (OC) coho salmon through the restoration of floodplain and estuary habitat. One of these projects will improve habitat in the Nehalem Estuary for juvenile coho by breaching levees that disconnect the McCoy Marsh, located just upstream from the town of Wheeler, from tidal influence and inundation. Restored tidal connectivity will significantly improve the wetland's currently altered hydrology, and improve water and habitat quality in the wetland for rearing salmonids as well as salmon prey species that are critical for juvenile salmonid growth and survival. A phase 1 NEPA analysis was completed on the design and permitting of the all the projects included in this award. A phase 2 NEPA analysis was completed on the removal of invasive vegetation at the McCoy Marsh Site.

Describe the proposed action (i.e. the portion of the project that NOAA is funding/approving).

NOAA is analyzing the impacts of construction (minus invasive plant removal) and post-project monitoring (Phase 3) of the McCoy Wetland Enhancement. Levees would be breached in three locations by removing the levee material to near the ground surface to allow high tides to enter the McCoy property. Other projects elements include the construction of tidal channels and vegetated hummocks, placement of large woody debris, and native plantings.

Check the types of activities being conducted in this project

Technical Assistance		
☐ Planning, Feasibility Studies, Design Engineering, and Permitting	☐ Fish and Wildlife Monitoring	☐ Environmental Education Classes, Programs, Centers, Partnerships and Materials; Training Programs
☒ Implementation and Effectiveness Monitoring		

Riverine and Coastal Habitat Restoration

☐ Beach and Dune Restoration	☐ Bank Restoration and Erosion Reduction	☐ Water Conservation and Stream Diversion
☐ Debris Removal	☐ Coral Reef Restoration	☒ Levee & Culvert Removal, Modification, Set-back
☐ Dam and Culvert Removal & Replacement	☐ Shellfish Reef Restoration	☐ Fringing Marsh and Shoreline Stabilization
☐ Technical and Nature-like Fishways	☐ Artificial Reef Restoration	☐ Sediment Removal
☐ Invasive Species Control	☐ Road Upgrading/Decommissioning; Trail Restoration	☐ Sediment/Materials Placement
☐ Prescribed Burns/Forest Management	☐ Signage and Access Management	☒ Wetland Planting
☐ Species Enhancement	☐ SAV Restoration	
☐ Channel Restoration	☐ Marine Algae Restoration	

Conservation Transactions

☐ Land Acquisition	☐ Water Transactions	Restoration/Conservation Banking
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NEPA Inclusion Analysis

IV. PROJECT IMPACT ANALYSIS

Core Questions

1. Are the activities to be carried out under this project fully described in Section 2.2 of the NOAA RC PEIS?	☒ Yes ☐ No
2. Are the specific impacts that are likely to result from this project fully described in Section 4.5.2 of the NOAA RC PEIS?	☒ Yes ☐ No
3. Does the level of adverse impact for the project exceed that described in Table 11 of the NOAA RC PEIS for any resource, including significant adverse impact?	☐ Yes ☒ No
4. Describe the project impacts to resources (including beneficial impacts) and any mitigating measures being implemented. The analysis and underlying assumptions in the RC PEIS were reviewed, and it was determined they remain valid and are relevant to the proposed action. The restoration activities being analyzed under this review are fully described in NOAA's RC PEIS Sections 2.2.1.2 Implementation and Effectiveness Monitoring, 2.2.2.11.1 Levee and Culvert Removal, Modification, and Setback, and 2.2.2.11.5 Wetland Planting. Potential impacts due to these restoration activities fall within the scope of the analysis as described in Section 4.5.1.2 as it relates to monitoring, Section 4.5.2.11.1 as it relates to levee modification, and 4.5.2.11.3 as it relates to Wetland Planting.	
5. Describe any potential cumulative impacts that may result from past, present or reasonably foreseeable future actions (beneficial or adverse). Other restoration projects are planned in the Nehalem River watershed and in other watersheds on the Oregon Coast that could have additive short-term adverse and long-term beneficial impacts. After the proposed technical assistance activities and habitat restoration actions have been completed, if any future similar work is conducted nearby, the potential cumulative adverse impacts from these actions could likely be a mix of direct and indirect, short-term, minor, and a mix of local for the same resources as described in IV.4 above. These cumulative adverse impacts would not exceed those described in the PEIS for these activities. The anticipated cumulative beneficial impacts that may result from this project could include direct and indirect, long term, and minor to major benefits for these same resources. Overall, these cumulative impacts are expected to be beneficial, with the adverse impacts being minor and the beneficial impacts being significant.	
6. Describe the public outreach and/or opportunities for public comment that have taken place to this point. Are any future opportunities for public input anticipated? This project was included and evaluated in the Nehalem Strategic Action Plan, which was developed in partnership with regional stakeholder teams under a broader state-federal partnership. The landowner and owner of the adjacent parcel is also the lead project implementer and is supportive of the project. In addition, a state highway borders one side of the property so coordination with the Oregon Department of Transportation has taken place and their concerns are being addressed during the designs. A public comment period will take place in the future related to permitting of the levee breach portion of the project.	
7. Have any public comments raised issues of scientific/environmental controversy? Please describe. There have not been any public comments raised that were controversial in nature specific to this project.	
8. Describe the most common positive and negative public comments on issues other than scientific controversy described above in Question 7. There have not been public comments specific to this project.	
Levee and Culvert Removal, Modification and Set-back Describe the extent and the height of the levee/culvert targeted in the restoration project. How is it consistent with the types and impacts of species enhancement presented in the NOAA RC PEIS in Sections 2.2 and 4.5.2? Two levees separate the McCoy Marsh from the Nehalem River and the adjacent Bott's March. The Nehalem Levee is mostly intact but the McCoy-Botts Levee has been abandoned and since eroded; there is a 12-inch concrete culvert under an eroded part of the levee separating McCoy and Bott's marshes. The culvert will be removed entirely. The height of the levee at the three breach locations and it post breach heights are (approximately) as follows: Breach 1 - 12 ft to 7 ft, Breach 2 - 12 ft to 8ft, Breach 3 - 9ft to 2 ft.	

