

**Tillamook County Planning Permit Document
Kilchis Porter Tidal Wetland Restoration Project**

The Nature Conservancy

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Note: Highlighted areas are drafting notes and are addressed in Discussion sections that follow.

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A. Project Site and Restoration Design Overview

The Kilchis Porter wetland restoration project is designed to restore tidal wetlands and wetland functionality to the 60-acre Porter tract owned by The Nature Conservancy (Figure 1). The eastern half of the site (~30 acres) was converted to pastures over 50 years ago while the west half (~30 acres) has remained in native tidal marshes. The site historically was covered by Sitka spruce swamp and scrub-shrub habitats that contained numerous tidal channels which provided

important aquatic habitat for juvenile fish and flocks of waterbirds. The east half of the property is separated from the west half by Porter Slough that diverges from the lower end of Hathaway Slough and then winds through the site. Porter Slough once allowed tidal waters to access much of the site through small tidal channels that branched from it. The site is bordered by Highway 101 on the east, Stasek Slough on the south, Hathaway Slough on the north and private farmland on the west. The Tillamook Bay Railroad line runs along the eastern border of the property parallel to Highway 101. A small part of the Porter tract borders the lower Kilchis River in the northwest corner of the site. There is no terrestrial public access to the Porter property but boaters can get to the site from the Kilchis River and the adjoining sloughs.

Tidal wetlands provide habitat for a wide range of species that are important to coastal ecosystems. Salmon utilize tidal marshes and aquatic habitats for rearing and refuge during high water events. Salmon species known to occur in the Kilchis River drainage include Chinook, Coho, and Chum as well as Steelhead and Sea-run cutthroat trout. Oregon Coastal Coho salmon are federally listed as a Threatened species. In addition to salmon, tidal marshes are important for many juvenile forms of marine species including Dungeness crab, rockfish, starry flounder and many others. Finally, the marshes host numerous waterbirds throughout the year including migrating ducks, seabirds, shorebirds and colonial birds such as great blue heron and egrets. The site also provides habitat for common wildlife species including many birds and small mammals.

The restored Porter tract wetlands will complement the Kilchis Preserve managed by The Nature Conservancy that is located immediately to the south and across Stasek Slough. The restored Porter wetlands will provide critical habitat to juvenile salmon as well as waterbirds and other species that utilize these habitats. The wetland restoration activities will occur on the eastern half the site which occupies 30 acres and was previously used as seasonal pasture and hayfields. The remaining 30 acres of the Porter tract on the west side of the site are already covered by native tidal wetland habitat and receive ongoing weed abatement stewardship actions.

A detailed account of proposed restoration activities is available in the site conceptual plan (W2R 2017), the 100% final engineering plans (W2R 2019a) and the 100% Final Basis of Design Report (W2R 2019b); all documents are included under separate covers.

The major wetland restoration activities include:

- Lower dikes along Hathaway and Stasek Sloughs, approximately 1070 linear feet of dike, to elevations that represent 2-year flood or annual exceedance levels of 9-10 feet; 2150 CY excavated materials
- Fill agricultural ditches, approximately 500 linear feet, 140 CY fill using excavated materials
- Re-create tidal channels, 5835 linear feet; 9790 CY excavated materials
- Remove 5 water control structures to allow for unrestricted tidal water access to the wetlands
- Remove the box culvert on the connector channel between Porter and Stasek Sloughs for improved tidal flow in the project area
- Build two light duty bridges over interior channels for site management and emergency access
- Re-vegetate the site with appropriate native wetland species
- Create elevated mounds from excess excavated materials and plant with wetland species

Restoration activities are discussed in the 100% Basis of Design Report and shown in detail in the 100% Engineering Plans that are attached. Special construction provisions are further defined in the Construction Specifications Report that is also attached.

The project area for the restoration activities is approximately 30 acres in size and is largely confined to the eastern half of the Porter tract. Ground disturbance due to restoration activities is estimated to affect approximately 7 acres of the site. Ground disturbance areas include temporary road and pathways, construction staging areas, areas of dike lowering and connector channel realignment, and locations of vegetated mounds. The areas of ground disturbance will have erosion control measures implemented including erosion control seeding mix applied to them and will have additional revegetation efforts applied as well. The erosion control measures are specified in the 100% Engineering Plans. The entire project area of 30 acres will be subject to wetland revegetation activities. Approximately 13 acres have already been revegetated with native wetland species by The Nature Conservancy as part of the overall restoration work.

Maps and Supporting Documents—attached

Final Engineering Plan, 100% Design

Final Basis of Design Report, 100% Design

Construction Specifications: Special Provisions Report, Final Design

Conceptual Restoration Design Report

Hydrodynamic Modeling memo—enclosed

Army Corps of Engineers JAP Removal/Fill Permit—in progress

Kilchis Estuary Preserve Management Plan

Stamped engineer statement stating no project impacts to hydrology—enclosed

B. Development Permit

Development Permit Application and fee

Section 3.510 Flood Hazard Overlay (FH) Zone

Relates to FEMA FIRM maps

Regulatory Floodway is still east of Hwy 101

In FH zone (an AE zone is within FH), then need to file a CLOMR if any change in elevation of floods will occur (5) (page 9) or change in the boundary of the Special FH Area. File with FEMA, DLCD.

Section 3.510 (9) (f) notes that areas subject to tidal and overland flow influences are not subject to floodway determination of no rise (<1'). Includes Kilchis River below line C which corresponds to the railroad and/or highway alignment.

Discussion

The Develop Permit Application is included with this County permit review. The permit application details construction activities that will be undertaken in the project area. Relevant criteria for the permit are addressed below.

- **Fill:** The project is not within a Coastal High Hazard Area and it is not within a Regulatory Floodway. No fill associated with the project will be placed within either of these designations. Materials brought onto the site will consist of gravel and/or cobble to be used in substructures for the bridges to be constructed or for stabilizing construction staging areas or temporary roadways, the above-mentioned bridges located over Porter Slough (see engineering plans), and large logs that will be used as wood habitat structures in the tidal channels. Material generated on the site from excavation activities will be used on the site to fill drainage ditches according to the restoration plans. Any excess materials will be placed in vegetated mounds that are designed to provide topographic diversity at the site and elevated planting habitats. The mounds will not impede drainage or the flow of floodwaters on the site. Materials amounts generated by the excavations equal 9790CY; material from dike lowering equals 2150CY. Materials brought onto the site total 569CY: 400CY gravel, 129CY logs, 40CY bridge works.
- **Structures:** No enclosed structures will be developed in the restoration project. Five small water control structures will be removed from the site and two light-duty bridges will be constructed. Most of the water control structures are in deteriorated and non-functional condition. Thirty-three (33) wood habitat structures will be installed at the site within the re-created tidal channels to provide habitat diversity and to secure channel cross-sections and walls.

