

**Appendix O**

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**Shoreline Management Act and Critical Area  
Ordinance Consistency**



# BPA I-5 CORRIDOR REINFORCEMENT PROJECT

## Substantive Compliance Document – Washington State

Prepared ESA in cooperation with

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Bonneville Power Administration







## SUMMARY

Environmental Science Associates (ESA) has prepared this document in cooperation with Bonneville Power Administration (BPA) to evaluate local government code requirements for the I-5 Corridor Reinforcement Project. This document focuses only on local codes in the State of Washington for the Preferred Alternative (Central Alternative using Central Option 1). As a federal agency, BPA will not be applying for local permits and approvals but would need to demonstrate substantive compliance with local regulations. This document is designed to provide a broad overview of local and applicable environmental regulations that would be required in Cowlitz County, Clark County, City of Washougal and City of Camas, Washington where the proposed project is located.

BPA plans to meet federal and state regulations for protection of aquatic resources, riparian habitat and federally-listed plant and animal species subject to the Endangered Species Act. If BPA decides to build this project, mitigation would be provided by BPA to satisfy the US Army Corps of Engineers (Corps) through Section 404 of the Clean Water Act and Washington State Department of Ecology (Ecology) through Section 401 Water Quality Certification. As part of the Sections 404 and 401 permit process, BPA anticipates that mitigation (including avoidance and minimization of project impacts) would substantively meet most local requirements.



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## 1.0 INTRODUCTION

This document was prepared by ESA in cooperation with BPA to assist with evaluation of the Preferred Alternative for the I-5 Corridor Reinforcement Project, a new electrical transmission line located in southwestern Washington and Oregon. As a federal agency, BPA will not be applying for local permits and approvals but would need to demonstrate substantive compliance with local regulations. This document has been prepared to summarize how the project would substantively comply with most local environmental requirements in Washington State through federal and state permitting requirements primarily through the Section 404 Clean Water Act (CWA) and Section 401 Water Quality Certification approval process. This document is a working document and would be refined and updated in cooperation with the local counties and cities as the project moves forward.

## 2.0 WASHINGTON STATE SHORELINE MANAGEMENT ACT

The Washington's Shoreline Management Act (the Act) was passed by the State Legislature in 1971, and adopted by voters in 1972. The overarching goal of the Act is "to prevent the inherent harm in an uncoordinated and piecemeal development of the state's shorelines." The intent of the Act is threefold: 1) to protect state shoreline resources, 2) to allow public uses and access to these waters, and 3) to encourage water dependent development. The waterbodies designated as "Shorelines of the State" in western Washington are those streams and rivers with a mean annual flow of 20 cubic feet per second (cfs) or greater; those lakes and reservoirs greater than 20 acres in size; and all tidal waters below the mean higher high water mark.

The Shoreline Management Act (RCW 90.58.030(2)(e)) defines a special category of shorelines where specific priority uses are preferred. These "shorelines of statewide significance" include: marine and estuarine waters, rivers in western Washington with a mean annual flow over 1,000 cfs and lakes/reservoirs over 1,000 acres in size. Ecology provides state oversight and review of the Shoreline Master Programs (SMP) that are adopted at the local level.

The following sections describe the SMPs for Cowlitz and Clark counties and the City of Camas and possible impacts from the Preferred Alternative within their shoreline areas. Also included is a discussion of the project's consistency with each SMP. Although the project would cross through a portion of Washougal, the Preferred Alternative does not cross a shoreline of the state under their jurisdiction.

### 2.1 Cowlitz County Shoreline Master Program

The Cowlitz County Shoreline Master Program (SMP) is currently under revision and in the process of an update. The Draft version of the updated SMP (available on the Cowlitz County's public web page) has been reviewed by Ecology and is slated to be approved by the County Council in 2015 and is anticipated to become effective in 2016. The following details are taken from the January 2015 Draft SMP available on the county's public web page. If revisions are made to the SMP they will be reflected in a future draft of this report.

The SMP applies to all of the shorelands and waters within unincorporated Cowlitz County that fall under the jurisdiction of RCW 90.58; including:

- 1) Those lands extending two hundred (200) feet in all directions as measured on a horizontal plane from the Ordinary high water mark (OHWM);
- 2) Floodways and contiguous floodplain areas landward two hundred (200) feet from such floodways; and
- 3) All wetlands and river deltas associated with the streams and lakes that are subject to the provisions of this SMP; the same to be designated as to location by Ecology.

Shorelines crossed by the Preferred Alternative within unincorporated Cowlitz County include the following rivers and creeks (also see Figures 1 through 7):

**Table 2-1.** Shorelines Crossed by the Preferred Alternative in unincorporated Cowlitz County, Washington.

Shoreline Name	Project Element	Proposed Towers	Cowlitz County Shoreline Environment Designation
Cowlitz River	Right-of-way crossing	Towers F16 to F-17	Residential (west bank); Rural Conservancy (east bank)
Ostrander Creek	Right-of-way crossing	Towers F-44 to F-45	Rural Conservancy
Coweeman River	Right-of-way crossing	Towers F-72 to F-73	Rural Conservancy
North Fork Goble Creek	Right-of-way crossing	Towers H-7 to H-8/10-1	Rural Conservancy
Kalama River*	Right-of-way crossing	Towers 10-32 to 10-33	Rural Conservancy
Lewis River (north shore)*	Right-of-way crossing	Towers L-3 to L-4	High Intensity

\*Shoreline of Statewide Significance

### 2.1.1 Allowed Uses

Work proposed within Cowlitz County shorelines would occur either in the Rural Conservancy designation, Residential designation, or High Intensity designation (see Table 2-1). These Shoreline Designations are proposed in the public review updated SMP shown on the County’s web page current as of May 2015. Any work proposed below the OHWM of any of the shoreline rivers would occur within the Aquatic Designation.

Specific conditions for Utility Facilities are shown below.

#### Utility Facilities

New utility lines and facilities may be permitted to cross watercourses, if they comply with Subsection 7.2.14 of the SMP and the following additional standards:

- i. There is no other feasible alternative route with less impact on the environment;
- ii. Installation shall be accomplished by boring beneath the scour depth and the saturated zone beneath the water body and channel migration zone, where feasible;
- iii. The utilities shall cross at an angle greater than 60 degrees to the centerline of the channel in streams or perpendicular to the channel centerline whenever boring under the channel is not feasible;



- iv. Crossings shall be contained within the footprint of an existing road or utility crossing where possible;
- v. The utility route shall avoid paralleling the stream or following a down-valley course near the channel; and
- vi. The utility installation shall not increase or decrease the natural rate of shore migration or channel migration;

**Consistency:** BPA is working with the Corps to comply with the CWA Section 404(b)(1) Guidelines and is preparing an alternatives analysis evaluation to provide the Corps with the necessary information regarding the availability of practicable alternatives to the proposed project and to identify the least environmentally damaging practicable alternative. Under the Section 404(b)(1) Guidelines, the Corps may only permit discharges of dredged or fill material into waters of the U.S. that represent the least environmentally damaging practicable alternative, so long as the alternative does not have other significant adverse environmental consequences as compared with other alternatives.

BPA considered undergrounding the transmission line but eliminated the alternative from detailed study.

Impacts to shoreline rivers and streams in Cowlitz County crossed by the Preferred Alternative have been avoided and minimized to the extent possible although clearing within shorelines is unavoidable. All six crossings of shorelines of the state in Cowlitz County are by the shortest most direct route feasible. No section of the Preferred Alternative lies within 200 feet and parallel to a shoreline of the state. Considerable efforts were made by BPA during project design and route location to move the transmission line and towers outside of shoreline jurisdiction wherever feasible. Additionally, BPA has utilized existing roads or utility crossings where possible along the Preferred Alternative.

BPA would site new towers to avoid shoreline areas where shore or channel migration is occurring.

Small amounts of hazardous wastes may be generated by the project (such as paint products, motor and lubricating oils, herbicides, or solvents) during construction or operation and maintenance. These materials would be transported and disposed according to the Resource Conservation and Recovery Act and state regulations.

### **2.1.2 Frequently Flooded Areas**

Frequently flooded areas (FFA) within shorelines are regulated through Section 6.3 of the SMP and through Appendix B Critical Areas. Development is required to avoid significantly or cumulatively increasing flood hazards in the County, and must be consistent with applicable regulations. New industrial development with shoreline jurisdiction is prohibited if it would be reasonably foreseeable that the development or use would require structural flood hazard reduction measures in the channel migration zone or floodway over the life of the project. Uses and activities in these areas, including utility lines may be authorized if no other feasible alternative exists or where the alternative would result in unreasonable and disproportionate costs. Where structures are allowed in frequently flooded areas, mitigation is required to address impacted functions and processes in the affected shoreline.

The Cowlitz County Code (CCC) (19.15.140) regulates development activities within FFA which are defined as: all lands identified in the Federal Emergency Management Agency (FEMA) flood insurance rate maps, as amended, and approved by the county as within the 100-year floodplain. All development within FFA must comply with Chapter 16.25 CCC, Floodplain Management. Any development planned

within FFA requires a County review and an FFA assessment may be required. A qualified professional is required to prepare the assessment that has experience in preparing flood hazard assessments. The FFA assessment must be adequate for the Cowlitz County Director to evaluate the development proposal and all probable significant potential adverse impacts to critical areas regulated by the CCC.

**Consistency:** According to the 2012 FEMA floodplain information, two new towers (F-18 and F-19) would be located within FFA of the Cowlitz River. These towers would be sited to avoid impacts to floodways but due to the length of the span crossing the river cannot be located outside of floodplain areas. These towers and any access roads associated with the Preferred Alternative proposed within floodplain areas would be designed to minimize and/or avoid increasing flood hazards or decreasing flood storage capacity.

### 2.1.3 Geologically Hazardous Areas

Geologically hazardous areas within shorelines and mapped on the Cowlitz County GIS layers, occur at several locations along the Preferred Alternative. The CCC regulates activities within geologically hazardous areas through Section 19.15.150 which include areas susceptible to erosion, sliding, earthquake, or other geological events. Incompatible development can pose a threat to the health and safety of the public when sited in areas with seismic hazard, mine hazard, volcanic hazard, erosion hazard, and landslide hazard.

**Consistency:** An update of the geologic hazard assessments for the Preferred Alternative would include another review of liquefaction hazard mapping, geologic maps for fault locations, and aerial photographs combined with surface condition assessments at proposed tower locations and surrounding terrain for landslide hazard assessment including downslope areas. In addition to that review, BPA would analyze the Preferred Alternative using Washington Department of Natural Resources' (WDNR) RMAP tool to classify the geologic hazard risks (low, medium, or high).

Specific geologic hazard areas would be field surveyed to determine minimization/mitigation measures, which may require subsurface explorations. The slope stability efforts would be led by Elson "Chip" Barnett of GeoEngineers, who is a WDNR-recognized Forest Practices Qualified Geologic Expert. Geological soil testing would continue to be done at representative tower locations to help determine appropriate tower footings for a given soil type or hazard. Geologic and soil hazard areas are avoided where possible, and where avoidance is not possible, towers and roads would be designed to address the applicable hazard.

### 2.1.4 Fish and Wildlife Habitat Conservation Areas

Fish and wildlife habitat conservation areas within shorelines are provided protection under Section 6.3.1 of the SMP. Where appropriate, new and expanded development proposals must integrate protection of fish and wildlife habitat with other stream management provisions, such as retention of channel migration zones, to ensure no net loss of ecological functions. Unless otherwise stated, critical area buffers shall be protected and/or enhanced in accordance with Appendix B of the SMP, which is based on CAO buffer requirements. The Cowlitz County SMP has recommended buffer requirements for riparian habitat areas (see Table 2-2).

**Table 2-2.** Riparian Habitat Area Widths proposed in the Cowlitz County Draft SMP.

Stream Type	Riparian Habitat Width
Type S Water <ul style="list-style-type: none"> <li>Natural</li> <li>Rural Conservancy</li> <li>Urban Conservancy</li> <li>Recreational</li> <li>Residential</li> <li>High Intensity</li> </ul>	<ul style="list-style-type: none"> <li>150 feet</li> <li>150 feet</li> <li>150 feet</li> <li>100 feet or Table 3-C</li> <li>50 feet</li> <li>Water-dependent: 0 ft</li> <li>Water-related: 50 feet</li> <li>Other: 100 feet</li> </ul>
Type F Water <ul style="list-style-type: none"> <li>High fish, wildlife or human use</li> <li>Slight to moderate fish, wildlife or human use</li> </ul>	<ul style="list-style-type: none"> <li>150 feet</li> <li>100 feet</li> </ul>
Type Np Water	50 feet
Type Ns Water	50 feet

**Consistency:** Trees and other vegetation would be removed from the transmission line right-of-way and new access roads constructed along fish-bearing streams, including trees within riparian buffers. At the crossing scale, a range of riparian function would be lost; however, this loss could be offset by improving riparian functions at the watershed scale. BPA is developing prescriptions in important riparian zones that are consistent with BPA's Vegetation Management Program and transmission line safety, but that may allow more vegetation to be kept that provides important riparian function. Additionally, as part of BPA's compliance with CWA Section 404, BPA is working to develop compensatory mitigation for impacts to riparian habitat at the watershed scale. The goal would be to replace lost shoreline ecological function of riparian areas within the watershed affected and within each local jurisdiction.

To lessen impacts to riparian habitat areas, BPA would route transmission lines to minimize the length of stream cleared and plant riparian vegetation, hydroseed, or use geotextiles to stabilize stream banks. Also trees could be directionally felled toward streams cleared for transmission line crossings. BPA would work to ensure that roads and towers are not placed in areas that would disrupt channel migration processes. Additionally, BPA would construct during in-water work windows established by the Washington Department of Fish and Wildlife (WDFW) to minimize impacts to salmon and other federally-listed fish species.

### 2.1.5 Associated Wetlands

Wetlands in shoreline jurisdiction are called "associated wetlands" due to their proximity to shorelines of the state. The exact location and extent of associated wetlands are determined on a project-by-project basis by Ecology. Associated wetlands are typically both contiguous and proximal to the OHWM of the river, lake or marine water.

**Consistency:** The wetlands crossed by the Preferred Alternative are typically riparian and slope wetlands which are considered Category II, III and IV wetlands according to the Ecology 2004 wetland rating system. A few Category I wetlands have also been identified in unincorporated Cowlitz County. It is important to note that, as approved by Ecology, all wetlands within the Preferred Alternative have been rated using the 2004 version of Ecology's Rating System since the updated 2014 version was still

under review when delineations began. BPA would work with Ecology to determine if “associated wetlands” would be impacted by the Preferred Alternative.

### 2.1.6 Shoreline Buffers

Designated buffers are described in the updated draft SMP as having an Outer Zone and Inner Zone. Development within the Outer zone of the designated buffer requires a Level 1 Assessment. Development within the inner zone of the designated buffer requires a Level 2 Assessment following the SMP. Buffers for structures are determined by Shoreline Environment Designation and are as follows:

- Residential – Buffer: 50 feet
- High-Intensity – Buffer: 100 feet
- Rural Conservancy – Buffer: 150 feet

**Consistency:** BPA would locate towers and roads to comply with Cowlitz County requirements for buffers and setbacks where feasible.

### 2.1.7 Vegetation Conservation

Section 6.6 of the SMP describes specific requirements for vegetation conservation in Cowlitz County shorelines. According to the SMP, vegetation clearing in shoreline jurisdiction shall be limited to the minimum necessary to accommodate approved shoreline development. Vegetation conservation typically targets native trees and shrubs within the shoreline jurisdiction, although clearing of non-native vegetation is allowed. Vegetation conservation is designed to occur within the shoreline buffers described above.

**Consistency:** To construct this project, vegetation removal is unavoidable within shorelines in unincorporated Cowlitz County. Tree and shrub clearing to a height of 4 feet would occur during transmission line construction. Trees may be snagged and left as habitat features but mature trees would be removed within the 150-foot transmission line right-of-way and specific taller trees considered “danger trees” outside of this right-of-way. According to the Cowlitz County SMP, loss of vegetation in the shoreline must be mitigated to ensure that there will be no net loss of shoreline ecological functions. BPA intends to use Ecology recommended mitigation ratios for wetlands and riparian areas which are comparable to Cowlitz County requirements when developing compensatory mitigation for impacts to riparian habitat. As described above, BPA’s goal would be to provide mitigation for loss of shoreline riparian vegetation within the watershed affected and within each county or local jurisdiction.

### 2.1.8 Mitigation

In cases where approved development results in unavoidable adverse impacts to existing shoreline vegetation, mitigation shall be required to ensure that there will be no net loss of ecological functions as set forth in Section 6.1, No Net Loss of Ecological Function. Mitigation plans shall be approved before initiation of other permitted activities unless a phased schedule that ensures completion prior to occupancy has been approved.

**Consistency:** BPA would meet Corps and Ecology standards for fill/dredge and clearing in waters of the U.S. including wetlands, as determined through the Section 404/401 permitting process and implement compensatory mitigation for impacts to water of the U.S. Mitigation would occur both on-site and off-site of this project. In some cases, impacts to native shrubs within a riparian area due to transmission line construction could be partially mitigated onsite. Enhancement planting may occur for riparian areas and wetlands within the transmission line right-of-way on a case-by-case basis. Off-site mitigation

opportunities include enhancement of existing wetlands and riparian areas within public ownership, purchase of credits at formal, approved wetland mitigation banks, and other opportunities on a watershed basis that offsets the project impacts as directed by the Corps and Ecology.

## 2.2 Clark County Shoreline Master Program

The updated Clark County SMP was formally adopted in July 2012 and became effective in September 2012. Goals and policies are included in Chapter 13 of the Comprehensive plan. Regulations for development within the County's shorelines are included in Clark County Code Chapter 40.460. These regulations provide a list of shorelines of the state identified in Clark County and are subject to the provisions of the SMP.