NOAA Restoration Center NEPA Inclusion Analysis

V. NEPA DETERMINATION

☒ The action is completely covered by the impact analysis within the NOAA RC Programmatic EIS (PEIS). The project and its potential impacts may be limited through terms or conditions placed on the recipient of NOAA funds. It requires no further environmental review. An EIS Inclusion Document will be prepared.

☐ The action analyzed here has unknown impacts. At this time, funding will be limited to those portions of the action and impacts analyzed in the PEIS. These limitations will be described in terms or conditions placed on the recipient of NOAA funds. If all remaining activities and impacts are later determined to be described in the PEIS, this analysis will be documented in the program record and the applicant may then proceed with the project. If all remaining activities and impacts are later determined to not be described in the PEIS, further NEPA review will be required; see below.

☐ The action or its impacts are not covered by the analysis within the PEIS. It will require preparation of an individual EA, a supplemental EIS, adoption of another agency's EA or EIS, or will be covered by a Categorical Exclusion.

Signature

JACKELS.CHEMINE.R.13
63423040

Digitally signed by
JACKELS.CHEMINE.R.1363423040
Date: 2025.10.14 09:36:32 -0700

Date Signed



Award Number NA24NMF463C0076		Applicant Name WILD SALMON CENTER	
Project Name Oregon Coho Recovery Plan Implementation: McCoy Wetland Enhancement - Phase 3		State OR	Federal Program Officer Gabrielle Keeler-May
		Program Name CRP	
Award Amount \$355,948.00	Total Project Cost \$355,948.00	Competition IIJA	
Project Description NOAA is providing funding for the Wild Salmon Center to plan, design, and implement 11 projects in four Oregon coast watersheds: the Coquille, Coos, Siuslaw, Siletz, and Nehalem watersheds. All the restoration projects advance the goal of recovering populations for Oregon Coast (OC) coho salmon through the restoration of floodplain and estuary habitat. One of these projects will improve habitat in the Nehalem Estuary for juvenile coho by breaching levees that disconnect the McCoy Marsh, located just upstream from the town of Wheeler, from tidal influence and inundation. Restored tidal connectivity will significantly improve the wetland's currently altered hydrology, and improve water and habitat quality in the wetland for rearing salmonids as well as salmon prey species that are critical for juvenile salmonid growth and survival. A phase 1 NEPA analysis was completed on the design and permitting of the all the projects included in this award. A phase 2 NEPA analysis was done on the removal of invasive vegetation at the McCoy Marsh Site.			
Proposed Action Description NOAA is analyzing the impacts of construction (minus invasive plant removal) and post-project monitoring (Phase 3) of the McCoy Wetland Enhancement. Levees would be breached in three locations by removing the levee material to near the ground surface around 8 to 9 feet elevation to allow high tides to enter the McCoy property. Other projects elements include the construction of tidal channels and vegetated hummocks, placement of large woody debris, and native plantings.			
NEPA Coordinator Grant Baysinger		Review Date 10/21/2025	
As the Responsible Program Manager, or delegate, I certify that the proposed actions described here, including both the activity and level of impact, are analyzed within the Restoration Center Programmatic Environmental Impact Statement.			
 Christopher Doley Decision Maker/Division Chief		Date 10/21/2025	

EXHIBIT C

Melissa Jenck

From: BRADLEY Robert * ODFW <Robert.BRADLEY@odfw.oregon.gov>
Sent: Friday, May 22, 2026 4:09 PM
To: Melissa Jenck
Cc: Sarah Thompson
Subject: EXTERNAL: RE: 851-26-000111-PLNG: McCoy Tidal Marsh

[NOTICE: This message originated outside of Tillamook County -- DO NOT CLICK on links or open attachments unless you are sure the content is safe.]