The project area lies entirely within the Flood Hazard Overlay Zone (FH) and classified on FEMA FIRM maps as in the AE zone with a base flood elevation of 12.5 feet (Figure 2). The designated Floodway lies to the east of Highway 101 and does not extend into the project area.

The proposed restoration project is designed to restore tidal marshes and tidal channels that support natural communities and native species. These restored habitats will also provide watershed benefits during high water events including flood conditions by providing additional off channel storage of flood waters. The benefits may extend beyond the project boundaries depending upon the severity of the flood conditions and combined effects of tidal waters and storm surge.

Section 3.510(9)(f) of TCLUO notes that the Kilchis River downstream of cross-section C is not subject to provision (e) which states that no development will occur unless it is demonstrated that it will not raise the water surface elevation of the base flood more than one foot. The project area is in the Kilchis River drainage and downstream of cross-section C that approximates Highway 101. The hydrodynamic model developed for the project shows that under base flood conditions (12.5 feet elevation for the site and project area), there will be no rise in water level elevations in the project area after restoration actions have been completed. The base flood elevation for cross-section C is 14.2 feet; this base flood elevation is used to evaluate impacts of the project on adjacent lands immediately east of Highway 101. Hydrodynamic model runs of post-restoration conditions determined that base flood levels will not be exceeded for areas east of Highway 101 along Stasek Slough.

FEMA Considerations: 3.510(5)(a) states that if a hydrologic analysis indicates an increase in flood levels, then a Conditional Letter of Map Revision (CLOMR) needs to be obtained from FEMA before development is permitted (TCLUO p.9). A LOMR is required post development after the CLOMR is filed or if conditions differ. The base flood elevation for the project area and for adjacent lands will not be affected by restoration activities, according to the hydrodynamic model runs, hence no CLOMR is required.

C. Estuary Zone (EN) Criteria Compliance

Section 3.100 Estuary Zones

Conditional Use—same criteria as EFU criteria for conditional use so can draft once

Section 3.102 Estuary Natural Zone

Porter site is within Estuary Management Unit EN30

Bridge Crossings and supports, see 3.102 (2) (g). uses permitted with standards.

Restoration, see 3.102 (3) (e), uses permitted conditionally. Conditional use criteria same as for EFU Zone and found in 3.040 (1) through (6). (page 2, TCLUO 3.040)

Restoration, see 3.102 (4) (c) regulated activities in conjunction with restoration. dredging or fill/removal

Discussion

The Kilchis Porter project area includes areas of mapped estuary zones (Figure 3) including Estuary Natural (EN) zoning and Estuary Conservation 1 (EC1) zoning, as well as areas that may qualify as estuary lands due to the presence of aquatic vegetation or are below the Mean Higher High Water (MHHW) line of 8.32 feet (Garibaldi Tidal Station, accepted 4-24-2018). The project area is within the Tillamook County Estuary Management Unit EN30. Some of the planned restoration activities are located within identified estuary zoned lands as portrayed in Figure 3.

Estuary lands can be used for farming; applicable Goal 3 (protection of farmlands) policies are addressed in the Farm zone policy section.

Restoration is a conditional use within Estuary Natural zoning (3.102(3)(e)). Conditional use criteria evaluation for the proposed restoration action in estuary zoned lands will be assessed together with the conditional use criteria evaluation for farmland zoning. Conditional use criteria for Estuary Natural zoning is detailed in TCLUO 6.040.

Restoration is a use permitted with standards for Estuary Conservation 1 Zone (EC1) as defined in TCLUO 3.106(2)(i). Procedure is defined in Section 3.120 and Standards are defined in Section 3.140. These sections will be discussed below.

The proposed restoration of the Porter project area includes tidal channel re-creation, lowering of dikes along portions of Stasek and Hathaway Sloughs, removal of dilapidated water control structures, installation of large wood structures, development of vegetation mounds and wetland revegetation. Restoration of the Porter tract supports the general priorities of estuary zones (TCLUO 3.100 (1)) by maintaining the integrity of the estuarine ecosystem and by not degrading or reducing the natural estuarine resources and values. The proposed restoration supports the primary purpose of EN zoning of preserving and protecting significant fish and wildlife habitats by re-establishing both the aquatic as well as the marsh habitats in the project area. The restoration will enhance the ability of the site to contribute natural productivity to the estuarine ecosystem of Tillamook Bay. In addition, it will provide for enhanced ecosystem function of tidal marsh habitats by restoring natural tidal flow to the site and by re-establishing tidal interactions within the marsh habitat.

Two, light-duty bridges that are not connected with public roadways are proposed for the site to facilitate restoration and site management. The bridges will also provide emergency access to the lower Kilchis River and to Hathaway Slough. Bridges are considered uses that are permitted with standards in EN zoning.

The proposed restoration activities for the Porter project area are detailed in the Basis of Design Report (W2R 2019a) and the 100% Engineering Plans (W2R 2019b). The activities will enhance restoration tidal wetland functionality to the site by improving access of tidal flow to the wetlands, restoring former aquatic habitat lost due to farming practices and revegetating the site with native wetland species. The restored tidal wetlands will provide essential habitat for juvenile salmon during high flow events and throughout time which they occupy freshwater and tidal habitats. The wetlands will also support habitat used by waterbirds, marine fishes and other species. Finally, the restored wetlands will provide flood control benefits within the watershed as the site will provide storage for excess waters during high river flows.

TCLUO 3.120 Review of Regulated Activities

Regulated activities include: a-Fill, b-Dredging, e-Shoreline stabilization

Review will entail assessment of Federal and State permits in conjunction with Zone requirements.

ACE permit and federal compliance notices.

Text Discussion

Necessary permits for the proposed restoration project, as detailed in the Engineering Plans (W2R 2019a) and Basis of Design Report (W2R 2019b) have been applied for from the US Army Corps of Engineers (ACE) and from Oregon Department of Environmental Quality (DEQ). The following permits have been received or applied for and are attached for review if they have been finalized by the agency.

- Permit NWP 218-197: Army Corps of Engineers, included within the Nationwide Permit 27 for restoring aquatic vegetation under Section 10 of the Clean Harbors Act. Received June 13, 2018.