The SMP applies to all of the shorelands and waters within unincorporated Clark County that fall under the jurisdiction of the Revised Code of Washington (RCW) 90.58; including:

- 1) Those lands extending two hundred (200) feet in all directions as measured on a horizontal plane from the OHWM;
- 2) Floodways and contiguous floodplain areas landward two hundred (200) feet from floodways;
- 3) The full extent of the floodplains; and
- 4) All wetlands and river deltas associated with the streams and lakes that are subject to the provisions of this SMP; the same to be designated as to location by Ecology.

Shorelines crossed by the Preferred Alternative within unincorporated Clark County include the following rivers and creeks (also see Figures 8 through 18):

**Table 2-3.** Shorelines Crossed by the Preferred Alternative in unincorporated Clark County, Washington.

Shoreline Name	Project Element	Proposed Towers	Clark County Shoreline Designation
Lewis River (south shore)*	Right-of-way crossing	Towers L-3 and L-4	Rural Conservancy Resource
Cedar Creek	Right-of-way crossing	Towers 28-15 to 28-16	Rural Conservancy Resource
Big Tree Creek	Right-of-way crossing	Towers V-4 to V-5	Rural Conservancy Resource
East Fork Lewis River*	Right-of-way crossing	Towers V-17 to V-18	Rural Conservancy Resource – North shore Rural Conservancy Residential – South shore
Rock Creek	Right-of-way crossing	Towers V-21 to V-22	Rural Conservancy Resource
Boulder Creek	Access road	Access to Towers 35-1 through 35-4	Rural Conservancy Resource
Boulder Creek	Right-of-way crossing	Towers 35-9 to 35-10	Rural Conservancy Resource
East Fork Little Washougal River*	Right-of-way crossing	Towers 35-10 to 35-11	Rural Conservancy Resource
Little Washougal River*	Access Road	Access to Tower 35-15/T-1	Rural Conservancy Residential
Little Washougal River*	Tensioning Site to the North	North of Tower 49-13	Rural Conservancy Residential
Little Washougal River*	Tensioning Site	West of Tower 49-13	Rural Conservancy Residential

Shoreline Name	Project Element	Proposed Towers	Clark County Shoreline Designation
	to the West		
Little Washougal River (Blair Road)*	Right-of-way crossing	Towers 51-5 to 51-6	Rural Conservancy Residential

\*Shorelines of Statewide Significance (SSWS)

### 2.2.1 Allowed Uses

Project work proposed within Clark County shorelines would occur either in the Rural Conservancy Resource designation or the Rural Conservancy Residential designation (see Table 2-3). Any work proposed below the OHWM of any of the shoreline waterbody would occur within the Aquatic Designation. New electrical transmission lines in Clark County are listed as a Conditional Use within all shoreline designations with unlimited height restrictions (see Table 40.460.620-1 in the SMP). For both Rural Conservancy Resource and Rural Conservancy Residential designations, the setback for rights-of-way that are parallel to a shoreline is 100 feet.

All utility facilities including transmission lines should be located outside of the shoreline jurisdiction (200 feet from the OHWM) and if new transmission lines run parallel to shorelines, the transmission lines must be located outside of the 200-foot zone, wherever possible. Utilities should be designed and located in such a way that they preserve the natural landscape, minimize impacts to views, and minimize conflicts with existing and planned land uses. Transmission utilities should be located in existing rights-of-way or corridors or shall cross shoreline jurisdiction using the shortest, most direct route, feasible to minimize environmental impacts.

**Consistency:** Impacts to shorelines crossed by the Preferred Alternative would be avoided and minimized to the extent possible. All 12 crossings of shorelines of the state in Clark County are either in existing rights-of-way or by the shortest most direct route feasible to limit clearing area within shorelands. No section of the Preferred Alternative is parallel to and within the 200-foot shoreline jurisdiction. Towers would not be located below the OHWM of any shoreline of Clark County nor would any instream structures. Only one bridge over a shoreline of the state in Clark County would need to be replaced for an access road off NE Stauffer Road over the Little Washougal River. Considerable efforts were made by BPA during project design and route location to move the transmission line and towers outside of shoreline jurisdiction wherever feasible.

### 2.2.2 Flood Hazard Areas

Flood hazard areas within Clark County shorelines are mapped according to 2012 FEMA data and corresponding adopted Digital Flood Insurance Rate Maps (DFIRM) maps (Revised Flood Insurance Maps for Clark County effective September 5, 2012). Fills within flood hazard areas are generally prohibited except where the project applicant demonstrates that the proposal would not alter geohydraulic characteristics or increase flood risks or damage and risk to life or property, and floodplain storage would not be reduced. Dikes and levee should not be placed in the floodway except for current deflectors necessary to protect existing bridges and roads.

**Consistency:** No new towers are proposed for the Preferred Alternative in flood hazard areas within shorelines in unincorporated Clark County as currently defined under the 2012 FEMA data and corresponding FEMA DFIRM maps. Towers proposed along the Columbia and Washougal rivers are within the incorporated areas of the City of Camas and are described in Section 2.3, Camas SMP.

However, work to replace one bridge over the Little Washougal River (access road off NE Stauffer Road) would likely require construction in a flood hazard area.

### 2.2.3 Geologic Hazard Areas

Geologic hazard areas mapped within Clark County shorelines include steep slopes, landslide hazard areas and other geologic hazard zones. Work within geologic hazard areas in Clark County shorelines requires specific standards, buffers and setbacks. Class IV(G) Forest Practice conversions are regulated by the County under this program. The Shoreline Administrator may approve buffers and setbacks which differ from the county regulations based upon a geotechnical study and analysis of the project in relation to the geological hazard zones.

**Consistency:** An update of the geologic hazard assessments for the Preferred Alternative would include another review of liquefaction hazard mapping, geologic maps for fault locations, and aerial photographs combined with surface condition assessments at proposed tower locations and surrounding terrain for landslide hazard assessment (see Section 2.1.3 above).

### 2.2.4 Fish and Wildlife Habitat Conservation Areas

Fish and wildlife habitat conservations areas are regulated in the shoreline zones by Clark County as per Section 40.460.530F of the SMP. These include rivers and streams, as well as Riparian Priority Habitat Areas. For Type S waters a 250-foot Priority Riparian Habitat Area is established in Clark County from the OHWM, including the 100-year floodplain. Clearing of trees and shrubs within a habitat conservation area in the shoreline is a regulated activity. Unavoidable impacts to habitat conservation areas and Riparian Priority Habitat must be mitigated to ensure no net loss of shoreline functions.

**Consistency:** Trees and other vegetation would be removed from the transmission line right-of-way and new access roads constructed along fish-bearing streams, including trees within riparian buffers. BPA is developing prescriptions in important riparian zones that are consistent with BPA's Vegetation Management Program and transmission line safety, but that may allow more vegetation to be kept that provides important riparian function. Additionally, as part of BPA's compliance with CWA Section 404, BPA is working to develop compensatory mitigation for impacts to riparian habitat. BPA also would implement measures to lessen impacts to riparian habitat areas (see Section 2.1.4 above). Again, BPA's goal to provide mitigation for loss of shoreline riparian vegetation would occur within the watershed and within each local jurisdiction where possible. In addition, one bridge over a shoreline of the state in Clark County would need to be replaced for an access road off NE Stauffer Road over the Little Washougal River.

### 2.2.5 Associated Wetlands

Wetlands located within 200 feet of a shoreline of the state are generally considered "associated wetlands" in that they are adjacent to and contiguous with a shoreline waterbody. Wetlands associated with shorelines of the state are regulated through the SMP not the Clark County CAO, although the shoreline regulations point to specific provisions in the CAO such as buffers and mitigation standards.

Wetland buffers that apply are outlined in Section 40.450 Wetland Regulations. According to the Clark County SMP, the proposed new transmission line would likely be considered a Low Intensity Land Use in areas without access roads and a Moderate Intensity Land Use in areas where new access roads are proposed (see Tables 2-4 and 2-5).

**Table 2-4.** Wetland Buffer Standards for Low Intensity Land Uses (clearing for overhead utility lines) in Clark County, Washington.

Wetland Category	Water Quality Buffer (Minimum)	Habitat Buffer (Maximum)
I	50 feet	60-150 feet
II	50 feet	60-150 feet
III	40 feet	60-75 feet
IV	25 feet	25 feet

**Table 2-5.** Wetland Buffers for Moderate Intensity Land Uses (construction of access roads) in Clark County, Washington.

Wetland Category	Water Quality Buffer (Minimum)	Habitat Buffer (Maximum)
I	75 feet	90-225 feet
II	75 feet	90-225 feet
III	60 feet	90-110 feet
IV	40 feet	40 feet

**Consistency:** The majority of the wetlands associated with Clark County shorelines along the Preferred Alternative are riverine and slope wetlands considered Category II, III and IV wetlands according to the Ecology 2004 wetland rating system. Category I and II wetlands occur within the Cedar Creek and Little Washougal River drainages specifically within the County. Category II, III and IV wetlands are associated with other shorelines. BPA would work with Ecology to determine if “associated wetlands” would be impacted by the Preferred Alternative. Based upon the provisions in Chapter 40.450 and the requirements of the SMP, BPA proposes to apply mitigation using Ecology buffer standards for wetlands in Clark County.

**2.2.6 Shoreline Buffers and Setbacks**

The Clark County SMP sets no shoreline buffers by Shoreline Designation and requires no structure setbacks specifically for new electrical transmission lines. Rather, the SMP requires vegetation conservation areas (discussed below) and buffers for critical areas.

**Consistency:** BPA would locate towers and roads to comply with Clark County requirements for buffers and setbacks where feasible.

**2.2.7 Vegetation Conservation**

Section 40.460.570 outlines the requirements for vegetation conservation in Clark County shorelines. According to the SMP and SMA, removal of vegetation in the shoreline must be avoided to the greatest extent possible. Designated vegetation conservation zone areas in Clark County are situated closest to the water according to stream types (see Table 2-6). As per this section, tree removal, tree topping and thinning should be avoided in these zones.



**Table 2-6.** Vegetation Conservation Zones for Rural Shorelines in Clark County, Washington.

Stream Type	Vegetation Conservation Zone – Rural Areas
S	150 feet
F	115 feet
Np	75 feet
Ns	50 feet

Loss of native trees and shrubs in the Vegetation Conservation Areas must be mitigated by area at a 1:1 ratio and shall result in “no net loss” of shoreline ecological functions.

**Consistency:** Because of the safety risks from trees and tall shrubs under or adjacent to transmission lines, vegetation removal and clearing within the project right-of-way located in shorelines would be unavoidable. As described above, tree and shrub clearing to a height of 4 feet would occur during transmission line construction. Mature trees within the 150-foot transmission line right-of-way and immediately outside the right-of-way (danger trees) would be removed. Trees may be snagged and left as habitat features, and some mature trees may be retained at certain stream crossings depending on the clearance between the bottom of the transmission line and the top of canopy. Off-site mitigation for riparian buffer loss within shorelines would occur as described above (see Section 2.1.4 ).

### 2.2.8 Mitigation

In cases where approved development results in unavoidable adverse impacts to existing shoreline vegetation, mitigation shall be required to ensure that there will be no net loss of shoreline ecological functions. Removal of mature trees is considered a greater impact than clearing shrubs. As per Section 40.460.530, impacts to critical areas within the shoreline must be avoided and minimized to the greatest extent possible prior to providing compensation for those impacts. Also, habitat that cannot be replaced or restored within 20 years should be preserved. In addition to compensatory mitigation, unavoidable adverse impacts may be addressed through shoreline restoration efforts. Other specific mitigation requirements are provided in the CAO sections of this report.

**Consistency:** As described for Cowlitz County, BPA would meet Corps and Ecology standards for fill/dredge and clearing in waters of the U.S. including wetlands in Clark County, as determined through the Section 404/401 permitting process and implement compensatory mitigation for impacts to water of the U.S. Mitigation would occur both on-site and off-site of this project. Enhancement planting may occur for riparian areas and wetlands within the transmission line right-of-way on a case-by-case basis. Off-site mitigation opportunities are listed in Section 2.1.8 above. As described above, it is BPA’s goal to provide mitigation for loss of shoreline riparian vegetation within the watershed affected and within each local jurisdiction.

## 2.3 City of Camas Shoreline Master Program

The updated City of Camas SMP was adopted on March 5, 2012. The SMP applies to all of the shorelands and waters within the City of Camas and Camas Urban Growth Areas that fall under the jurisdiction of RCW 90.58 including:

- 1) Those lands extending two hundred (200) feet in all directions as measured on a horizontal plane from the OHWM;
- 2) Contiguous floodplain areas landward;

- 3) All wetlands and river deltas associated with the streams, and lakes and tidal water that are subject to the provisions of this SMP; the same to be designated as to location by Ecology.

Within the City of Camas several creeks, rivers and lakes are considered shorelines and are subject to the provisions of the SMP. The Columbia and Washougal rivers, including Camas Slough, are further identified as shorelines of statewide significance. Shorelines crossed by the Preferred Alternative within the City of Camas include the following waters (also see Figures 19 through 23):

**Table 2-7.** Shorelines Crossed by the Preferred Alternative in Camas, Washington.

Shoreline Name	Project Element	Proposed Towers	Camas Shoreline Environment Designation
Washougal River*	Right-of-way crossing	Towers 52-7 to 52-8	Urban Conservancy – North Shore; Natural – South Shore
Washougal River (mouth)*	Right-of-way crossing	Towers 52-14 to 52-15	Urban Conservancy/Natural – East Shore; High Intensity – West Shore
Camas Slough*	Right-of-way crossing	Towers 52-15 to 52-16	High Intensity
Columbia River (WA side)*	Right-of-way crossing	Towers 52-17, 52-19 and 52-21 (Ione Reef)	Medium Intensity and Aquatic

\*Shoreline of Statewide Significance (SSWS)

Shorelines of statewide significance are of value to the entire state and are managed as follows:

1. Preference shall be given to the uses that are consistent with the statewide interest in such shorelines. These are uses that:
  - a. Recognize and protect the statewide interest over local interest;
  - b. Preserve the natural character of the shoreline;
  - c. Preserve the natural character of the shoreline;
  - d. Protect the resources and ecological function of the shoreline;
  - e. Increase public access to publicly-owned areas of the shorelines;
  - f. Increase recreational opportunities for the public in the shoreline; and
  - g. Provide for any other element as defined in RCW 90.58.100, as deemed necessary.
2. Uses that are not consistent with these policies should not be permitted on SSWS.
3. Those shorelines containing unique, scarce and/or sensitive resources should be protected.
4. Development should be focused in already developed shoreline areas to reduce adverse environmental impacts and to preserve undeveloped shoreline areas.

### 2.3.1 Allowed Uses

Chapter 3.11.2 of the SMP describes policies for Transportation, Utilities, and Essential Public Facilities. The goal of the policies is to provide for these facilities in shoreline areas without adverse effects on existing shoreline use and development or shoreline ecological functions and/or processes. Relocation of existing utilities to provide rights-of-way for new public access routes is encouraged. Electrical transmission lines are allowed as a Conditional Use in all shoreline designations (Table 6.1 of Chapter 3.11.2, City of Camas SMP).

*Consistency:* Tower reconstruction and access roads are proposed in the shoreline jurisdiction of the Washougal River, Camas Slough, and Columbia River within the existing cleared BPA right-of-way in Camas. BPA intends to meet the intent of the Camas SMP where feasible, including maintaining or improving shoreline ecological functions and locating structures in areas already developed to reduce

adverse environmental impacts. Transmission line towers are currently located in shorelines at various setback distances. The project would replace existing towers with taller double-circuited towers and restore disturbed areas within the existing right-of-way after construction.

### 2.3.2 Frequently Flooded Areas

Frequently flooded areas within shorelines in the City of Camas are regulated through Section 5.3 of the SMP and through Appendix C, Camas Critical Area Regulations and Maps. Frequently flooded areas within Camas shorelines are mapped according to a FEMA report entitled "The Flood Insurance Study for City of Camas" dated August 2, 1982 with accompanying flood insurance maps. New construction should not increase the base flood elevation more than one inch and structures should be located outside of the floodplain.

**Consistency:** Six towers and 0.85 mile of new or improved access road would be located in frequently flood areas within shorelines of the state in the City of Camas; these include towers associated with the Washougal River, Camas Slough and the Columbia River. All towers in frequently flooded areas of Camas are reconstruction of existing towers; these are located in existing BPA right-of-way on the mainland, Lady Island and Lone Reef. Double-circuiting of the transmission line allows BPA to reconstruct existing towers in flood prone areas without constructing new additional towers. Towers associated with the Preferred Alternative proposed within floodplain areas would be designed to minimize and/or avoid increasing flood hazards.

### 2.3.3 Geologically Hazardous Areas

Geologically hazardous areas in Camas shorelines include areas of landslide, liquefaction and dynamic settlement, ground shaking amplification, fault rupture, soil erosion, and bank erosion hazard areas. Erosion hazard areas are areas where there is not a mapped or designated landslide hazard, but where there are steep slopes greater than or equal to 40 percent slope. Proposed development in geologic hazard areas requires the preparation of a critical area report by a qualified professional. The report should include an assessment of geologic characteristics and an analysis of the vulnerability of the site to seismic or other geologic events. Mitigation may be required for permitted uses in geologic hazard areas and should address how the pre-existing level of risk is maintained or reduced.

**Consistency:** No towers or structures are proposed on steep slopes or in mapped geologically hazardous areas in Camas. Six towers are proposed, however, in close proximity to steep stream banks. All of the proposed towers would replace existing towers located within Camas' shoreline jurisdiction. Geotechnical analysis would be required for tower and road construction in geologic hazard areas. An update of the geologic hazard assessments for the Preferred Alternative would include another review of liquefaction hazard mapping, geologic maps for fault locations, and aerial photographs combined with surface condition assessments at proposed tower locations and surrounding terrain for landslide hazard assessment including downslope areas (see Section 2.1.3 above).