Melissa,

This is a quality restoration project that will have benefits for fish and habitat. ODFW supports implementation of this project.

ODFW supports the summer in-water work period for this project and has worked with the applicant and other permitting agencies to get approval for the timing variance.

ODFW fish passage approval is required. The applicant is actively working with ODFW on this process and the approval should be issued soon.

Robert

Robert W. Bradley
District Fish Biologist
Oregon Department of Fish and Wildlife
North Coast Watershed District
4907 Third St
Tillamook, OR 97141
503-842-2741 x18613 (w)
503-842-8385 (fax)

From: Melissa Jenck <Melissa.Jenck@tillamookcounty.gov>
Sent: Friday, May 22, 2026 9:01 AM
To: Melissa Jenck <Melissa.Jenck@tillamookcounty.gov>
Cc: Sarah Thompson <sarah.thompson@tillamookcounty.gov>
Subject: 851-26-000111-PLNG: McCoy Tidal Marsh

Good morning,

Please see the link below for the Notice of Application for request #851-26-000111-PLNG for a proposed Estuary and Floodplain Development Permit application.

<https://www.tillamookcounty.gov/commdev/project/851-26-000111-plng>

Sincerely,



Wetland Land Use Notice Response

Response Page

Department of State Lands (DSL) WN#*

WN2026-0412

Responsible Jurisdiction

Staff Contact

Melissa Jenck

Jurisdiction Type

County

Municipality

Tillamook

Local case file #

851-26-000111-PLNG

County

Tillamook

Activity Location

Township

03N

Range

10W

Section

35

QQ section

Tax Lot(s)

200

Street Address

Hwy 101 N

Address Line 2

City

Wheeler

Postal / Zip Code

97702

State / Province / Region

OR

Country

Tillamook

Latitude

45.6999528

Longitude

-123.8796515

Wetland/Waterway/Other Water Features

- ☒ There are/may be wetlands, waterways or other water features on the property that are subject to the State Removal-Fill Law based upon a review of wetland maps, the county soil survey and other available information.
- ☒ The National Wetlands Inventory shows wetland, waterway or other water features on the property
- ☒ The National Hydrography Dataset shows wetland, waterway or other water features on the property
- ☒ The property includes or is adjacent to designated Essential Salmonid Habitat.
- ☒ The property includes or is adjacent to state-owned waters.

Your Activity

☒ It appears the proposed project is within a state-owned water and **will require** an authorization

☒ It appears that the proposed project **will** impact wetlands and **requires** a State Permit.

Applicable Oregon Removal-Fill Permit Requirement(s)

☒ A state permit is required for 50 cubic yards or more of fill removal or other ground alteration in wetlands, below ordinary high water of waterways, within other waters of the state, or below highest measured tide.

☒ A state permit is required for any amount of fill, removal, and/or other ground alteration in Essential Salmonid Habitat and within adjacent off-channel rearing or high-flow refugia habitat with a permanent or seasonal surface water connection to the stream.

DSL Review

Wetland Ecologist Comments

Based on the available information, jurisdictional wetlands and waters of the state are present on the property, as documented in the approved wetland delineation report (WD2025-0578). This project is currently under review as AP0065925, please contact Rebecca Loiselle at (503) 798-2833 or by email at: rebecca.loiselle@dsl.oregon.gov for any permitting status questions.

This is a preliminary jurisdictional determination and is advisory only.

This report is for the State Removal-Fill law only. City or County permits may be required for the proposed activity.

☒ A Federal permit may be required by The Army Corps of Engineers: 541-600-7644

Contact Information

For information on permitting, use of a state-owned water, wetland determination or delineation report requirements please contact the respective DSL Aquatic Resource, Proprietary or Jurisdiction Coordinator for the site county.

Response Date

6/16/2026

Response by:

Bryan Darby

Response Phone:

971-518-1751

For Official Use Only

For Official Use Only

This section will be hidden on the form sent out with the response.



Maps

Request Received

5/22/2026

There was an Onsite Visit *

☐ Yes ☒ No

Has Wetlands *

Yes

Delineation Required *

No

Wild and Scenic *

No

State-owned Water

No

Coast Zone *

Yes

Permit Required *

Yes

ESH *

Yes

State Scenic *

No

Adjacent Waterbody

Nehalm Bay