- Removal/Fill Permit, Joint Application Permit (JAP): Army Corps of Engineers and Oregon Department of State Lands for removal and fill activities associated with restoration. Section 404, Clean Water Act.
- Water Quality Certification Permit: Oregon Department of Environmental Quality, Nationwide 401 Water Quality Certification Approval. June 19, 2018.
- Federal Compliance with ESA, NEPA and NHPA for cultural resources: the ACE is the lead agency for federal compliance for the project.
- SHPO compliance: A cultural resource inventory is being conducted on the site to determine in advance of restoration activities the potential for disturbance of cultural resources. Results of the inventory will be made available to SHPO and local Indian tribes. Recommendations for future actions will be detailed in the results.

The restoration project is in the process of getting the necessary permits from state and federal agencies listed above. Each agency will require the project meets their own requirements as defined under each permit. Comments received from the permitting agencies to date have been incorporated in updated project designs that are included in the final engineering plans (W2R 2019a) attached with this application. The restoration project will not permanently degrade or reduce estuarine natural values; to the contrary, the project will enhance estuarine natural values.

TCLUO 3.140 Estuary Development Standards

(5) Dredging: in estuary zones, to create tidal channels

(a) necessary to produce public benefit (p. 7-8)

(k) to create new water surfaces or channels (p.9)

(m) impact assessment for estuarine waters dredging. See section 3.020.

(7) Fill. see whole section for specifics

(a) show public benefit (p. 12)

(d) in water work window

(f, g) erosion control measures used

(h) Clean water conditions, federal regulations

(10) Land transportation facilities

(15) Restoration and Enhancement: (p. 21-22) in estuary zones and shoreland overlay zone, standards (a) through (j)

Note (d), present evidence that restoration will result in overall improvement in cultural, historic, economic or navigation features, which will outweigh any adverse impacts. Can show: no degradation of above features, can show benefits to fish and wildlife species, benefits to flood control. Also in (e) state the project is consistent with protection of significant fish and wildlife habitats, research and education goals.

Discussion

Four sections of the Estuary Development Standards (3.140) may be pertinent to the Kilchis Porter tidal wetland restoration project application. They are discussed below:

- **Section (5) Dredging** estuarine waters and wetlands: Dredging typically takes place for navigation or other water dependent uses and does not characterize excavation activities that are associated with restoration. This restoration project will re-create tidal channels that will result in the excavation of natural materials including soil and rock. Water quality in nearby tidal sloughs will be protected by erosion controls including sediment fencing and straw waddles; see engineering plans (W2R 2019a) for details. All activities will be conducted during in-water work windows as established by ODFW. The project will result in enhanced tidal marsh and aquatic habitats at the site.
- **Section (7) Fill** in estuarine waters: Materials will be generated by excavation of tidal channels at the restoration project and by the lowering of dikes along portions of the tidal sloughs at the site. The materials will be used to fill former agricultural ditches at the site. Excess excavation materials will be used to create vegetated mounds that may rise 1.5-2.5 feet above the wetland surface and will provide slight topographic diversity to the site. The fill materials are required to meet the restoration goals for the site. All areas where fill is placed (ditches, mounds) will be located and shaped to minimize impeding flood waters across the site. The mounds will be seeded with erosion control grasses immediately after construction is completed to prevent sediment and turbidity in nearby sloughs. Mounds will be targeted with additional revegetation activities in the planting season. Locations of fill placement are detailed on the engineering plans provided. All fill related activities will take place during the in-water work window established by ODFW. Erosion prevention measures will be employed at fill locations; these are detailed in the engineering plans. The fill materials will be beneficial to the overall restoration design for the project area as they will add habitat diversity by way of the created mounds.
- **Section (10) Land Transportation Facilities:** The restoration project will remove a failing box culvert on the connector channel (ditch) between Stasek and Porter Sloughs. This box culvert was installed in 1965 to allow for drainage of farmlands east of Highway 101 along Stasek Slough. The culvert also provided access across the site to the west half of the tract as well as access to the lower Kilchis River. The project will place a light-duty bridge across the connector channel; the bridge will be used for site management activities and will be available for emergency access to the lower Kilchis River as needs arise. Such access was utilized as recently as 2015 to remove a logjam so it is a very real concern. A second light-duty bridge will be installed across Porter Slough at a crossing that currently has an undersized culvert. This crossing will provide management access to the north and west side of the site. The bridges are not connected to public roadways and will not be used by the public unless access is granted by the landowner on a limited basis. They will be positioned and maintained to allow for fish passage and will be constructed in such a manner to withstand expected winter high water flows and flooding. The connector channel and its connection with Stasek Slough

will be improved to enhance fish passage; see attached engineering plans for details. The bridges are consistent with Estuary Natural zoning resource capabilities and purposes; they are critical to the restoration and management of the site as well.

- **Section (15) Restoration and Enhancement:**

- (a) Policy requirements in the Tillamook County Comprehensive Plan (Comp Plan) met. The Policy requirements are detailed under the Goal 16 Estuarine Resources section. The overarching objective of Goal 16 is:

To recognize and protect the unique environmental, economic and social values of each estuary and associated wetlands; and

To protect, maintain, where appropriate develop, and where appropriate restore the long-term environmental, economic, and social values, diversity and benefits of Oregon's estuaries.

Restoration is further defined in the Comp Plan in 6. Policies for Estuaries Uses, Section 6.12 Restoration and Enhancement.

1. *Habitat types...which are in the shortest supply as compared with historical abundance shall be identified as part of the restoration plan element.* The Porter project targets restoring spruce swamp as well as other tidal marsh habitats; spruce swamps have suffered the greatest percentage loss of any tidal marsh habitats in the state and over 90% loss in Tillamook County.

2. NA

3. *Revitalize functional characteristics and processes such as diked lands restoration, priority given to marginal, low-lying diked areas adjacent to estuarine wetland.* The Porter project will restore and improve functional aspects of the site by lowering dikes along sloughs and generally improving access of tidal waters to the former wetlands. The site is adjacent to natural tidal marshes as well as recently restored tidal marshes, thus increasing the overall viability of the entire Estuary Management Unit EN30. The project area is low-lying as represented by the scrub-shrub and spruce swamp tidal habitats that formerly occupied the site. It was only seasonally used for farming and was challenging due to high water levels and being largely undiked.