### 2.3.4 Fish and Wildlife Habitat Conservation Areas

Fish and Wildlife habitat conservation areas are regulated in the shoreline zones by the City of Camas per Appendix C, Chapter 16.61 of the SMP. These are areas in which state or federally listed endangered, threatened, and sensitive species have a primary association. Habitats recognized as important under the SMP include: Oregon white oak stands and snags; Camas Lily populations; naturally occurring ponds under twenty acres; waters of the state including lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the

jurisdiction of the state of Washington, as classified in WAC 222-16-031; bodies of water stocked with game fish by a governmental or tribal entity; and state natural area preserves and natural resource conservation areas. Clearing of trees and shrubs within a habitat conservation area in the shoreline should be avoided. Unavoidable impacts to habitat conservation areas must be mitigated to ensure no net loss of shoreline functions.

**Consistency:** Replacement towers and new access roads are proposed within the existing transmission corridor where shoreline vegetation is already disturbed. Some new clearing of trees and vegetation, however, would occur within riparian buffers along fish bearing streams during construction where danger trees have been identified. BPA would implement measures and compensatory mitigation to lessen impacts to riparian habitat areas (see Section 2.1.4 above).

### 2.3.5 Associated Wetlands

City of Camas SMP defines associated wetlands as those in proximity to and either influence or are influenced by tidal waters or a lake, river or stream. Shorelines with high quality associated wetlands should be considered for the highest level of protection to remain in an unaltered condition. Wetlands rated as Category I or II according to Ecology’s rating system are generally considered high-quality wetlands.

Proposed development in wetlands associated with shorelines of the state is addressed through the Camas Critical Area Regulations, Chapter 16.53, in Appendix C of the SMP. Chapter 16.53 objectives include: promoting no net loss of wetland acreage and functions and maintaining consistency with federal and state wetland protection measures. Mitigation for unavoidable wetland impacts shall be located according to the following prioritization: A) on-site, B) off-Site, C) in-kind, and D) out-of-kind. Camas has recommended wetland mitigation ratios (see Table 2-8).

**Table 2-8.** Recommended Mitigation Ratios for Wetland Impacts in Camas, Washington.

Wetland Category	Reestablishment or Creation	Rehabilitation Only	Reestablishment or Creation (R/C) and Rehabilitation (RH)	Reestablishment or Creation (R/C) and Enhancement (E)	Enhancement Only
IV	1.5:1	3:1	1:1 R/C and 1:1 RH	1:1 R/C and 2:1 E	6:1
III	2:1	4:1	1:1 R/C and 2:1 RH	1:1 R/C and 4:1 E	8:1
II	3:1	6:1	1:1 R/C and 4:1 RH	1:1 R/C and 8:1 E	12:1
I (Forested)	6:1	12:1	1:1 R/C and 10:1 RH	1:1 R/C and 20:1 E	24:1
I (Based on score for functions)	4:1	8:1	1:1 R/C and 6:1 RH	1:1 R/C and 12:1 E	16:1

Wetland buffer widths are determined by comparing the wetland rating and the intensity of land use proposed. According to the Camas Code of Ordinances (CCO) 16.53.040 “underground and overhead utility lines” are considered to be low land use intensity and “maintenance access roads” are considered to be of moderate land use intensity. Therefore, impacts to wetlands by the Preferred Alternative would follow the guidance of the CCO for low and moderate land use intensities, depending on what project element is involved.

City of Camas has recommended buffer widths for protecting water quality functions impacted by low and moderate land uses (see Table 2-9).

**Table 2-9.** Buffers Required by City of Camas to Protect Water Quality Functions Based on Land Use.

Wetland Rating	Low Intensity Land Use	Moderate Intensity Land Use
I	50 feet	75 feet
II	50 feet	75 feet
III	40 feet	60 feet
IV	25 feet	40 feet

In addition to protecting water quality functions, wetland buffers are also necessary to protect habitat function. There are required buffers for Category I, II, and III wetlands with low and moderate land use intensity (see Table 2-10).

**Table 2-10.** Buffers Required to Protect Habitat Functions Based on Land Use in Camas, Washington.

Wetland Rating	Habitat Score	Low Intensity	Moderate Intensity
Category I or II	Medium Habitat Scores	70 -110 feet	105 – 165 feet
	High Habitat Scores	130 – 150 feet	195 – 225 feet
Category III	Medium Habitat Scores	60 – 75 feet	90 – 110 feet
	High Habitat Scores	130 – 150 feet	195 – 225 feet

The CCO provides specific regulations for road and utility crossings which states crossing wetlands by utilities is allowed if the activity does not result in a decrease in wetland or wetland buffer acreage, wetland functions are not impacted for more than three months, and the activity will not result in a permanent structure in the buffer (CCO 16.53.050(C)(5)). The CCO also states crossing buffers with new roads and utilities is allowed if impacts to the wetland and buffer are minimized *and* buffer functions are replaced (CCO 16.53.050(C)(4)).

**Consistency:** No fill is proposed in undisturbed, high quality associated wetlands in Camas. Tower 52-14 is proposed to replace an existing tower located in a Category II riverine wetland associated with the Washougal River east of Oak Park. The portion of this wetland within the existing cleared BPA right-of-way has already been disturbed. Potential clearing impacts to associated wetlands and buffers would occur from danger tree removal. BPA would work with Ecology to determine if “associated wetlands” would be impacted by the Preferred Alternative. Based upon the provisions in Chapter 16.53.040 and the requirements of the SMP, BPA proposes to apply buffer and mitigation standards for wetlands comparable to the City of Camas code requirements.

### 2.3.6 Buffers/setbacks

Setbacks for structures are determined by Shoreline Environment Designation and as are follows:

- Aquatic (AQ) - Setback: 0 feet
- Natural (NT) – Setback: 150 feet
- Urban Conservancy (UC) – Setback: 100 feet
- Medium–Intensity (MI) - Setback: 100 feet
- High-Intensity (HI) – Setback: 100 feet

Setbacks are measured landward from the OHWM and vary by Shoreline Designations (Table 6-1 in the Camas SMP). For transportation facilities and utilities, the setback from OHWM pertains to the right-of-way and not just the structure or pipeline.

*Consistency:* BPA would locate towers and roads to comply with City of Camas requirements for buffers and setbacks where feasible.

### **2.3.7 Vegetation Conservation**

Removal of native vegetation within shorelands shall be avoided. Where removal of native vegetation cannot be avoided, it shall be minimized to protect ecological functions. Pruning of trees is allowed in compliance with the National Arborist Association pruning standards. Pruning must meet the following criteria:

- a. Removal of no more than twenty (20) percent of the limbs of any single tree may be removed;
- b. No more than twenty (20) percent of canopy in a single stand of trees may be removed in a given five (5) year period without a shoreline permit.

Topping trees is prohibited in the city shoreline zones. If the city determines that a tree is hazardous as verified by an arborist report, then only the hazardous portion shall be removed. Complete removal should be avoided if possible; the remainder of the tree shall remain to provide habitat functions and slope stability. Mitigation may be required to compensate for loss of forested area coverage.

*Consistency:* Vegetation within the shoreline jurisdiction of the existing BPA right-of-way in Camas is currently managed for low-growing shrubs and herbaceous vegetation. Woody plants over four feet in height are considered a safety risk and are periodically trimmed or removed as part of transmission line maintenance. The project would maintain the current practice of vegetation management in shorelines. During construction, approximately 40 to 50 danger trees adjacent to the existing right-of-way in the shoreline jurisdiction would require removal to prevent possible future damage to the new transmission line. BPA allows for natural woody plant regeneration in danger tree removal areas. Chapter 5.8 of the Camas SMP allows for the removal of hazardous trees in shorelines with arborist verification, and states that, "mitigation may be required to compensate for reduced tree surface area coverage." Any mitigation for danger tree removal in shorelines would be addressed as part of state and federal permitting for potential project impacts to wetlands, streams, and riparian areas.

### **2.3.8 Mitigation**

If native vegetation removal cannot be avoided it shall be minimized and mitigated as recommended by a qualified biologist within a Critical Area Report and shall result in no net loss of shoreline functions. Lost functions may be replaced by enhancing other functions provided that no net loss in overall functions is demonstrated and habitat connectivity is maintained.

*Consistency:* As described for Cowlitz and Clark counties, BPA would meet Corps and Ecology standards for fill\dredge and clearing in waters of the U.S. including wetlands, as determined through the Section 404/401 permitting process and implement compensatory mitigation for impacts to water of the U.S. Mitigation would occur both on-site and off-site of this project. Enhancement planting may occur for riparian areas and wetlands within the transmission line right-of-way on a case-by-case basis. Off-site mitigation opportunities are listed in Section 2.1.8.

## 3.0 WASHINGTON GROWTH MANAGEMENT ACT (GMA)

The Washington Growth Management Act requires all cities and counties in Washington to adopt critical areas regulations as defined by (RCW 36.70A.060). The Critical Area Ordinance (CAO) describes the categories of critical areas in the city or county, setback and buffer distances, mitigation requirements for unavoidable impacts, and guidance for reducing or mitigating hazards to public health and safety in geologically hazardous areas. Critical areas include: wetlands, fish and wildlife habitat conservation areas (Cowlitz County and cities of Camas and Washougal) or habitat conservation areas (Clark County) frequently flooded areas (Cowlitz County and cities of Camas and Washougal) or flood hazard areas (Clark County), geologically hazardous areas (Cowlitz County and cities of Camas and Washougal) or geologic hazard areas (Clark County), and critical aquifer recharge areas.

The following sections describe the CAOs for Cowlitz and Clark counties and the cities of Washougal and Camas and possible impacts from the Preferred Alternative within their critical areas. Also included is a discussion of the project's consistency with each CAO.

### 3.1 Cowlitz County Critical Areas Ordinance

The Cowlitz County Code (Cowlitz CC) is current through Ordinance 15-030, passed March 10, 2015. In response to state mandates contained in the Growth Management Act, Cowlitz County has designated critical areas and adopted development regulations to assure their conservation. These critical areas include wetlands, fish and wildlife habitat conservation areas, frequently flooded areas, geologically hazardous areas, and critical aquifer recharge areas. Definitions and regulations regarding critical areas are cited in Title 19 of the Cowlitz CC, Chapter 19.15. The Preferred Alternative would be designed to substantively comply with the majority of goals of the Cowlitz County CAO, though BPA would not apply for critical areas permits. The Cowlitz CAO applies to impacts from the Preferred Alternative outside of designated shoreline areas.

It is important to note that Cowlitz County is currently in the process of further updating their current CAO. Addendums and/or updates occurring since the most recent approved changes, effective January 1, 2015, have not yet been released on the public website.

#### 3.1.1 Wetlands

Per Cowlitz CC 19.15.050, wetlands are defined as "areas that are inundated or saturated by surface water or groundwater at a frequency or duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." This definition is adopted from regulations used by the Corps dredge/fill permit process. According to the Cowlitz County CAO update, effective March 10, 2015, wetlands are rated according to the revised Ecology wetland rating system. As noted above, all wetlands within the Preferred Alternative have been rated using the 2004 version of Ecology's Rating System since the updated 2014 version was still under review when delineations began.

The Cowlitz County CAO determines wetland buffer widths by comparing the wetland rating and the intensity of land use proposed. According to Cowlitz CC 19.15.120(C)(4) "utility corridor or right-of-way shared by several utilities and including access/maintenance roads" is considered to be of "moderate" land use intensity. Therefore, all impacts to wetlands by the Preferred Alternative would follow the guidance of the Cowlitz CC for "moderate" land use.

In terms of protecting the water quality functions of wetlands, the Cowlitz CC requires a 40-foot buffer for Category IV wetlands, a 60-foot buffer for Category III wetlands, and a 75-foot buffer for both Category I and II wetlands. In addition to protecting water quality functions, wetland buffers are also necessary to protect habitat function. In determining appropriate wetland buffers, the Cowlitz CC also takes the level of habitat function the wetland is providing into account. Using guidance from Ecology’s (*Wetlands in Washington State – Volume 2: Guidance for Protecting and Managing Wetlands*, 2005) the Cowlitz CC has determined that all Category IV wetlands and wetlands with less than 19 points on the Western Washington Rating Form will follow the buffers for protecting water quality stated above. For Category I, II, and III wetlands, with moderate land-use intensity, the following buffers are required:

**Table 3-1.** Wetland Buffer Standards for Moderate Intensity Land Uses.

Wetland Category	Water Quality Buffers	Habitat Buffer (maximum)
I	75 feet	90-225 feet
II	75 feet	90-225 feet
III	60 feet	90-110 feet
IV	40 feet	40 feet

Activities within isolated Category III wetlands less than 2500 square feet and within Category IV wetlands less than 4350 square feet that are not associated with a riparian corridor, not part of a wetland mosaic, or do not contain essential habitat for priority species identified by WDFW are exempt from the guidance of the Cowlitz CC.

Project impacts that cannot be avoided must be mitigated using recommended mitigation ratios (see Table 3-2).

**Table 3-2.** Recommended Mitigation Ratios for Wetland Impacts in Cowlitz County, Washington.

Wetland Category	Reestablishment or Creation	Rehabilitation Only	Reestablishment or Creation (R/C) and Rehabilitation (RH)	Reestablishment or Creation (R/C) and Enhancement (E)	Enhancement Only
IV	1.5:1	3:1	1:1 R/C and 1:1 RH	1:1 R/C and 2:1 E	6:1
III	2:1	4:1	1:1 R/C and 2:1 RH	1:1 R/C and 4:1 E	8:1
II	3:1	6:1	1:1 R/C and 4:1 RH	1:1 R/C and 8:1 E	12:1
I (Forested)	6:1	12:1	1:1 R/C and 10:1 RH	1:1 R/C and 20:1 E	24:1
I (Based on score for functions)	4:1	8:1	1:1 R/C and 6:1 RH	1:1 R/C and 12:1 E	16:1

Cowlitz County recommends mitigation should be either in-kind or on-site, or in-kind within the same stream reach or subbasin whenever possible (Cowlitz CC 19.15.170(D)). When not possible, credits from a state-certified wetland mitigation bank may be purchased consistent with the terms of the bank’s certification under Chapter 173-700 of the WAC.

**Consistency:** BPA would meet Corps and Ecology standards for fill/dredge and clearing in waters of the U.S. including wetlands, as determined through the Section 404/401 permitting process and implement compensatory mitigation for impacts to water of the U.S. Mitigation would occur both on-site and off-site of this project. Off-site mitigation opportunities include enhancement of existing wetlands and riparian areas within public ownership, purchase of credits at formal wetland banks, and other opportunities on a watershed basis that offsets the project impacts as directed by the Corps and



Ecology. Wetland impacts would be mitigated at ratios to satisfy the Corps and Ecology, which are roughly equivalent to those required by Cowlitz County code; however, the preference for mitigation type according to the Joint Guidance is the use of formal mitigation banks where available over other types of mitigation. Therefore, mitigation of wetlands in-kind and on-site is not preferred for the I-5 Corridor project.

### 3.1.2 Fish and Wildlife Habitat Conservation Areas

Fish and Wildlife habitat conservation areas are regulated by the County as per Cowlitz CC 19.15.130. These include rivers and streams as well as habitats that contain federal or state listed species, state priority habitats, and species and habitats of local importance. A Riparian Habitat Area (RHA) should be established around each stream based on stream typing, as per the guidance of the Cowlitz CC 19.15.130(E)(3) (see Table 3-3). All structures and activities should be located outside of the RHA, wherever possible.

**Table 3-3.** Riparian Habitat Areas (RHA) Recommended Widths.

Stream Type	RHA Width
Type S	150 feet
Type F (Type 2)	150 feet
Type F (Type 3)	100 feet
Type Np	50 feet
Type Ns	50 feet

The Cowlitz CC provides specific development regulations for new utility lines and facilities in Section 19.15.130.E.4. New utility lines and facilities may be permitted to cross streams if there is no feasible alternative, they cross at an angle greater than 60 degrees to the centerline of the stream, and they avoid paralleling the stream. Transmission lines and towers should be contained within the footprint of an existing road whenever possible, and should not have an effect on the natural rate of channel migration.

**Consistency:** Trees and other vegetation would be removed from the transmission line right-of-way and new access roads within fish and wildlife habitat conservation areas. Structures and portions of the transmission line right-of-way could be located within RHAs along some streams in Cowlitz County. Considerable efforts were made by BPA during project design and route location to move the transmission line and towers so that streams are not paralleled wherever feasible. Additionally, BPA has utilized existing roads or utility crossings where possible along the Preferred Alternative. BPA would site new towers to avoid construction within channel migration zones.

BPA is developing prescriptions in important riparian zones that are consistent with BPA's Vegetation Management Program and transmission line safety, but that may allow more vegetation to be kept that provides important riparian function. Additionally, as part of BPA's compliance with CWA Section 404, BPA is working to develop compensatory mitigation for impacts to riparian habitat. BPA also would implement measures to lessen impacts to RHAs (see Section 2.1.4 above). Off-site mitigation opportunities include enhancement and protection of other riparian areas within the watershed through native tree planting, invasive species removal and placement of large woody debris or other habitat features.

### 3.1.3 Frequently Flooded Areas

The Cowlitz CC (19.15.140) regulates development activities within Frequently Flooded Areas. Frequently Flooded Areas are defined as: All lands identified in the Federal Emergency Management Agency flood insurance rate maps, as amended, and approved by the county as within the 100-year floodplain. All development within designated frequently flooded areas must comply with Chapter 16.25, Floodplain Management.