7. *Active restoration permitted in all estuary zones based upon requirements.*

- (a) *Estuary Natural Zone: limited to restoration of fish and wildlife habitat.* The proposed restoration will increase the amount and the quality of rearing habitat for juvenile salmon. It will also provide additional foraging and resting habitat for a variety of waterbirds as well as for juvenile marine fishes and nongame species.

- (b) The restored Porter project area will be restored to tidal marsh habitats specifically spruce swamp, scrub-shrub and riparian habitats (Figure 4), that will also include restored tidal channels; see engineering plans (W2R 2019a) for a complete depiction of restoration actions proposed. The restored areas were non-functioning habitat prior to restoration due to their loss of tidal flow and loss of tidal marsh vegetation. These losses were caused by the conversion of the site to farm use in the past century.

- (c) *Estuary enhancement* will improve the current condition of the former tidal marshes that are currently dominated by non-native species and no longer support tidal channels that deliver tidal waters on incoming tides and provide habitat for aquatic species. The loss of these habitats is due to historic farming activities, primarily on the east half of the project area where restoration activities are concentrated. Proposed activities are documented in the attached engineering plans.
- (d) *Improved conditions due to enhancement activities.* The proposed Kilchis Porter restoration project will improve the estuary habitat conditions at the site while not degrading other features present. The improved habitat conditions will provide increased rearing habitat for juvenile salmon that will result in improved condition of outgoing smolts and increased numbers of returning adults in the Kilchis drainage, according to studies done in comparable river systems (Nickelson 2012, Jones et al, 2014, Beamer et al, 2017). The improved salmon numbers may result in increases for recreational and commercial angler opportunities in future years. The restored wetlands may also have positive benefits for flood control as they will provide flood storage in some instances and will not result in significant impacts for adjacent lands according to hydrodynamic modeling results for the proposed project (W2R 2019 memo). The restored tidal wetlands will be a positive benefit to visitors to Tillamook County who enjoy the scenic railroad route that passes along the restored site. The visitors will see restored tidal wetlands and channels sited beside active farms, promoting the understanding that both activities can co-exist in proximity in the County. As a precursor to the restoration, the site will be surveyed for cultural resources and a report detailing findings will be developed. The survey will be followed up with on-site archeological monitoring during construction to document any cultural resources that may be discovered there. This survey and monitoring will further our knowledge of cultural resources in the area and will insure that any discovered resources will be adequately protected.
- (e) *Evidence that project is of benefit to fish and wildlife.* Restoration of tidal marsh habitat has been shown to benefit salmon species that use these habitats for rearing before venturing out to sea. An enclosed letter from ODFW documents the benefits to fish and wildlife species that will come from the restored site (Knutsen 2019). Some of the best studies that document beneficial use have occurred in the Salmon River estuary, 50 miles south of Tillamook. Studies here showed that Chinook salmon smolts (Bottom 2005, Hering 2010) used both natural and restored marsh channels in the Salmon River. Other studies have shown the enhanced growth rates of salmon smolts reared in floodplain estuaries vs in riverine habitats (Jacob Katz, personal communication 2018). These results have also been supported for coho salmon as well (Nickelson 2012).
- (i) *Dredge and fill activities.* All fill and removal activities will be reviewed by the appropriate permitting agencies and will be conducted according to the standards.
- (j) *Shoreland Overlay zone standards.* The project area falls within a Significant Wetland Biological Habitat as defined in the Tillamook County Comprehensive Plan, Goal 17 Coastal Shorelands. Restoration is considered a Conditional Use in the

Shoreland Overlay zone and is subject to standards defined in TCLUO Section 3.140(15), Estuary Development Standards. Goal 17 Coastal Shoreland Protection is discussed below.

(k) Agencies notified of the restoration project include: ODFW, DSL, DLCDC, EPA, USFWS, and ACE.

Literature Cited

Beamer, E., R. Henderson, C. Ruff, and K. Wolf. 2017. Juvenile Chinook salmon utilization of habitat associated with the Fisher Slough Restoration Project, 2009 - 2015. Report prepared for The Nature Conservancy, Washington.

Bottom, D. L., K. K. Jones, T. J. Cornwell, A. Gray and C. A. Simenstad. 2005. Patterns of Chinook salmon migration and residency in the Salmon River Estuary (Oregon). *Estuarine Coastal and Shelf Science* 64:79-93.

Hering, D. K. 2010. Growth, residence, and movement of juvenile Chinook salmon within restored and reference estuarine marsh channels in Salmon River, Oregon. MS Thesis, Oregon State University.

Jones, K.K., T.J. Cornwell, D.L. Bottom, L.A. Campbell, and S. Stein. 2014. The contribution of estuary-resident life histories to the return of adult *Oncorhynchus kisutch*. *Journal of Fish Biology* doi: 10.1111/jfb.12380.

Nickelson, T. 2012. Future analysis for wetlands restoration in the Coquille River basin: How many coho salmon might we expect to be produced? Report to The Nature Conservancy.

D. Goal 17 Shorelands Protection

TCLUO Section 3.545 Shorelands overlay zone

Discussion

Careful planning of activities in and around coastal shorelands is necessary to protect the environmental and economic resources and benefits derived from them. The State planning objective for coastal shorelands is to “conserve, protect, where appropriate develop and where appropriate restore the resources and benefits of all coastal shorelands”. Most if not all of the Porter restoration site is within the Shorelands overlay zone (SH) as defined by Section 3.545 of the TCLUO. The restoration site falls within the category of Shorelands under 3.545 (3)(b) of Estuarine Element and Coastal Shorelands Element of the Comprehensive Plan as:

- (1) Significant shoreland and biological wetland habitat.

The uses permitted within the Shorelands overlay zone reflect those permitted either outright or through conditional use in the underlying zone(s). Conditional uses under 3.545 (5) include estuarine restoration actions as subject to the standards in Section 3.140 (15), discussed

previously. Restoration will enhance and protect shoreland areas and habitats within the restoration project area.

E. Conditional Use Review

Section 6.010 Conditional use procedures and criteria

Estuary (6.040) and Farm (6.060) Zones Criteria for decision

Planning Application (see forms)

Application fee \$1089

Compliance with estuary standards in 3.140 (sections 5,7,10, 15)

Discussion

Restoration is considered a Conditional Use within Estuary and Exclusive Farm Use zones, both of which occur in the project area. Restoration is a use that is consistent with the goals and policies of the Tillamook County Comprehensive Plan as detailed by Goal 16. Estuarine Resources goal, Goal 16, has its stated objective to protect, maintain, ... and where appropriate restore the environmental ... values of Oregon's estuaries (TCCP, Goal 16). Conditional use criteria for Estuary and Farm Use zones are similar and are discussed below relative to the proposed project.