Any development planned within FFA requires a permit from Cowlitz County and a frequently flooded areas assessment may be required. A qualified professional is required to prepare the assessment that has experience in preparing flood hazard assessments. The frequently flooded assessment must be adequate for the Director to evaluate the development proposal and all probable significant potential adverse impacts to critical areas regulated by the Cowlitz CC. Frequently flooded areas currently regulated by Cowlitz County are based upon FEMA DFIRM maps dated 2009.

**Consistency:** Two new towers (F-18 and F-19) to be located east of the Cowlitz River and east of the Interstate (I-5) crossing may be located in floodplain areas based on FEMA DFIRM provided by Ecology expected to be adopted in 2015. These towers would be located to avoid impacts to floodways but due to the length of the span crossing the river, the towers cannot be located outside of floodplain areas. These towers and any access roads associated with the Preferred Alternative proposed within floodplain areas would be designed to minimize and/or avoid increasing flood hazards.

### 3.1.4 Geologically Hazardous Areas

The Cowlitz CC regulates activities within geologically hazardous areas through Section 19.15.150. Geologically hazardous areas include areas susceptible to erosion, sliding, earthquake, or other geological events. Incompatible development can pose a threat to the health and safety of citizens, and to itself, when sited in areas of significant hazard. Included are areas of seismic hazard, mine hazard, volcanic hazard, erosion hazard, and landslide hazard. County geologic hazard maps would be reviewed and qualified professionals would conduct geotechnical assessment of project areas.

**Consistency:** Section 2.1.3, Geologic Hazard, describes updates to the geologic hazard assessments for the Preferred Alternative.

### 3.1.5 Critical Aquifer Recharge Areas

Critical aquifer recharge areas (CARAs) are those areas with a critical recharging effect on aquifers used for potable water (defined by WAC 365-190-030(2)). The ordinance provides local governments with a mechanism to protect the functions and values of a community's drinking water by preventing pollution and maintaining supply. In Cowlitz County, CARAs are categorized as having Severe Sensitivity (areas which provide rapid recharge with little protection and highly permeable soils) and as Moderate Sensitivity (areas with aquifers likely present, but with surface soils that encourage runoff and slow water entry into the ground) (Cowlitz County GIS 2009).

**Consistency:** The Preferred Alternative would cross areas of Severe Sensitivity in Cowlitz County at the Cowlitz River crossing (towers F-12 through F-18 would be in this zone). Groundwater concerns are typically focused on changes to available water quantity and to water quality. Groundwater quality is of most concern near wellhead protection areas. Petroleum products from accidental spills are the most likely substances to degrade water quality near the action alternatives during construction. Mitigation measures implemented during construction would prevent petroleum products and other contaminants from reaching groundwater sources.

## 3.2 Clark County Critical Areas Ordinance

The Clark County Code (Clark CC) is current through Ordinance 2015-03-10, passed March 24, 2015. In response to state mandates contained in the Growth Management Act, Clark County has designated critical areas and adopted development regulations to assure their conservation. These critical areas include wetlands, habitat conservation areas, flood hazard areas, geologic hazard areas, and critical aquifer recharge areas. Definitions and regulations regarding these critical areas are cited in Title 40 of the Clark CC, the Clark County Unified Development Code. The Preferred Alternative would be designed to substantively comply with the majority of goals of the Clark County CAO, though BPA would not apply for critical areas permits. The Clark County CAO applies to impacts from the Preferred Alternative outside of designated shoreline areas.

### 3.2.1 Wetlands

Clark County wetlands are defined as described for Cowlitz County per Clark CC 30.100.070 (see Section 3.1.1). As described for Cowlitz County, all wetlands within the project area are being rated using the 2004 version of Ecology’s Rating System.

The Clark CC determines wetland buffer widths by comparing the wetland rating and the intensity of land use proposed. According to Clark CC 40.450.030(E) “underground and overhead utility lines” are considered to be low land use intensity and “maintenance access roads” are considered to be of moderate land use intensity. Therefore, impacts to wetlands would follow the guidance of the Clark CC for low and moderate land use intensities, depending on what project element is involved. Clark CC includes recommended buffer widths for protecting water quality functions impacted by low and moderate land uses (see Table 3-4).

**Table 3-4.** Buffers required to Protect Water Quality Functions Based on Land Use Intensity in unincorporated Clark County, Washington.

Wetland Rating	Low Intensity Land Use	Moderate Intensity Land Use
Category I	50 feet	75 feet
Category II	50 feet	75 feet
Category III	40 feet	60 feet
Category IV	25 feet	40 feet

In addition to protecting water quality functions, wetland buffers are also necessary to protect habitat function. In determining appropriate wetland buffers, the Clark CC also takes the level of habitat function the wetland is providing into account. Using guidance from Ecology, the Clark CC has determined that all Category IV wetlands *and* wetlands with less than 5 habitat points on the Western Washington Rating Form will follow the buffers for protecting water quality stated above. Clark CC also includes recommended buffer widths for protecting habitat functions impacted by low and moderate land uses (see Table 3-5).

**Table 3-5.** Buffers Required to Protect Habitat Functions Based on Land Use Intensity.

Wetland Rating	Habitat Score	Low Intensity Land Use	Moderate Intensity Land Use
Category I or II	Medium Habitat Scores	70 – 110 feet	90 – 195 feet
	High Habitat Scores	130 – 150 feet	195 – 225 feet
Category III	Medium Habitat Scores	60 – 75 feet	90 – 110 feet

The Clark CC provides specific regulations for road and utility crossings which states crossing buffers with new roads and utilities is allowed if impacts to the wetland and buffer are minimized *and* buffer functions are replaced. The Clark CC also states that crossing wetlands by utilities is also allowed if the activity does not result in a decrease in wetland acreage or classification, wetland functions are not impacted for more than six months, and overall impacts to the wetland are minimized to the extent possible (Clark CC 40.450.040.5).

Activities within isolated Category III wetlands less than 2500 square feet and within Category IV wetlands less than 4350 square feet are exempt from the guidance of the Clark CC’s Wetland Protection Chapter (40.450).

According to the Clark CC, approval will be required before land clearing and development, and will need to demonstrate avoidance or reduction of impacts, maintenance of level habitat function, and mitigation for disrupted functions (CCC 40.440.020(A)). The Clark CC states that all impacts to Category I and II wetlands must be avoided unless avoiding all impacts is not in the public interest or will deny all reasonable economic use of the site (CCC 40.450.040.D.1). As a public utility, the proposed transmission line would likely be considered in the public interest; however, mitigation would be required.

Specific mitigation requirements are given for impacts to wetlands in Clark County. Mitigation activities allowed, listed in preference, include restoration (includes re-establishment and rehabilitation), creation, enhancement, and preservation. Each activity is defined in Clark CC 40.450.040(D)(3) which includes recommended mitigation ratios for restoration, creation, and enhancement (see Table 3-6).

**Table 3-6.** Standard Wetland Mitigation Ratios for Clark County, Washington.

Wetland to be Replaced	Re-establishment or Creation	Rehabilitation	Re-establishment or Creation and Rehabilitation	Re-establishment or Creation and Enhancement	Enhancement
Category IV	1.5:1	3:1	1:1 R/C and 1:1 RH	1:1 R/C and 2:1 E	6:1
Category III	2:1	4:1	1:1 R/C and 2:1 RH	1:1 R/C and 4:1 E	8:1
Category II	3:1	6:1	1:1 R/C and 4:1 RH	1:1 R/C and 8:1 E	12:1
Category I (Forested)	6:1	12:1	1:1 R/C and 10:1 RH	1:1 R/C and 20:1 E	24:1
Category I (Based on score for functions)	4:1	8:1	1:1 R/C and 6:1 RH	1:1 R/C and 12:1 E	16:1

Clark County also allows preservation of existing wetlands as a means of mitigation if the wetland is a Category I, Category II, or within a WDFW priority habitat or species areas, and is over one acre in size. Recommended mitigation ratios for preservation have been specified by Clark County (see Table 3-7).

**Table 3-7.** Wetland Preservation Ratios for Category I and II Wetlands in Clark County, Washington.

Habitat Function to Be Replaced	In Addition to Standard Mitigation		As the Only Means of Mitigation	
	Full and Functioning Buffer	Reduced and/or Degraded Buffer	Full and Functioning Buffer	Reduced and/or Degraded Buffer
Low (<19 points)	10:1	14:1	20:1	30:1
Moderate (20-28 points)	13:1	17:1	30:1	40:1
High (>28 points)	16:1	20:1	40:1	50:1

Approved location of mitigation, listed in preference, include on-site, off-site, in-kind, and out-of-kind. Definitions for each location can be found in Clark CC 40.450.040(D)(2). Clark County recommends the “Clark County Guide to Best Management Practices for Permitted Development in Habitat Areas” be used to guide on-site mitigation. Off-site mitigation should be guided by the applicable watershed, fish recovery, or sub-basin plan (Clark CC 40.440.020(A)(3)(c)). Off-site mitigation can also include wetland mitigation banking as per the guidance in Clark CC 40.450.040(D)(7).

**Consistency:** The majority of wetlands within the Preferred Alternative corridor are Category II, III and IV riverine and slope wetlands. Several potential Category I wetlands have also been identified in unincorporated Clark County. As in Cowlitz County, BPA would meet Corps and Ecology standards for fill/dredge and clearing in waters of the U.S. including wetlands, as determined through the Section 404/401 permitting process and implement compensatory mitigation for impacts to water of the U.S. Mitigation would occur both on-site and off-site of this project. Off-site mitigation opportunities include enhancement of existing wetlands and riparian areas within public ownership, purchase of credits at formal wetland banks, and other opportunities on a watershed basis that offsets the project impacts as directed by the Corps and Ecology. As described for Cowlitz County, wetland impacts would be mitigated using Corps and Ecology specified ratios which are roughly equivalent to Clark County code ratios; however, the preference for mitigation type is use of formal mitigation banks over other types of mitigation. Therefore, in-kind and on-site wetland mitigation is not preferred for the I-5 Corridor project.

Section 2.1.1 describes how BPA is working with the Corps to comply with the CWA Section 404(b)(1) guidelines which includes preparation of an alternatives analysis evaluation to identify the least environmentally damaging practicable alternative.

BPA would work Ecology to determine impacts and mitigation if the Corps determines that a wetland is isolated and not within its jurisdiction.

### 3.2.2 Habitat Conservation Areas

Habitat conservation is regulated by the County as per Clark CC 40.440.010 (Habitat Conservation Ordinance adopted June 2006). Habitat areas covered by this chapter include Riparian Priority Habitat, state priority habitats and species, and locally important habitat and species.

Clark County code requires a Riparian Priority Habitat Area (RPHA) for each stream based on typing, as per guidance of the Clark CC 40.440.010(C). Streams are typed according to the definitions in WAC 222-16-031. The width of the RPH is measured outward from the OHWM (see Table 3-8). All structures and activities should be located outside of the RPH whenever possible.

**Table 3-8.** Riparian Priority Habitats Recommended Widths.

Stream Type	Riparian Priority Habitat Width
Type S	250 feet
Type F	200 feet
Type Np	100 feet
Type Ns	75 feet

Though the Clark CC exempts clearing for the operation and maintenance of existing utilities, there are no exemptions for new utilities and associated facilities. Clearing in habitat areas would require County review (CCC 40.440.010(D)).

Clark County code also outlines protections for other priority habitats including areas identified by WDFW as Priority Species and Habitats and those habitats designated as locally important.

**Consistency:** According to the Clark County GIS on-line maps (2015), non-riparian habitat areas are crossed by the Preferred Alternative in the vicinity of Little Washougal, East Fork Lewis River, and Big Tree Creek; species habitat areas are mapped south of Yale Reservoir. Similar to activities in Cowlitz County, trees and other vegetation would be removed from the transmission line right-of-way and new access roads within fish and wildlife habitat. Structures and portions of the transmission line right-of-way could be located within RPHAs along some streams in Clark County. Considerable efforts were made by BPA during project design and route location to move the transmission line and towers so that streams are not paralleled wherever feasible. Additionally, BPA has utilized existing roads or utility crossings where possible along the Preferred Alternative. BPA would site new towers to avoid area of channel migration.

As described for Cowlitz County, BPA is developing prescriptions in important riparian zones that are consistent with BPA's Vegetation Management Program and transmission line safety, but that may allow more vegetation to be kept that provides important riparian function. Additionally, as part of BPA's compliance with CWA Section 404, BPA is working to develop compensatory mitigation for impacts to riparian habitat. BPA also would implement measures to lessen impacts to riparian habitat areas (see Section 2.1.4 above). Off-site mitigation opportunities are described above.

### 3.2.3 Flood Hazard Areas

Clark County regulates flood hazard areas through Chapter 40.420 of the Clark County Code. The areas of special flood hazard are identified by FEMA in a report entitled "Flood Insurance Study, Clark County, Washington and Incorporated Areas" effective September 5, 2012 and accompanying Flood Insurance Rate Maps (FIRMs) and any revisions are adopted by reference. Prohibited uses in the special flood hazard areas include floodway encroachments of any kind, unless certification by a licensed professional engineer registered in the State of Washington is provided demonstrating through hydrologic and hydraulic analyses that encroachments shall not result in any increase in flood levels during the base flood discharge. These regulations discourage new development in the floodplain and require that flood carrying capacity is not diminished.

**Consistency:** According to the 2012 FEMA data, only one new tower would be constructed in flood hazard areas within unincorporated Clark County; this tower is near a tributary to Chelatchie Creek. This tower would be designed to minimize and/or avoid increasing flood hazards.

### 3.2.4 Geologic Hazard Areas

The Clark CC has adopted regulations to safeguard public health by placing limitations on steep slope hazard areas; landslide hazard areas; seismic hazards; and volcanic hazard areas.

**Consistency:** Section 2.1.3, Geological Hazardous Areas, describes updates to the geologic hazard assessments for the Preferred Alternative.

### 3.2.5 Critical Aquifer Recharge Areas

Clark County's CARA ordinance was established for preventing degradation, and where possible, enhancing the quality of groundwater for drinking water or business purposes. In both Category 1 and 2 areas, certain activities are required to implement Best Management Practices to minimize effects to the activity on ground water.

**Consistency:** The Preferred Alternative would cross Category 1 and Category 2 CARAs in Clark County south of Merwin Dam within Segment L; east of Amboy within Segment 28; and near Camas and Washougal within Segments 49, 51, and 52. Mitigation measures implemented during construction would prevent petroleum products from reaching groundwater sources.

### 3.3 City of Washougal Critical Areas Ordinance

The Washougal Municipal Code (WMC) is current through Ordinance 1775, passed March 23, 2015. Critical areas include wetlands, fish and wildlife habitat conservation areas, frequently flooded areas, geologically hazardous areas, and critical aquifer recharge areas. Definitions and regulations regarding these critical areas are cited in Title 19 of the CCC, Chapter 19.15. According to WMC 16.05.040.1.i, public agencies and utilities are exempt from the CAO for all critical areas, provided they are consistent with other local, state, and federal laws and requirements. The Preferred Alternative would be designed to substantively comply with the majority of goals of the City of Washougal CAO, though BPA would not apply for critical areas permits. The City of Washougal CAO applies to impacts from the Preferred Alternative outside of designated shoreline areas.

#### 3.3.1 Wetlands

Washougal wetlands are defined as described for Cowlitz and Clark counties per WMC 16.04.015 (see Section 3.1.1). As described for Cowlitz and Clark counties, all wetlands within the project area are being rated using the 2004 version of Ecology's Rating System.

The City of Washougal CAO determines freshwater wetland buffer widths by comparing the wetland rating and the intensity of land use proposed. According to 16.04.070.7.a, Land use intensity is based on guidance from Ecology which states "utility corridor or right-of-way shared by several utilities and including access/maintenance roads" is considered to be of "moderate" land use intensity. Therefore, all impacts to wetlands from the Preferred Alternative would follow the guidance of the WMC for "moderate" land use.

In terms of protecting the water quality functions of wetlands, the WMC requires a 40-foot buffer for Category IV wetlands, a 60-foot buffer for Category III wetlands, and a 75-foot buffer for both Category I and II wetlands (see Table 3-9). In addition to protecting water quality functions, wetland buffers are also necessary to protect habitat function. The WMC also takes the level of habitat function the wetland is providing into account. Using the Ecology guidance stated above, the WMC has determined that all wetlands with 19 habitat points or less will follow the buffers for protecting water quality. Where the wetland is within 25 feet of the toes of a slope, greater than 25 percent, the buffer shall be a minimum of 25-feet beyond the toe of slope (WMC 16.04.085(2)(c)(iv)).

**Table 3-9.** Wetland Buffer Standards for Moderate Intensity Land Uses in Washougal, Washington.

Wetland Category	Water Quality Buffers	Habitat Buffer Range
I	75 feet	90-225 feet
II	75 feet	90-225 feet
III	60 feet	60-110 feet
IV	40 feet	40 feet

Activities within isolated Category III wetlands less than 2500 square feet and within Category IV wetlands less than 4350 square feet that are not associated with a riparian corridor, not part of a

wetland mosaic, or do not contain essential habitat for priority species identified by WDFW are exempt from the guidance of the WMC.

The City of Washougal recommends that whenever possible, replacement or enhancement of wetlands should occur on-site and if not possible, the off-site location should occur in the same sub-basin (WMC 16.04.085(2)(c)). In accordance with 16.04.055(10) of the WMC, mitigation efforts shall ensure that the development activity does not result in a net loss of critical area function.

**Consistency:** The majority of wetlands within the Preferred Alternative corridor are Category II, III and IV riparian and slope wetlands. As in Cowlitz and Clark counties, BPA would meet Corps and Ecology standards for fill/dredge and clearing in waters of the U.S. including wetlands, as determined through the Section 404/401 permitting process and implement compensatory mitigation for impacts to water of the U.S. Mitigation would occur both on-site and off-site of this project. Off-site mitigation opportunities are described in Section 2.1.8 above.