The project area is an ideal candidate for restoration as it occupies former tidal marsh habitat that has good connectivity to tidal waters of Tillamook Bay via Hathaway and Stasek Sloughs that border the property on two sides. The site is also ideal as it is relatively isolated from active farmlands being located all but adjacent to Tillamook Bay. The Kilchis Preserve owned by The Nature Conservancy borders the project area to the south, across Stasek Slough, and is dominated by restored tidal marsh habitat that is complementary to the intended restored marsh habitat on the project area. The project site also borders Highway 101 and the Tillamook Bay railroad line on its eastern border, both of which are located on elevated berms that are far above tidal and flood elevations and not affected by restoration. The project area will restore 30 acres of spruce swamp habitat, a habitat that has suffered 90% loss countywide and is very important for salmon rearing in associated tidal channels as well as providing habitat for other wildlife species.

The project area was formerly used for grazing and haying but it is largely unprotected from tidal and flood waters and could only be used seasonally; it was in disuse in recent years, in part because it also had challenging access issues being isolated by Highway 101 from the base farm. The site has few improvements on it that would impede restoration actions and the site size, 30 acres, is manageable in terms of doing the major restoration construction work in a single season which reduces any temporary impacts to the area.

The proposed restoration will return the property to tidal marsh habitat with natural vegetative communities and tidal channels being key aspects on the restored site. As the site is adjacent to tidal sloughs and existing marsh habitats it will fit into the surrounding lands both visually as well as functionally. The tidal wetlands character of the site will be especially apparent to

visitors who enjoy the Railriders business that traverses the railroad across the property; boaters on the sloughs will also be able to see the site from the adjacent waterways. Because of limited public access there won't be an appreciable increase in public use at the site.

The restored site will not interfere with adjacent land uses focused on farming as the project area is separated from farmlands by two existing tidal sloughs, Stasek and Hathaway, and by native wetlands that occur on the western border of the site. The site is also separated from adjacent land uses east of Highway 101 which runs along the eastern border of the site. Water levels in the adjoining sloughs will not be significantly affected by restoration actions as determined by the hydrodynamic model developed for the project. The restored wetlands will function as an overflow and storage zone for floodwaters, thus offering some minor flood relief to adjacent lands in the Kilchis drainage. The restored tidal channels and reconstructed connection between Stasek and Porter Sloughs will also promote more rapid drainage on lands located along Stasek Slough on the east side of Highway 101.

The proposed wetland revegetation efforts will be confined to the site and will not result in any spread of noxious weeds or native species to adjoining lands. TNC takes an active role in controlling noxious weeds on its ownerships as directed by the Kilchis Preserve Management Plan (attached). The native species used in the revegetation activities are not prone to spreading and are mostly wetland obligate species that are found in surrounding tidal swamps and marshes on the North Coast.

The restored site will also not interfere with any transportation uses along the Highway 101 corridor or the Tillamook Bay Railroad line, both of which occur along the eastern edge of the site. The Highway and railroad are located on berms that are elevated to 14.8 feet and 15.6 feet respectively, well above the base flood elevation of 12.5 feet for the site. Current users of the railroad line on the recreation-focused Railriders business, will get a firsthand view of active marsh restoration and newly restored natural habitats in Tillamook County. There is currently no public or deeded access across the project area so the restoration will not be a factor for any access issues and will not cause transportation-related concerns. An emergency corridor to the Kilchis River will be maintained across the restored site and a light-duty bridge over the connector channel replacing the failing box culvert will make emergency vehicle access possible.

The proposed use of the site will have no detrimental affect on existing solar energy systems, wind energy conversion systems or windmills. There are currently none of these systems in the immediate area and none are planned at this time. The proposed use is timely with regards to any potential impacts to public facilities and services as no existing facilities will be affected by the restoration or by the continued conservation actions at the site.

Farm Zone Wetland Restoration Criteria Compliance

Wetlands Restoration in EFU Zone, Section 6.060, Conditional Use Criteria (page 3)

- a. Not force significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use;
- b. Not significantly increase the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use.

Discussion

Senate Bill 1517 was passed by the Oregon Legislature in 2016, establishing a pilot project in Tillamook County that would further regulate wetland restoration in EFU farmlands. The regulations created conditional use criteria to be met by certain wetland restoration projects in the County. The Porter Kilchis tidal wetland restoration falls within the project description defined by legislation.

The Porter Kilchis restoration project is proposed for a parcel of land in the lower Kilchis River watershed that is largely isolated from active farmlands. The 60 acre Porter tract is zoned approximately 35% estuary zoning (EN, EC1) and 65% farmland zoning (Figure 3). The 30 acre restoration project area is approximately 25% estuary zoning and 75% farmland zoning. There are no active forestry programs on neighboring lands. The project area, which is mostly to the east of Porter Slough and the connector channel, has shared property boundaries with farmlands that are either separated by natural waterways, native wetlands or Highway 101 (Figure 5).

The farmland across Stasek Slough to the south-east is owned by Prince Farms and is used for forage production, being cut 4-5 times a year. Farmland on the east side of Highway 101 is also owned or leased by Prince Farms and used for silage production. The farmland to the north of the project area across Hathaway Slough is managed by Averill Farm and used for grazing and forage production. This parcel is enclosed by a high dike with a tide gate. The farmland to the west of the Kilchis Porter project area is owned by Geinger Farms and used for forage production. Native tidal marsh habitat located on the TNC Porter tract lies between the Porter project area (east of Porter Slough) and the Geinger farmland. Geinger accesses this farmland parcel by fording the Kilchis River during summertime low flows.

The dairy farms in the surrounding area use their land base primarily for forage production which has traditionally been dominated by pasture grasses. These lands are also integral to the manure management programs for the farms. In the last ten years, many farms planted an increasing acreage in corn for silage but at least one neighboring farm replanted their fields to pasture grasses last year. This shows that farming practices continue to evolve and change with market forces.

The Kilchis Preserve—Dooher Tract which has been managed by The Nature Conservancy since 2010 has coexisted with neighboring farms for nine years. The Preserve had undergone tidal wetland restoration actions in 2015 and there have been no impacts to neighboring farmlands attributed to the restoration. Management of the Kilchis Preserve which includes the restored Dooher tract as well as the Porter tract, is directed by the Kilchis Preserve Management Plan (attached). The Conservancy has dedicated staff for preserve management located on the coast as well as staff located at its Oregon chapter office in Portland.

The restored Porter project area within the Porter tract will also not interfere with adjacent farmland management as it is separated from neighboring farmlands by Stasek and Hathaway Sloughs and by native wetlands that occur on the western portion of the Porter tract. The native wetlands will not be subject to major restoration activities. The Porter tract is separated from farmlands on its eastern border by Highway 101. Restoration activities on the Porter tract will primarily take place within the interior of the tract. Only a minor amount of low dike along Hathaway Slough will be lowered so there will be little increase in overland flow of high waters onto the Porter tract from the sloughs at peak tides.

The natural sloughs that border the restoration area significantly dampen any effects that raised water tables on the project area may have on farmlands that are on the opposite sides of the sloughs. The farmlands west of the Porter tract have been adjacent to natural tidal wetlands for many decades and will not suffer any increased impacts due to the restoration project that is proposed to take place on the eastern half of the Porter tract, east of the existing wetlands.

TNC and Geinger Farms exchanged native wetland acres under Geinger ownership for existing farmlands on the Porter tract before the acquisition was completed to protect both priority farmland and existing native wetlands. This exchange resulted in more acres being brought under active farmland management while protecting existing tidal wetlands that historically were too wet to farm.

Changing water levels in the sloughs adjacent to the project area are a primary concern for farmers who have lands that also border these natural sloughs. The sloughs are principally tidally influenced or in other words their water levels respond to and track tidal elevations under most conditions. The only time that water elevations in the sloughs do not track the tides is during high river flow events that cause overland flooding and may eventually back up flows to Tillamook Bay, restricting drainage of the sloughs. To assess the effects of the restoration on water levels in the project area, on the sloughs and the Kilchis River in the surrounding area, TNC contracted with W2R to develop a hydrodynamic model (see attached Hydrodynamic Model memo from NHC 2019). The model is based on waterway bathymetry and elevations of the surrounding area with inputs of water levels from water level loggers, tidal heights and projected river flows determined from nearby gauged rivers. The Kilchis River does not have a recording, water level gauge so data from the Wilson River is used with adjustments made to reflect the differing watershed size. The hydrodynamic model was initially developed for the Dooher tract restoration project and was recently updated to reflect potential effects of the 2015 flood that occurred in the region. Further refinement of the model has occurred to reflect the proposed hydrologic changes associated with the planned restoration at the Porter project area.

The hydrodynamic model was run under several scenarios that reflect current and restored wetland conditions under 1) low river flow (summer) conditions, 2) high river flow (winter) conditions, both under high and low tides, as well as base flood (100 year) conditions, again with high and low tide levels. The model showed relatively good results when compared against known water levels in the slough and the river derived from water level loggers that TNC has maintained in these waterways. Results are documented in the attached Conceptual Restoration Plan (W2R 2017) and in the hydrology effects memo specific to the hydrodynamic model (NHC 2019). Overall, the model predicts that water levels in the sloughs will not be significantly altered by restoration actions, either directly adjacent to the site or upstream of the site. As noted above in the discussion of the Flood Hazard Zone conditions (TCLUO 3.150), the base flood level for the project area of 12.5 feet will not be affected by the restoration and the base flood level of 14.2 feet for areas upstream or east of Highway 101 in the sloughs will also not be raised by restoration actions. A memo detailing the hydrologic effects of the proposed restoration project is enclosed along with an engineer's stamp of certification (W2R 2019).

The restored wetlands in fact will function as overflow and storage zones for floodwaters in the sloughs, thus offering some minor relief to adjacent lands in the Kilchis drainage during high flow conditions. The restored connector channel between Stasek and Porter Sloughs has been predicted by the hydrodynamic model to promote more rapid drainage on lands located upstream

along Stasek Slough on the east side of Highway 101, at least for several hours after the peak flood in flood conditions, due to less constrained flow through the re-engineered channel. Floodwaters can be a significant impact to farms as they affect farmlands, manure management and livestock. Restoration in the Porter project area will not exacerbate the impacts of flooding that already occur in the region.

Another concern is that the restoration will result in the spread of noxious weeds or native species to adjoining lands. TNC takes an active role in controlling noxious weeds on its ownerships. A management plan that details weed control management for the Kilchis Preserve is attached to this permit application. Restoration will not result in a spread of noxious species to adjacent farmlands as TNC will be aggressively managing detections of weeds through manual and chemical control. The herbicides that TNC uses for revegetation and weed abatement include glyphosate and trichlopyr. The herbicides are applied by trained, licensed applicators using spot-spray techniques with hand sprayers. These herbicides have recommended limitations on pastures used by lactating animals but none of the TNC lands are currently or will be used in the future for pasture or haying operations, thus there are no potential impacts to farm animals. Herbicide application is curtailed during wet weather and care is taken in application near waterways using appropriate surfactants. The native species used in the revegetation activities at the project are not prone to spreading and are mostly wetland obligate species that will not spread or become established in managed farm or pasture lands.

Additional concerns of wetland restoration impact on farmlands include enhanced wildlife damage and increased public use on private lands. Wildlife use may increase on the restored project area as natural habitats are improved but as there won't be any increases in food that attract geese, for instance, it is not expected to result in more geese being attracted to the site or surrounding farmlands. It has been suggested that deer could become more numerous on the restored site but wetlands don't offer the best habitat for deer so use will be limited. Public use is not expected to increase in the project area as there is no defined public access to the site. Therefore, public use is not expected to increase on neighboring farmlands.

TNC prides itself in being a good neighbor in the community as we bring land management expertise to our properties and we willingly share knowledge and what we learn from our sites with our neighbors. At the Kilchis Preserve, TNC has maintained a series of water level loggers in the created tidal channels, in the natural sloughs (Stasek, Nielsen and Hathaway) and in the Kilchis River. The water levels that have been recorded by these loggers are shared upon request to interested neighbors. We also share information about the restoration activities that we are managing at the site including how restoration actions are progressing, our weed management activities and any changes that we are noticing in wildlife and fisheries in the area. We remain interested in farming practices as well, and how the timing of them may affect the Preserve. Lastly, we stand ready and willing to assist neighbors with management issues that range from riparian management along sloughs to tidal water flow through waterways.