### 3.3.2 Fish and Wildlife Habitat Conservation Areas

Fish and Wildlife habitat conservation areas are regulated by the City of Washougal per WMC 16.04.055. These include rivers and streams as well as habitats that contain federal or state listed species, state priority habitats, and species and habitats of local importance.

A Riparian Ecosystem Area (REA) should be established around each stream based on stream typing, as per the guidance of the WMC 16.04.055(6) (see Table 3-10). Streams are typed as defined by WDNR Forest Practice Rules in WAC 222-16-031. Widths are measured outward from the OHWM.

**Table 3-10.** Riparian Ecosystem Area Recommended Widths in Washougal, Washington.

Stream Type	Riparian Area Width
Type S	250 feet
Type F	200 feet
Type Np	100 feet
Type Ns	75 feet

The riparian ecosystem buffer is generally an area of no building, consisting of undisturbed natural vegetation. The City of Washougal considers certain segments of the Columbia River, Washougal River, Gibbons Creek, and Campen Creek to be critical habitat to anadromous fish, and therefore requires a larger buffer (WMC 16.04.055(8)). A minimum setback of 15 feet from the buffer is required for construction of any impervious surfaces greater than 120 square feet from the head or toe of a slope greater than 35 percent (WMC 16.04.055(7)(a)).

**Consistency:** Similar to activities in other local jurisdictions, trees and other vegetation would be removed from the transmission line right-of-way and new access roads within fish and wildlife habitat. As described for Cowlitz and Clark counties, BPA is developing prescriptions in important riparian zones that are consistent with BPA’s Vegetation Management Program and transmission line safety, but that may allow more vegetation to be kept that provides important riparian function. Additionally, as part of BPA’s compliance with CWA Section 404, BPA is working to develop compensatory mitigation for impacts to riparian habitat. BPA also would implement measures to lessen impacts to riparian habitat areas (see Section 2.1.4 above)



### 3.3.3 Frequently Flooded Areas

Section 16.04.060 of the WMC regulates activities within frequently flooded areas. The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for Clark County Washington and Incorporated Areas" dated September 5, 2012, with accompanying flood insurance maps (FIRM). The areas for floodplain management regulations are those areas subject to a base (100-year) flood.

**Consistency:** No frequently flooded areas are mapped in the half-mile segment of the Preferred Alternative within the City of Washougal.

### 3.3.4 Geologically Hazardous Areas

Section 16.04.065 of the WMC regulates activities in geologically hazardous areas in order to protect fragile steep slopes from unsuitable development and to protect life and property from hazards due to inappropriate development on steep slopes, erodible soils and geologically hazardous areas, in a manner consistent with the Washougal Comprehensive Plan and Clark County countywide planning policies. The WMC prohibits the removal of existing native vegetation from areas of 15 percent or greater slopes. Vegetation removal may be approved by the hearing examiner or community development director for utilities, storm water facilities, buildings, roads, and filled areas.

**Consistency:** The Preferred Alternative would be within an existing BPA right-of-way through the City of Washougal so removal of existing vegetation is not required for this project. Vegetation management is conducted as part of routine operational maintenance of the existing transmission lines within the right-of-way. Engineering reports and plans are required by the WMC when grading is proposed on slopes greater than 15 percent.

### 3.3.5 Critical Aquifer Recharge Areas

The City of Washougal's CARA ordinance was established to safeguard ground water resources by mitigating or precluding future discharges of contaminants from new land use activities. Similar to Cowlitz and Clark counties, CARAs are those areas with a critical recharging effect on aquifers used for potable water (WAC 365-190-030(2)).

**Consistency:** The Preferred Alternative crosses Category 1 and Category 2 CARAs along the western edge of Washougal within Segment 52. Mitigation measures implemented during construction would prevent petroleum products from reaching groundwater sources.

## 3.4 City of Camas Critical Areas Ordinance

The Camas Code of Ordinances (CCO) is current through Ordinance number 15-006 passed March 2, 2015. Critical areas include wetlands, fish and wildlife habitat conservation areas, frequently flooded areas, geologically hazardous areas, and critical aquifer recharge areas. Definitions of critical areas protected in Camas can be found in Chapter 18.03.050 of the CCO. Regulations regarding these critical areas are cited in Chapters 16.53 through 16.61. The Preferred Alternative would be designed to substantively comply with the majority of goals of the City of Camas CAO, though BPA would not apply for critical areas permits. The City of Camas CAO applies to impacts from the Preferred Alternative outside of designated shoreline areas.

### 3.4.1 Wetlands

Washougal wetlands are defined as described for Cowlitz and Clark counties and the City of Washougal per CCO 18.03.050 (see Section 3.1.1). As described for Cowlitz and Clark counties, all wetlands within the project area are being rated using the 2004 version of Ecology’s Rating System.

The CCO determines freshwater wetland buffer widths by comparing the wetland rating and the intensity of land use proposed. According to CCO 16.53.040 “underground and overhead utility lines” are considered to be low land use intensity and “maintenance access roads” are considered to be of moderate land use intensity. Therefore, impacts to wetlands would follow the guidance of the CCO for low and moderate land use intensities, depending on what project element is involved (see Table 3-11).

**Table 3-11.** Buffers Required by City of Camas to Protect Water Quality Functions Based on Land Use.

Wetland Rating	Low Intensity Land Use	Moderate Intensity Land Use
I	50 feet	75 feet
II	50 feet	75 feet
III	40 feet	60 feet
IV	25 feet	40 feet

In addition to protecting water quality functions, wetland buffers are also necessary to protect habitat function. In determining appropriate wetland buffers, the CCO also takes the level of habitat function the wetland is providing into account. Using guidance from Ecology, the CCO has determined that all Category IV wetlands *and* wetlands with less than 5 habitat points on the Western Washington Rating Form will follow the buffers for protecting water quality stated above. Wetland buffers to protect habitat functions for wetlands in Camas are similar to those outlined for habitat functions in the City of Washougal CAO (see Table 3-9).

The CCO provides specific regulations for road and utility crossings which states crossing wetlands by utilities is allowed if the activity does not result in a decrease in wetland or wetland buffer acreage, wetland functions are not impacted for more than three months, and the activity will not result in a permanent structure in the buffer (CCO 16.53.050(C)(5)). The CCO also states crossing buffers with new roads and utilities is allowed if impacts to the wetland and buffer are minimized *and* buffer functions are replaced (CCO 16.53.050(C)(4)).

Specific mitigation requirements are given for impacts to wetlands in the City of Camas (CCO16.53.050.D). Mitigation activities allowed, listed in order of preference, include restoration (including reestablishment and rehabilitation), creation, enhancement, and preservation. Each activity is defined in CCO 16.53.050(D)(3). Recommended mitigation ratios in Camas are similar to those described above for Clark County. The City of Camas also allows preservation of existing wetlands as a means of mitigation if the wetland is a Category I or II, or within a WDFW priority habitat or species area, and is over one acre in size. Ratios for wetland preservation are considerably higher than for other types of wetland mitigation.

Approved locations of mitigation, listed in preference, include on-site, off-site, in-kind, and out-of-kind. Definitions of each can be found in CCO 16.53.050(D)(2). Alternative mitigation options approved by the City of Camas include mitigation bank and in-lieu fee as per the guidance of CCO 16.53.050(D)(5)(a) and 16.53.050(D)(5)(b), respectively.

**Consistency:** BPA would meet Corps and Ecology standards for fill\dredge and clearing in waters of the U.S. including wetlands, as determined through the Section 404/401 permitting process and implement compensatory mitigation for impacts to water of the U.S. Mitigation would occur both on-site and off-site of this project. Off-site mitigation opportunities include enhancement of existing wetlands and riparian areas within public ownership, purchase of credits at formal wetland banks, and other opportunities on a watershed basis that offsets the project impacts as directed by the Corps and Ecology.

### 3.4.2 Fish and Wildlife Habitat Conservation Areas

Fish and wildlife habitat conservation areas are regulated by Camas as per CCO Chapter 16.61. These include rivers and streams as well as habitats that contain federal or state listed species, state priority habitats, and species and habitats of local importance.

A stream buffer should be established around each stream based on stream typing, as per the guidance of the CCO 1661.040(D) (see Table 3-12). Streams are typed as defined in WAC 222-16-031. All structures and activities should be located outside of stream buffers, wherever possible.

**Table 3-12.** Stream Buffer Recommended Widths Required by City of Camas, WA.

Stream Type	Base Buffer Widths
Type S	150 feet
Type F (reaches with anadromous fish-bearing access)	100 feet
Type F (reaches without anadromous fish-bearing access)	75 feet
Type F (non-anadromous fish-bearing streams)	75 feet
Type Np	50 feet
Type Ns	25 feet

Construction of roadways may be permitted in stream buffers and waters of the state, if the crossing minimizes interruption of downstream movement of wood and gravel, and if applicable, road bridges are designed according to the WDFW Fish Passage Design at Road Culverts (March 1999) and the National Marine Fisheries Service Guidelines for Salmonid Passage at Stream Crossings (2000) (CCO 16.61.040(E)(5)).

**Consistency:** Similar to activities in other local jurisdictions, trees and other vegetation would be removed from the transmission line right-of-way and new access roads within fish and wildlife habitat. As described for Cowlitz and Clark counties, BPA is working to develop prescriptions in important riparian zones that may allow more vegetation to remain to provide important riparian function. Additionally, as part of BPA's compliance with CWA Section 404, BPA is working to develop compensatory mitigation for impacts to riparian habitat. BPA also would implement measures to lessen impacts to riparian habitat areas (see Section 2.1.4 above).

Any stream crossing structure would be appropriately sized based on hydraulic calculations similar to those in the WDFW manual for 100-year flood plus debris events. For fish bearing streams specifically, BPA would use the stream simulation method for sizing the crossings with a hydraulic analysis of the 100-year flows performed as a check of the culvert or bridge size. Fish bearing stream crossings may contain an embedded round or arch pipe in addition to open bottom culverts and bridges.

### 3.4.3 Frequently Flooded Areas

Section 16.57 of the Camas CAO regulates activities within frequently flooded areas as described for Clark County in Section 3.2.3, Flood Hazard Areas.

**Consistency:** Eight new towers and 0.85 mile of new or improved access road for the Preferred Alternative occur within frequently flooded areas. However, most of the towers and road are located in the shoreline jurisdiction and therefore covered under the City of Camas SMP. Double-circuiting of the transmission line allows BPA to reconstruct existing towers in flood prone areas without constructing new towers.

### 3.4.4 Geologically Hazardous Areas

Section 16.59 of the Camas CAO regulates activities within Geologic Hazard areas. Geologic hazards include areas of erosion hazard, landslide hazard, seismic hazard, mass wasting, debris flows, rock falls and differential settlement. Proposed development in geologic hazard areas requires the preparation of a critical area report by a qualified professional who is either a civil engineer with a geotechnical background, or a geologist, licensed in the state of Washington, with experience analyzing geologic, and where applicable, hydrologic and ground water flow systems. The report should include an assessment of geologic characteristics and an analysis of the vulnerability of the site to seismic or other geologic events. Mitigation may be required for permitted uses in geologic hazard areas and should address how the pre-existing level of risk is maintained or reduced.

**Consistency:** Section 2.1.3, Geologic Hazard, describes updates to the geologic hazard assessments for the Preferred Alternative.

### 3.4.5 Critical Aquifer Recharge Areas

Similar to Cowlitz and Clark counties, Camas CARAs are those areas with a critical recharging effect on aquifers used for potable water (WAC 365-190-030(2)). Activities are allowed in Camas CARAs if more than 40 percent of the total pervious surface of the site remains. Activities may only be permitted in a CARA if the proposed activity will not cause contaminants to enter the aquifer, and the proposed activity will not adversely affect the recharging of the aquifer.

**Consistency:** The Preferred Alternative crosses Category 1 and Category 2 CARAs in Camas within Segment 52. Mitigation measures implemented during construction would prevent petroleum products from reaching groundwater sources.

## 4.0 LIMITATIONS

Within the limitations of schedule, budget, and scope-of-work, we warrant that this analysis was conducted in accordance with generally accepted environmental science practices, including the technical guidelines and criteria in effect at the time this study was performed. This analysis relies upon review of the codes, regulations and policies in effect at the time this document was prepared. Further, the project impacts have not yet been fully determined and will be refined as project design proceeds. This analysis is based upon the Preferred Alternative as described in the Final EIS in preparation at this time. The results and conclusions of this report represent the authors' best professional judgment, based upon information provided by the project proponent in addition to that obtained during the course of this study. No other warranty, expressed or implied, is made.

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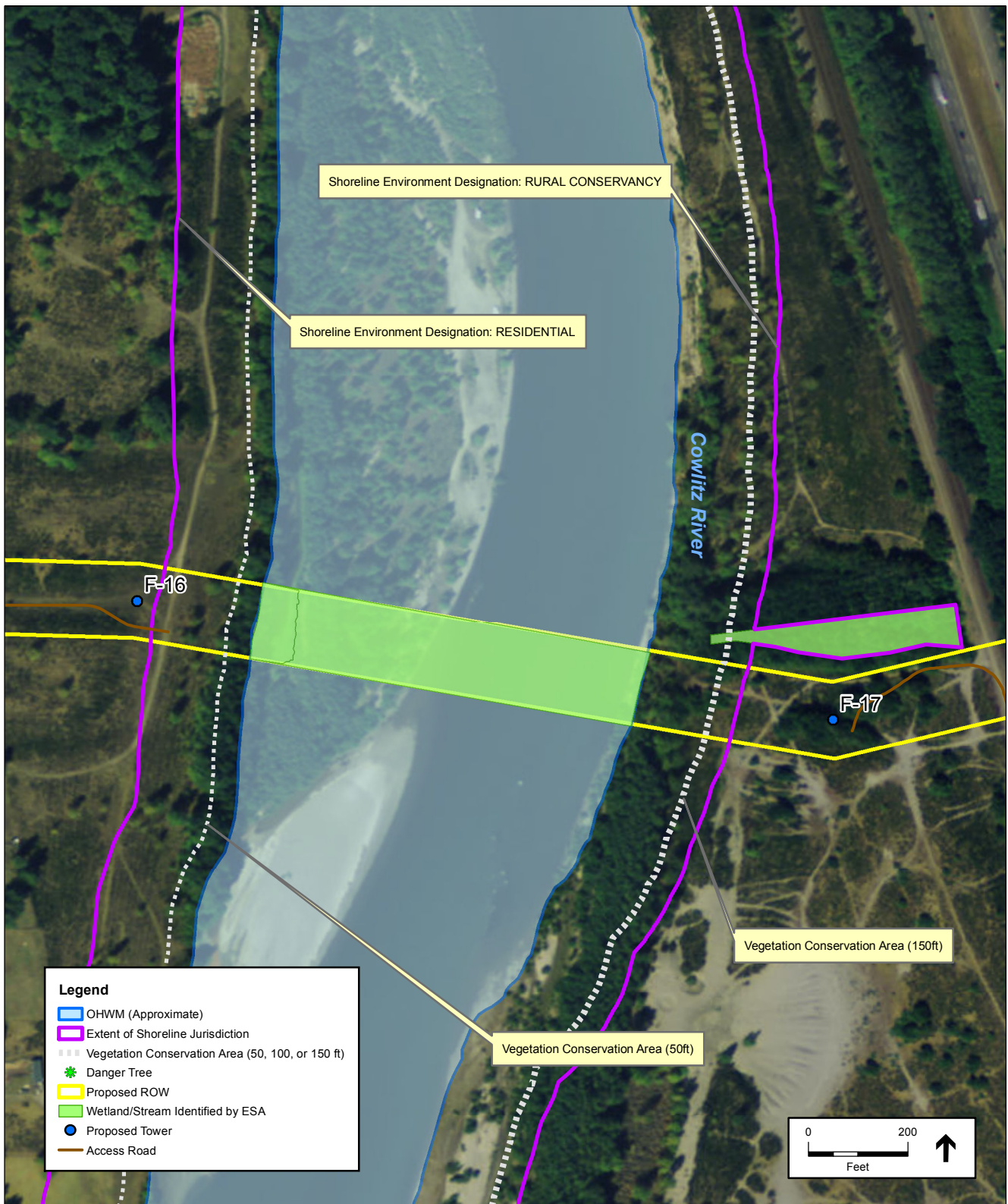
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## **FIGURES**

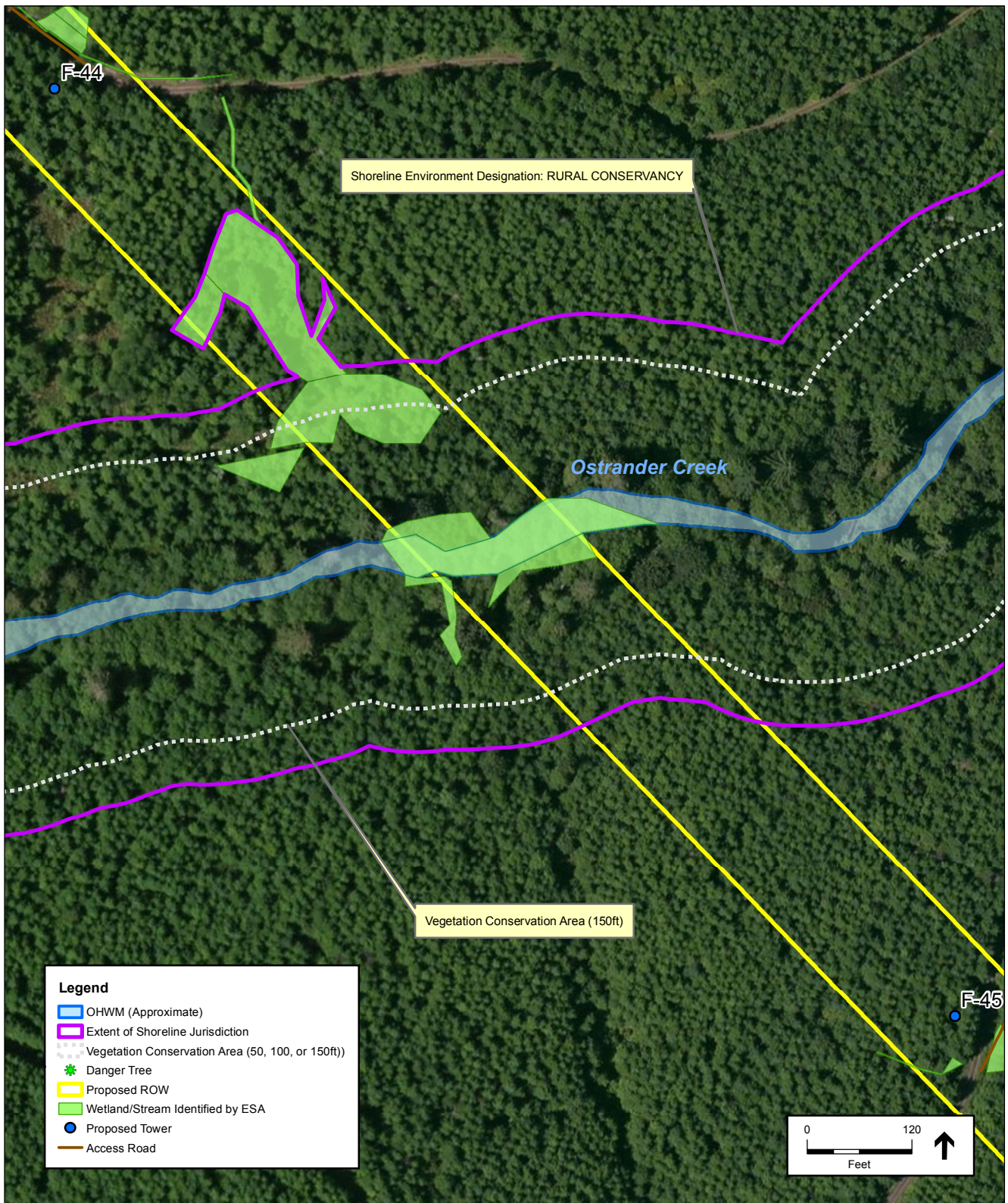


BPA I-5 Corridor Reinforcement Project - Preferred Alternative

Credits: ESA 2015, BPA 2015, Cowlitz County 2009, ESRI 2013

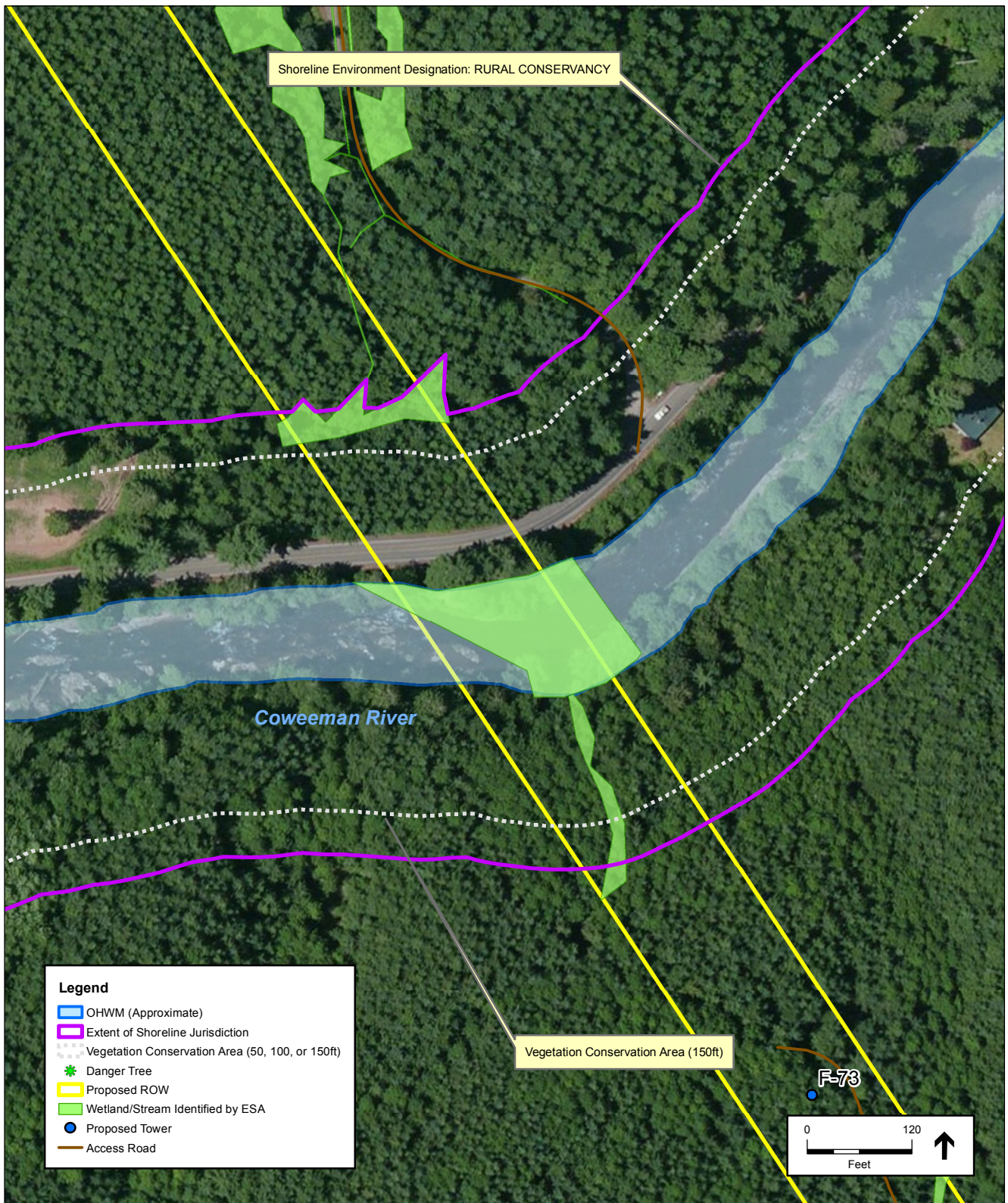
**Figure 1**  
Lower Cowlitz River  
Cowlitz County, WA



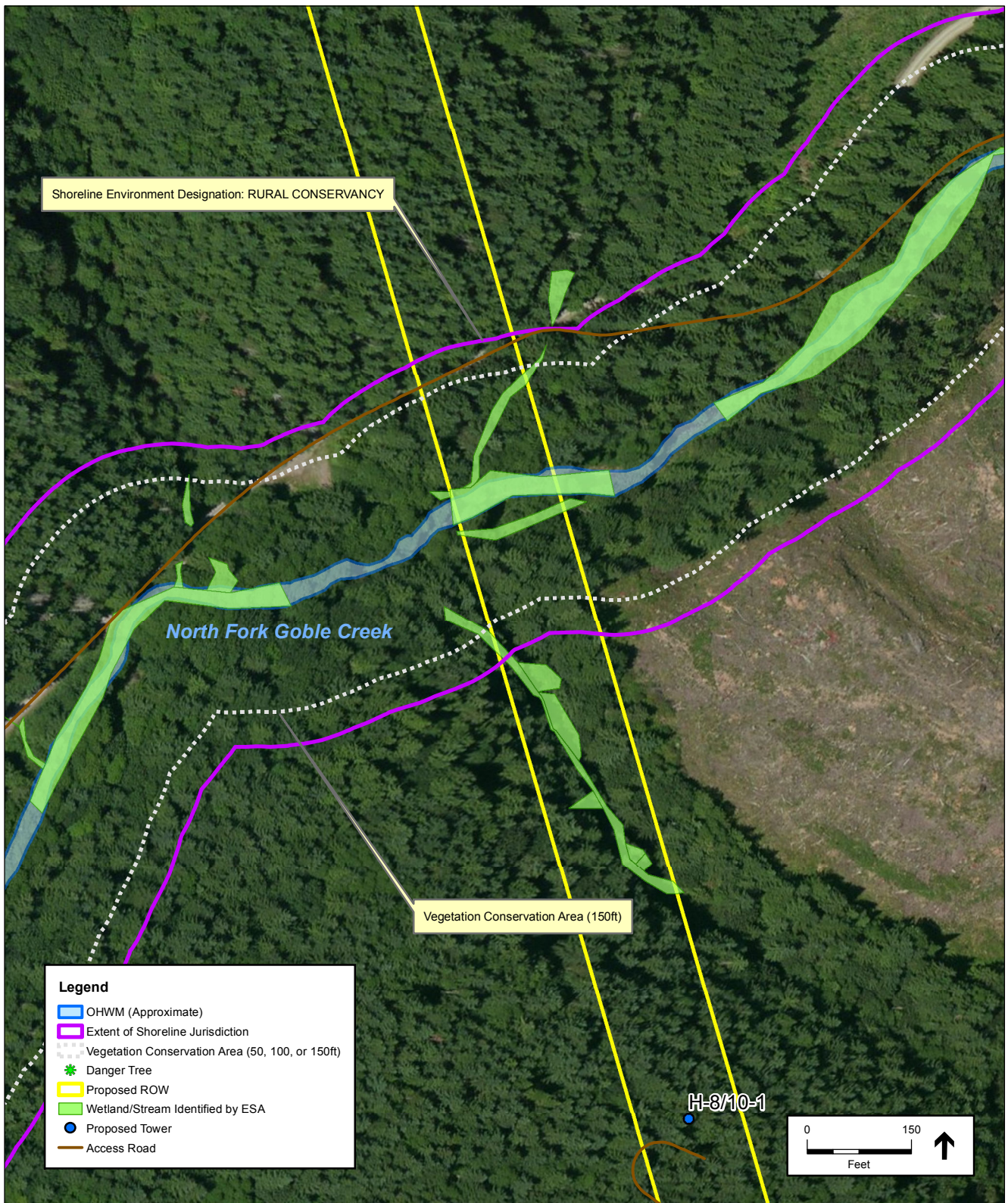


**Figure 2**  
Ostrander Creek  
Cowlitz County, WA







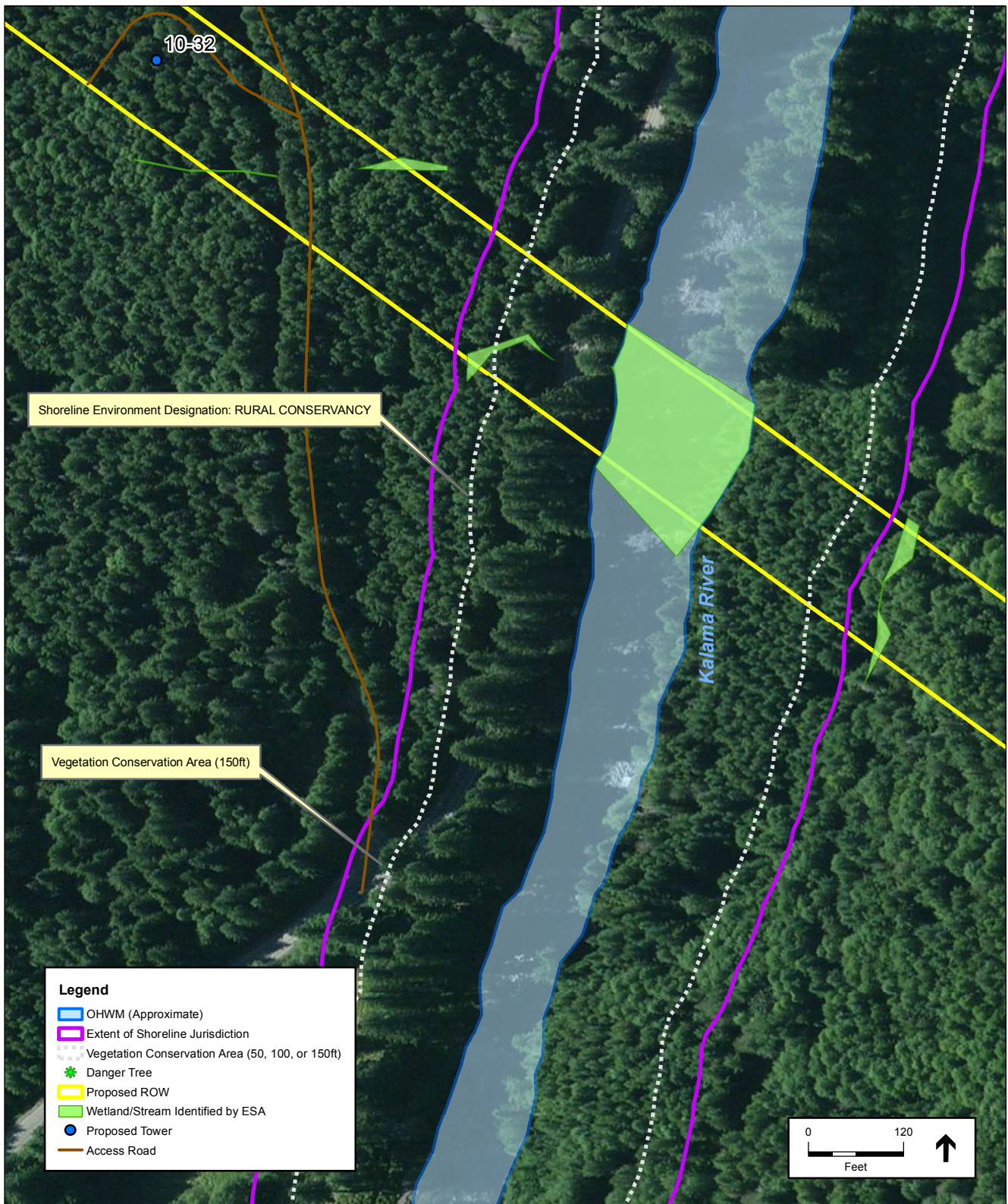


BPA I-5 Corridor Reinforcement Project - Preferred Alternative

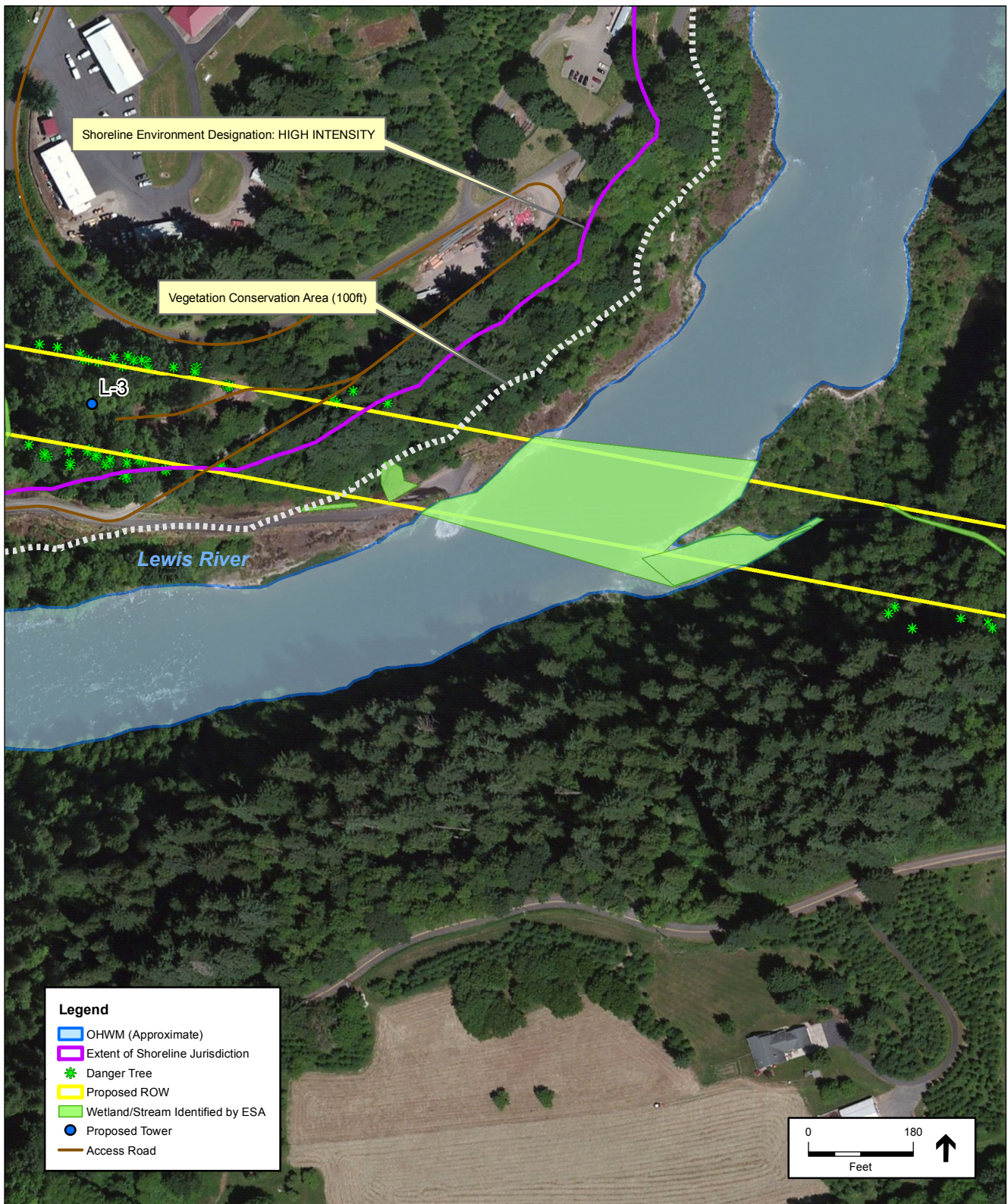
Credits: ESA 2015, BPA 2015, Cowlitz County 2009, ESRI 2013