TNC believes that the proposed restoration meets the conditional use criteria of (a) not forcing significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; and (b) not significantly increasing the cost of accepted farm or forest practices on surrounding lands devoted to farm or forest use. Adjacent farmlands will not experience rising water levels, increased wildlife depredation, or more public use because of the restoration on the Porter project area. Therefore, the adjacent farms should not be forced to make significant

changes to accepted farm practices due to restored wetlands on the Porter project area. The relatively isolated nature of the restoration site that lies west of Highway 101 should not pose a conflict to neighboring farms that do not share roads, access, fences or even close boundaries for the most part. Because of this, there should be no significant increase in costs of accepted farm practices due to the presence of the restored project area.

Tillamook County Planning Permit Documents
Kilchis Porter Tidal Wetland Restoration Project
October 17, 2019
The Nature Conservancy
Figures

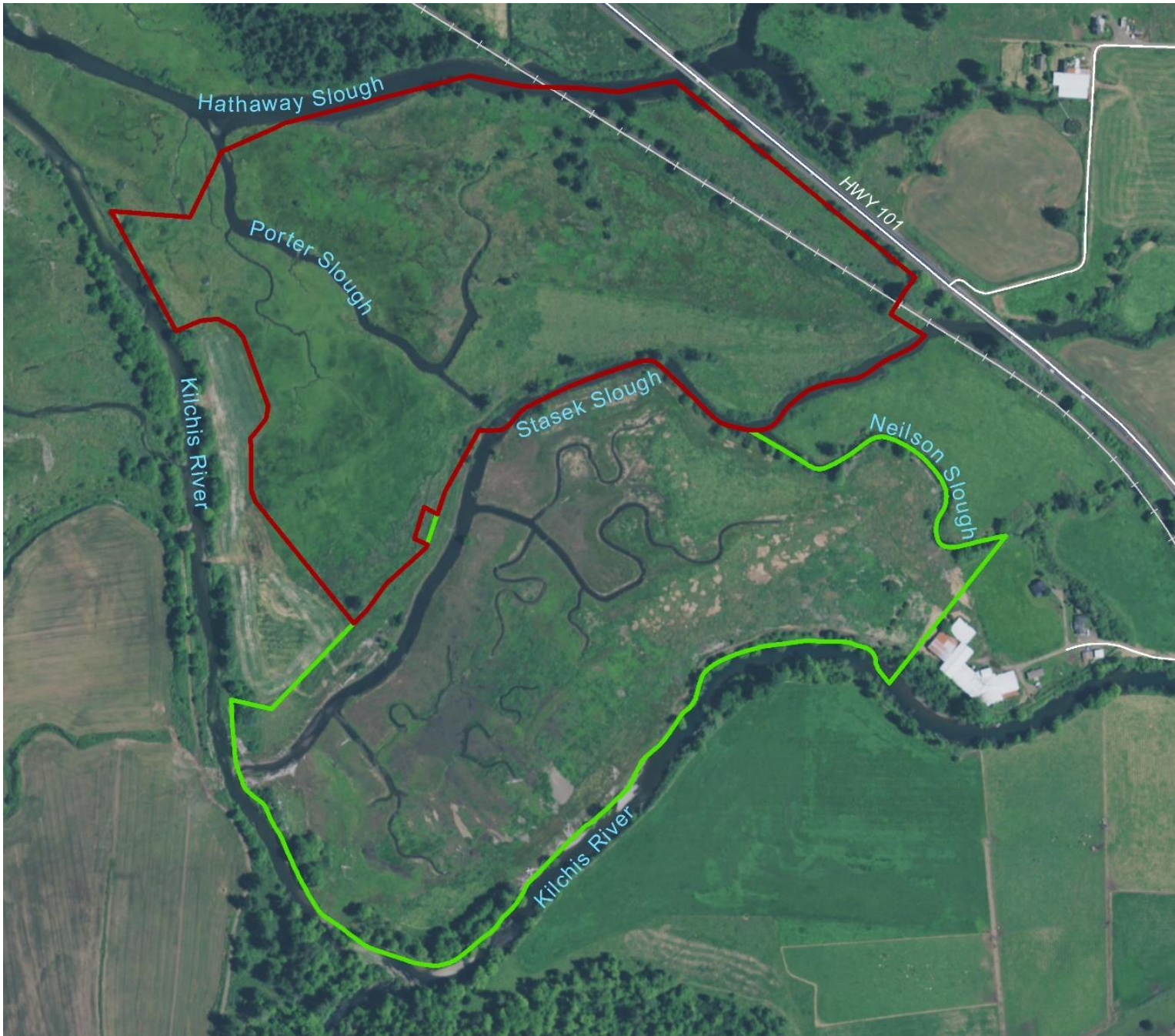


Figure 1. Kilchis Porter Project Area, Tillamook County Oregon.  Project Area



Figure 2. FEMA FIRM Map of Project Area, Kilchis Porter Restoration, Map #41057C0576F, eff. 9/28/2018. Base flood elevation 12.5 feet.