**Figure 4**  
North Fork Goble Creek  
Cowlitz County, WA







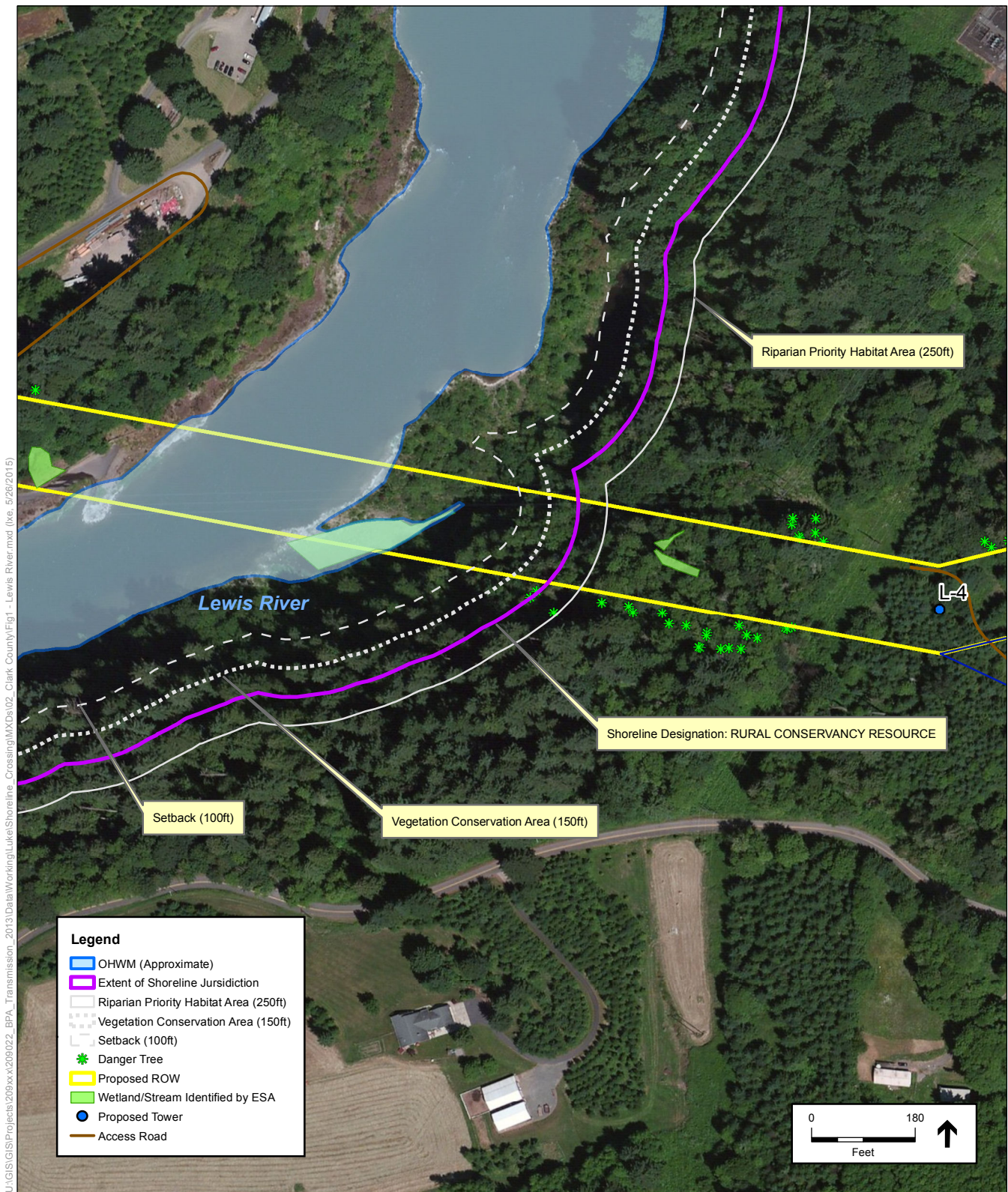


BPA I-5 Corridor Reinforcement Project - Preferred Alternative

Credits: ESA 2015, BPA 2015, Cowlitz County 2009, ESRI 2013

**Figure 6**  
Lewis River  
Cowlitz County, WA



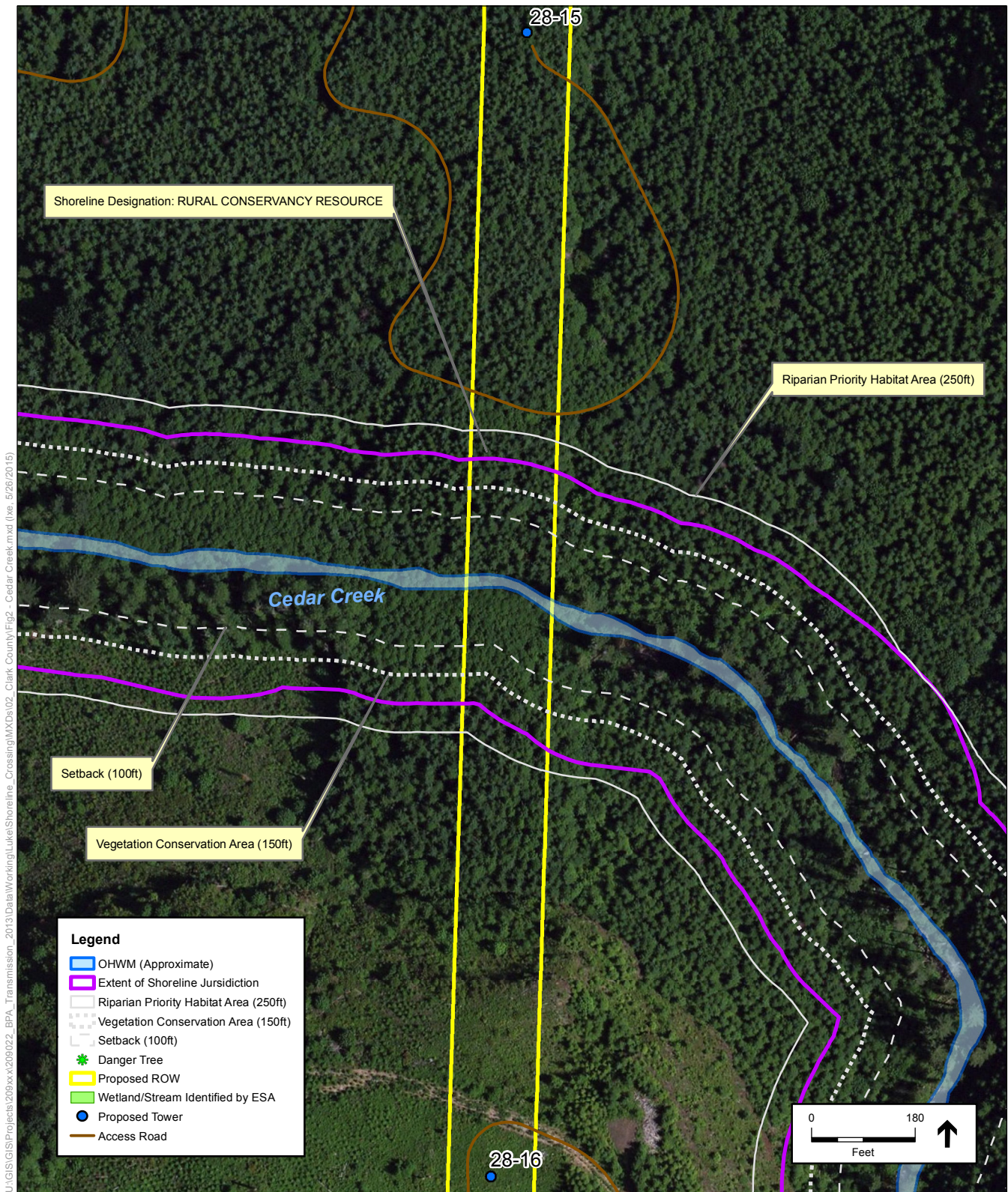


BPA I-5 Corridor Reinforcement - Preferred Alternative

Credits: ESA 2015, BPA 2015, Clark County 2012, ESRI 2013

**Figure 7**  
Lewis River  
Clark County, WA



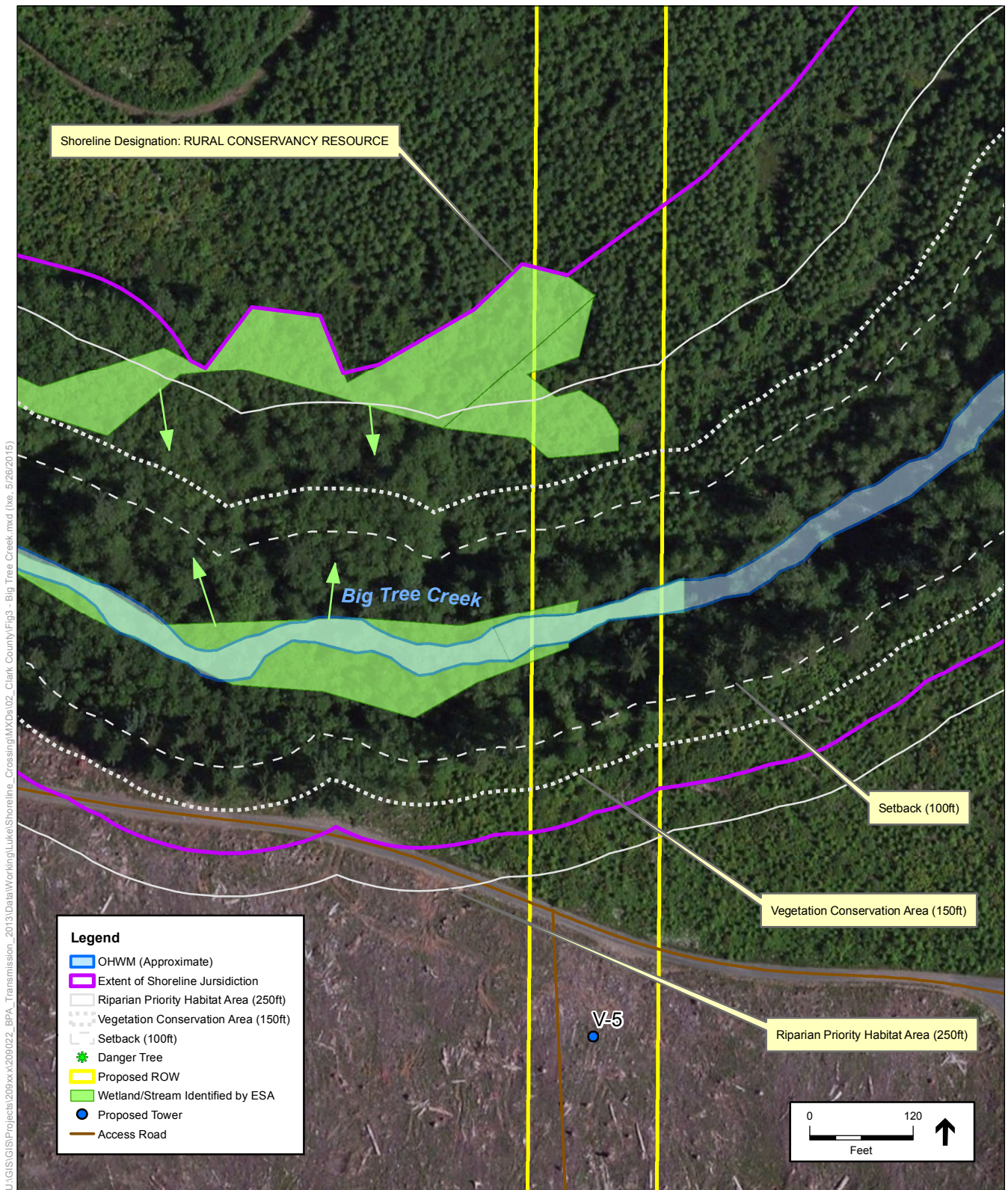


BPA I-5 Corridor Reinforcement - Preferred Alternative

Credits: ESA 2015, BPA 2015, Clark County 2012, ESRI 2013

**Figure 8**  
Cedar Creek  
Clark County, WA



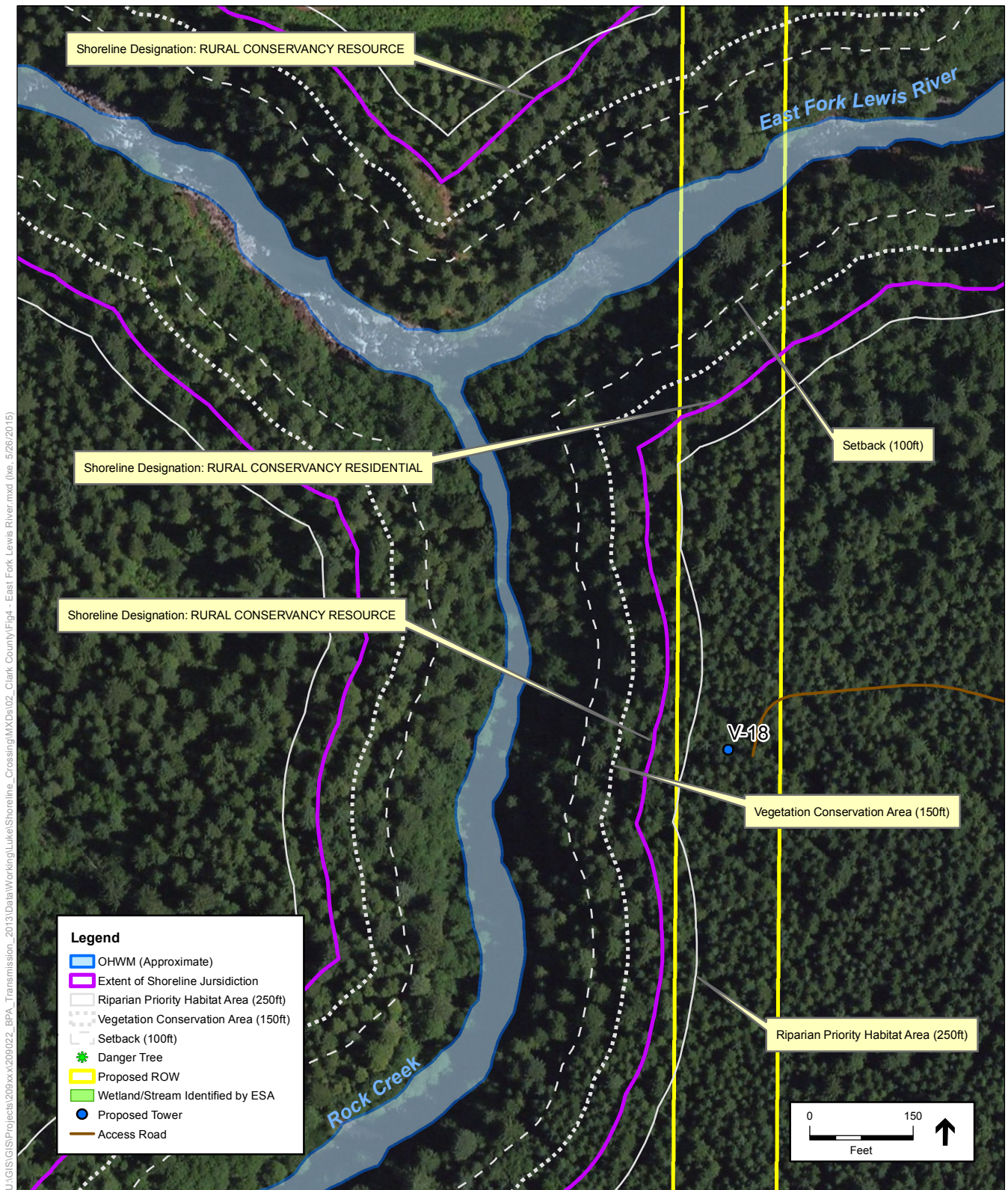