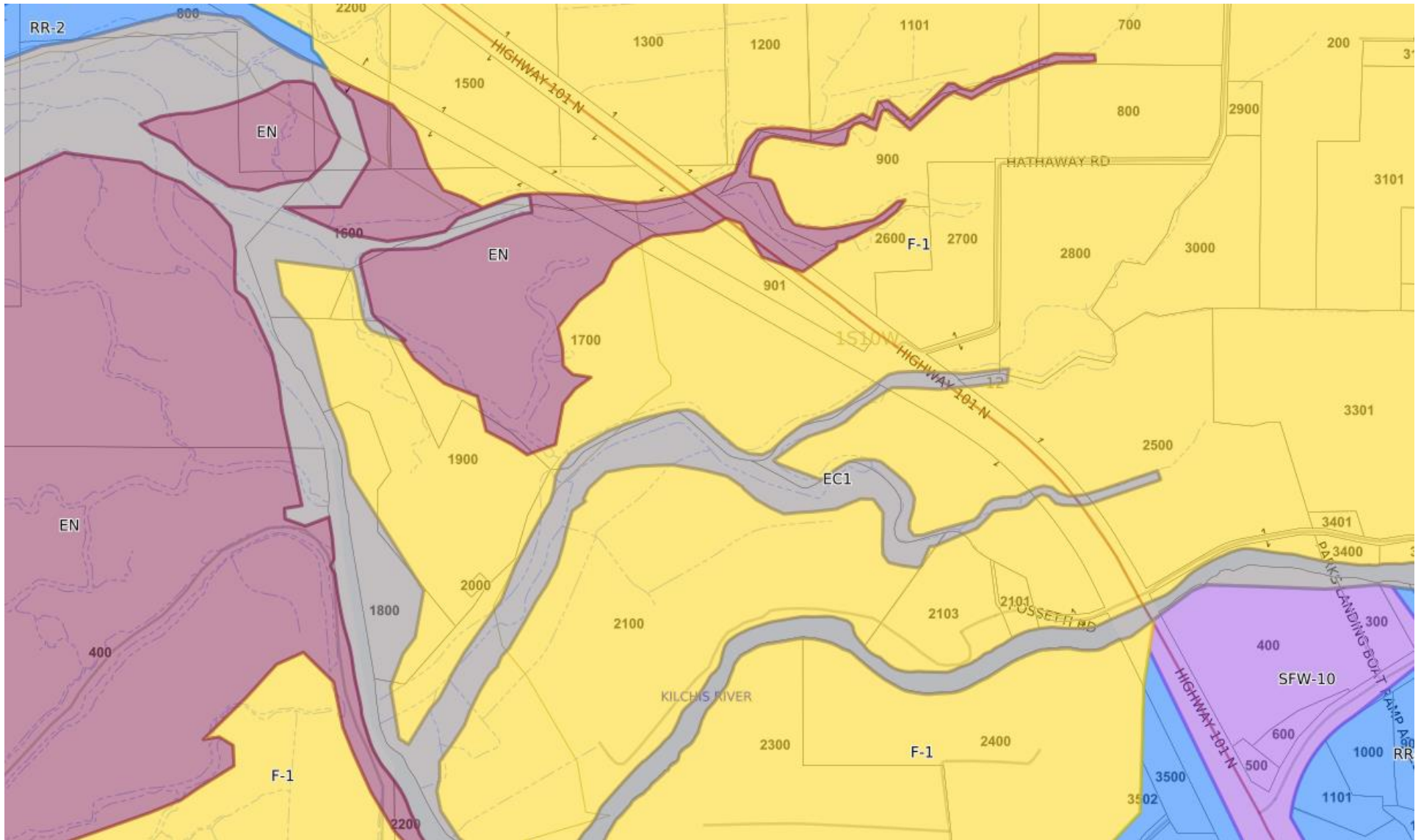


Figure 3. Tillamook County Zoning: Porter Tract and surrounding lands. Porter tract includes taxlots 1900, 1700 and 901. Restoration activities are largely confined to TL 1700 and 901. Zoning includes EN: Estuary Natural; EC1 Estuary Conservation 1; and F-1 Farmland.

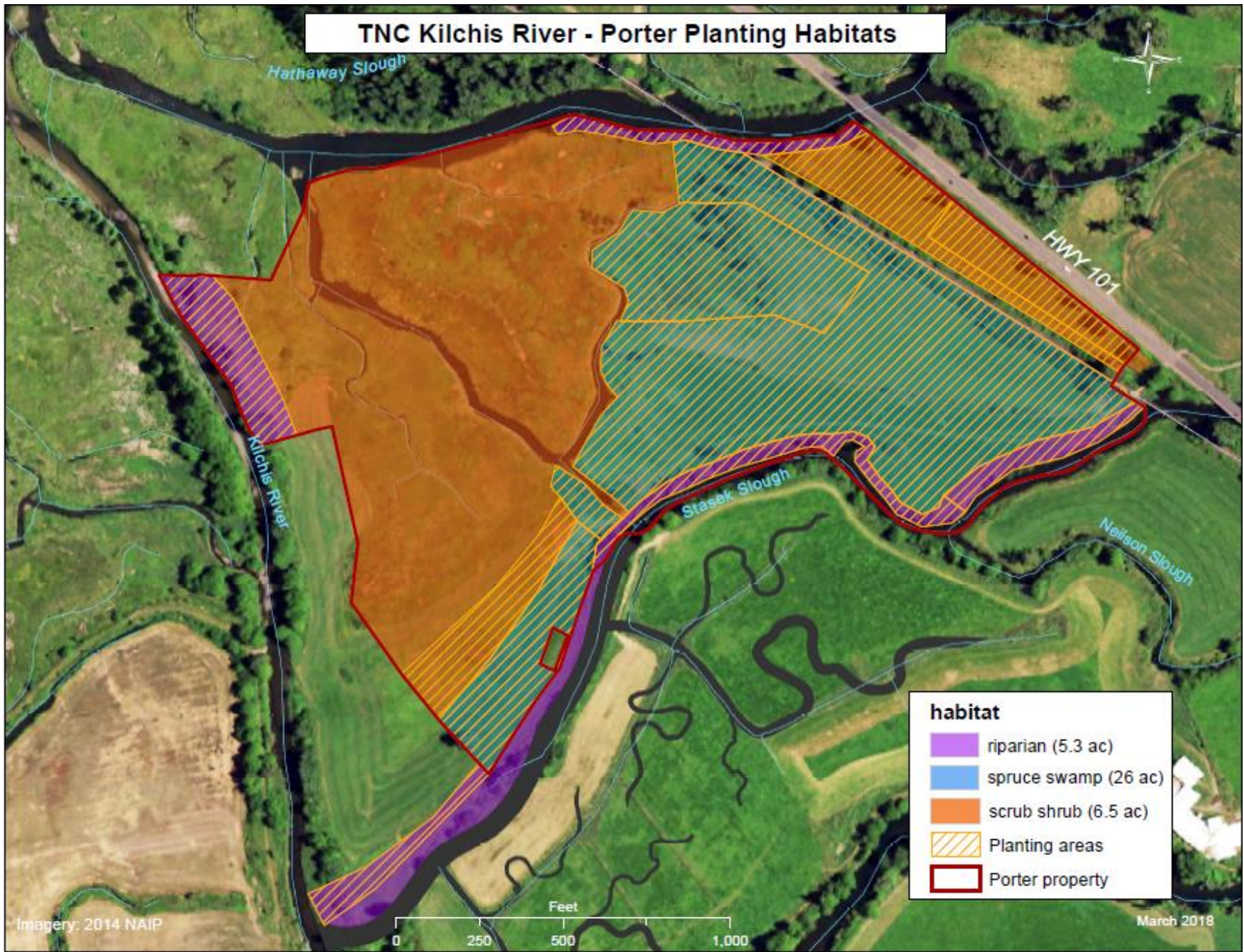


Figure 4 Kilchis Porter Habitats and Planting Areas, Tillamook County, Oregon



Figure 5. Native Tidal Wetlands, Kilchis Porter Project Area