BPA I-5 Corridor Reinforcement - Preferred Alternative

Credits: ESA 2015, BPA 2015, Clark County 2012, ESRI 2013

**Figure 9**  
Big Tree Creek  
Clark County, WA



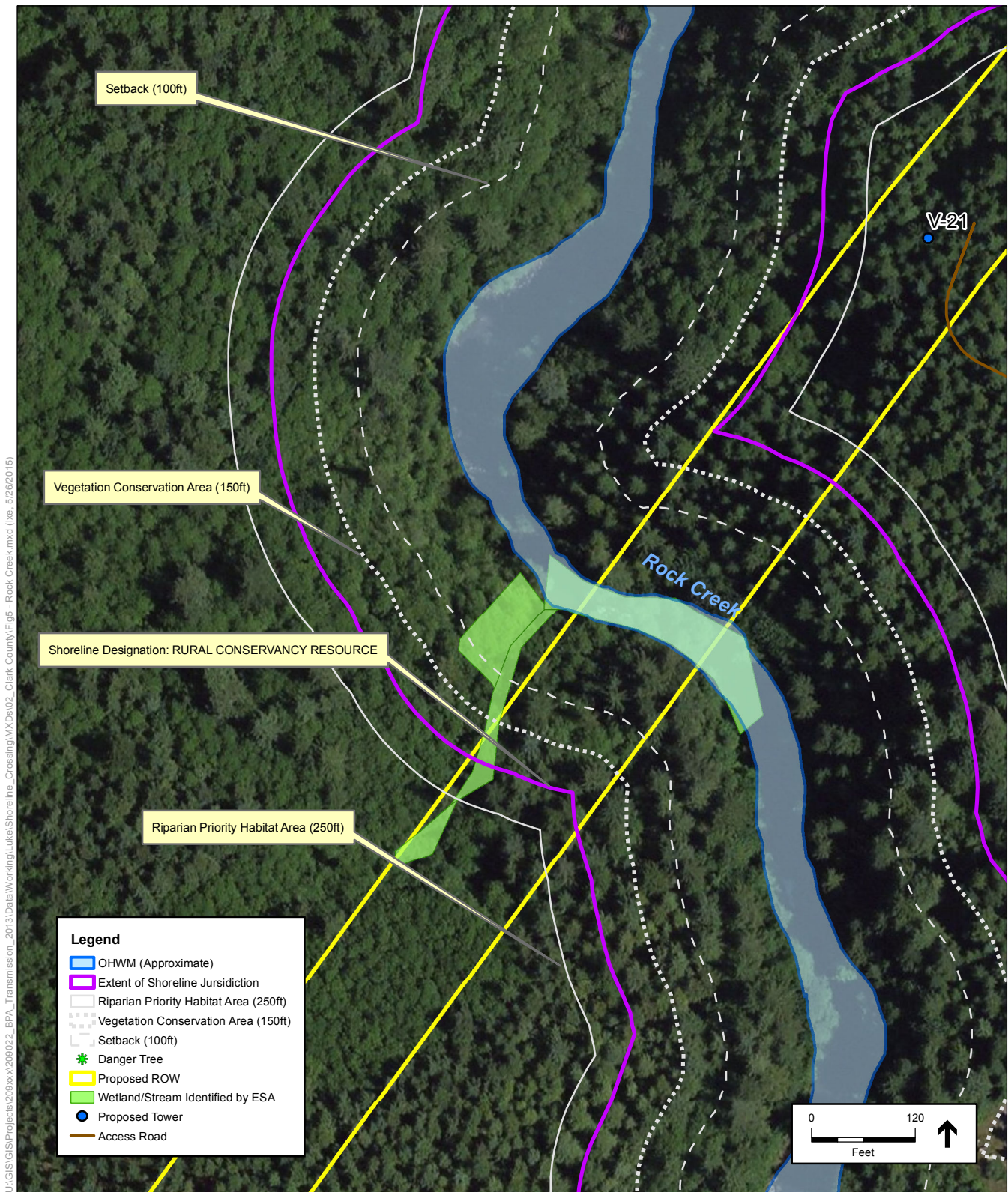


BPA I-5 Corridor Reinforcement - Preferred Alternative

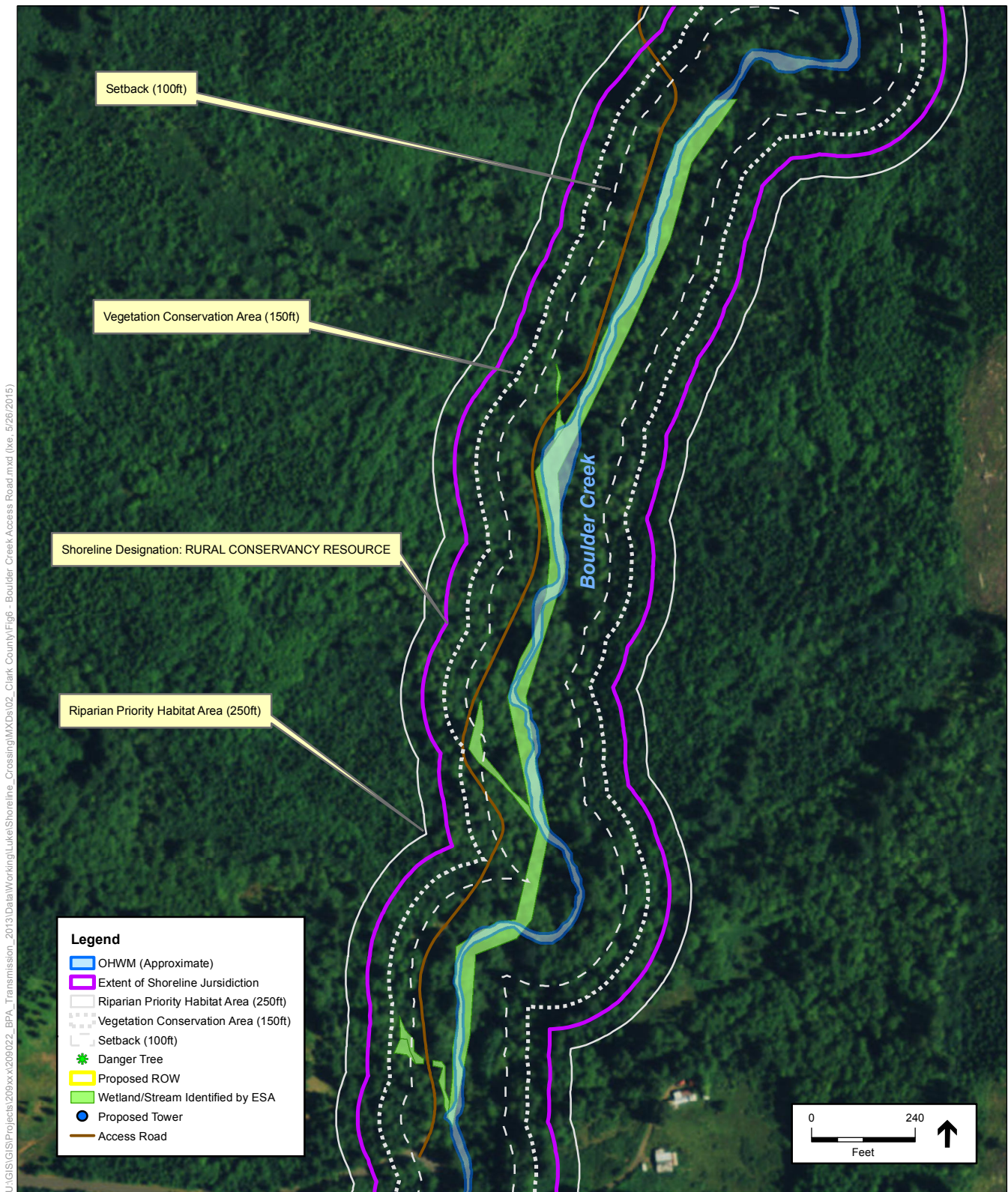
Credits: ESA 2015, BPA 2015, Clark County 2012, ESRI 2013

**Figure 10**  
East Fork Lewis River  
Clark County, WA



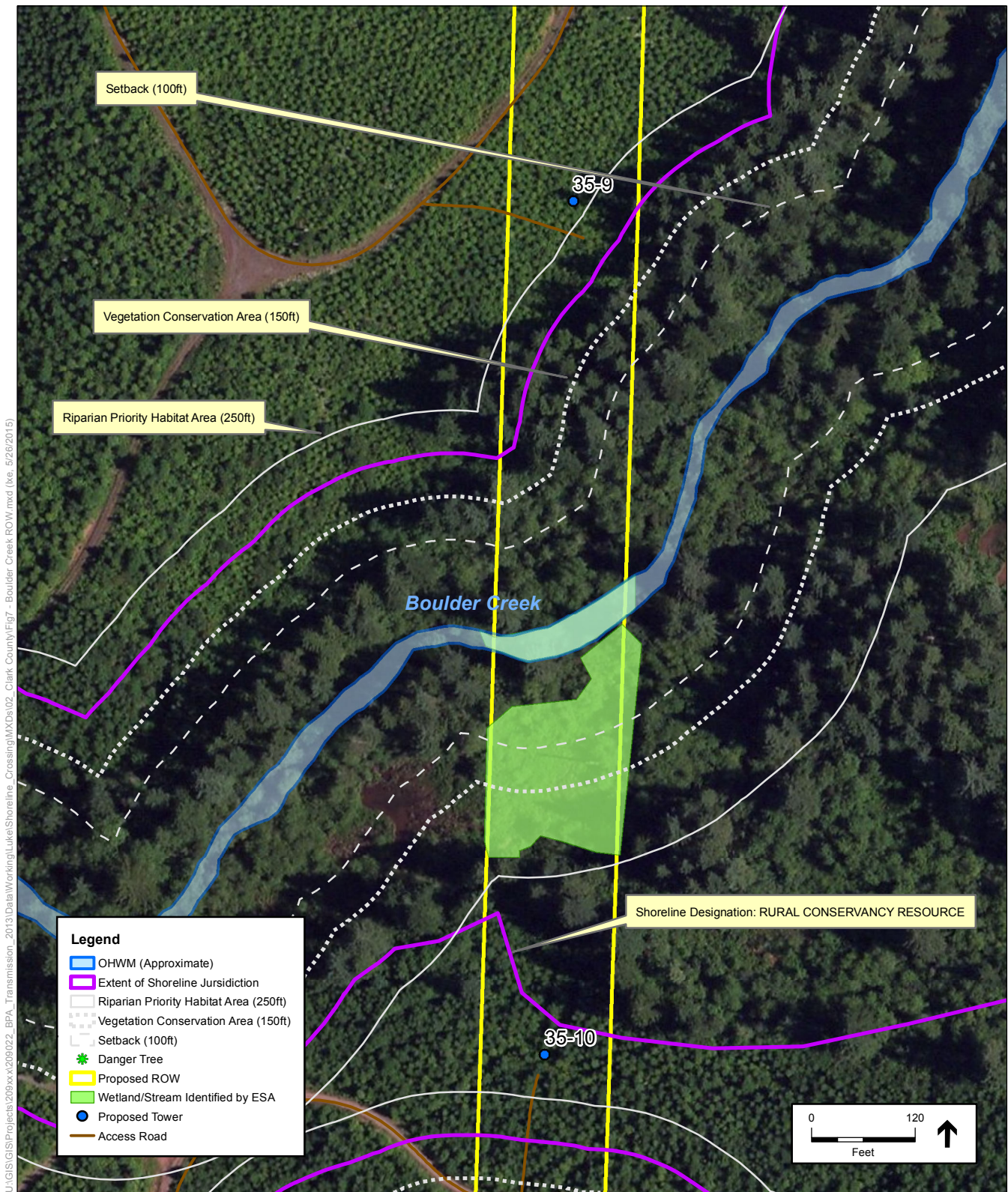






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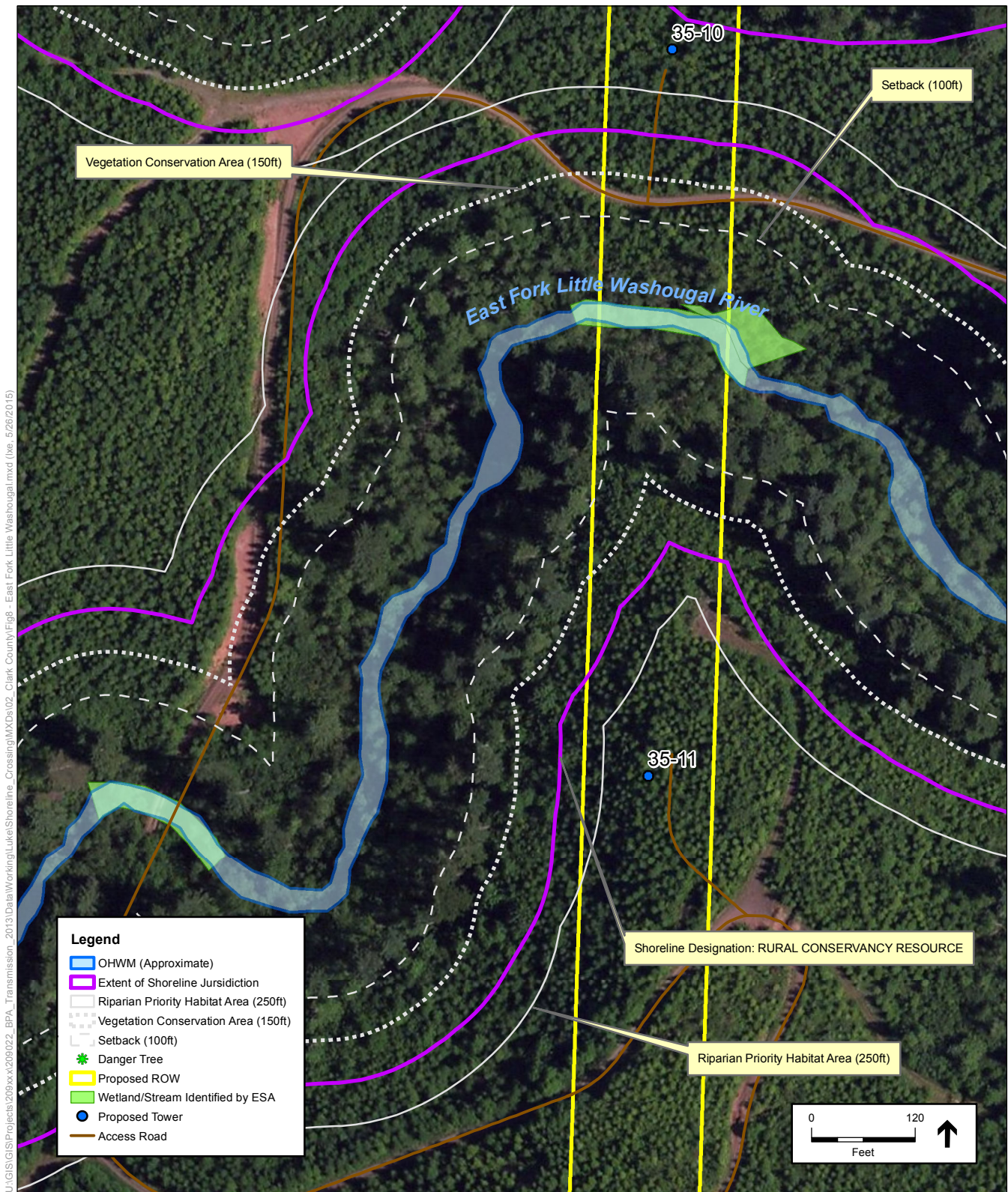


BPA I-5 Corridor Reinforcement - Preferred Alternative

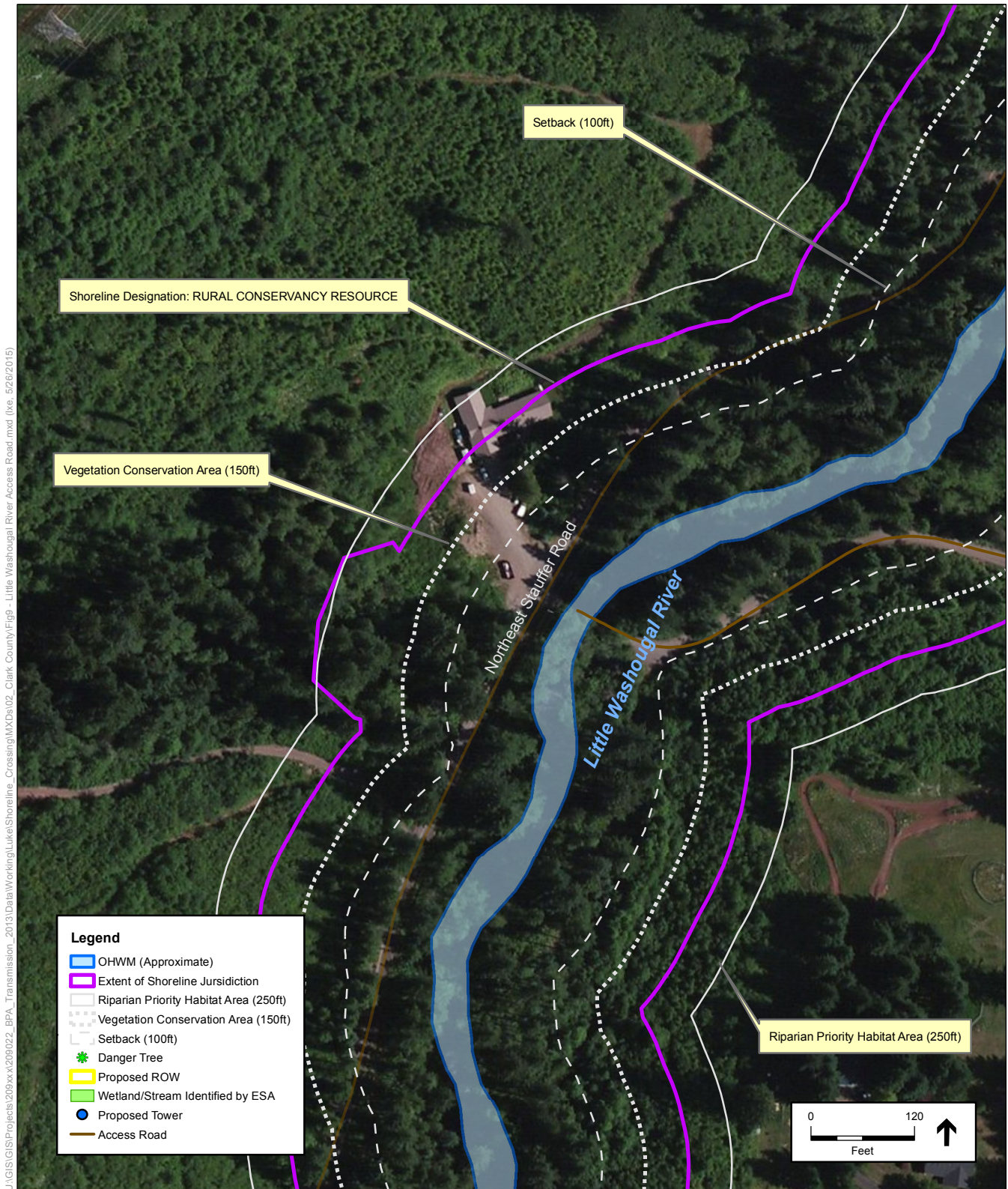
Credits: ESA 2015, BPA 2015, Clark County 2012, ESRI 2013

**Figure 13**  
Boulder Creek ROW  
Clark County, WA









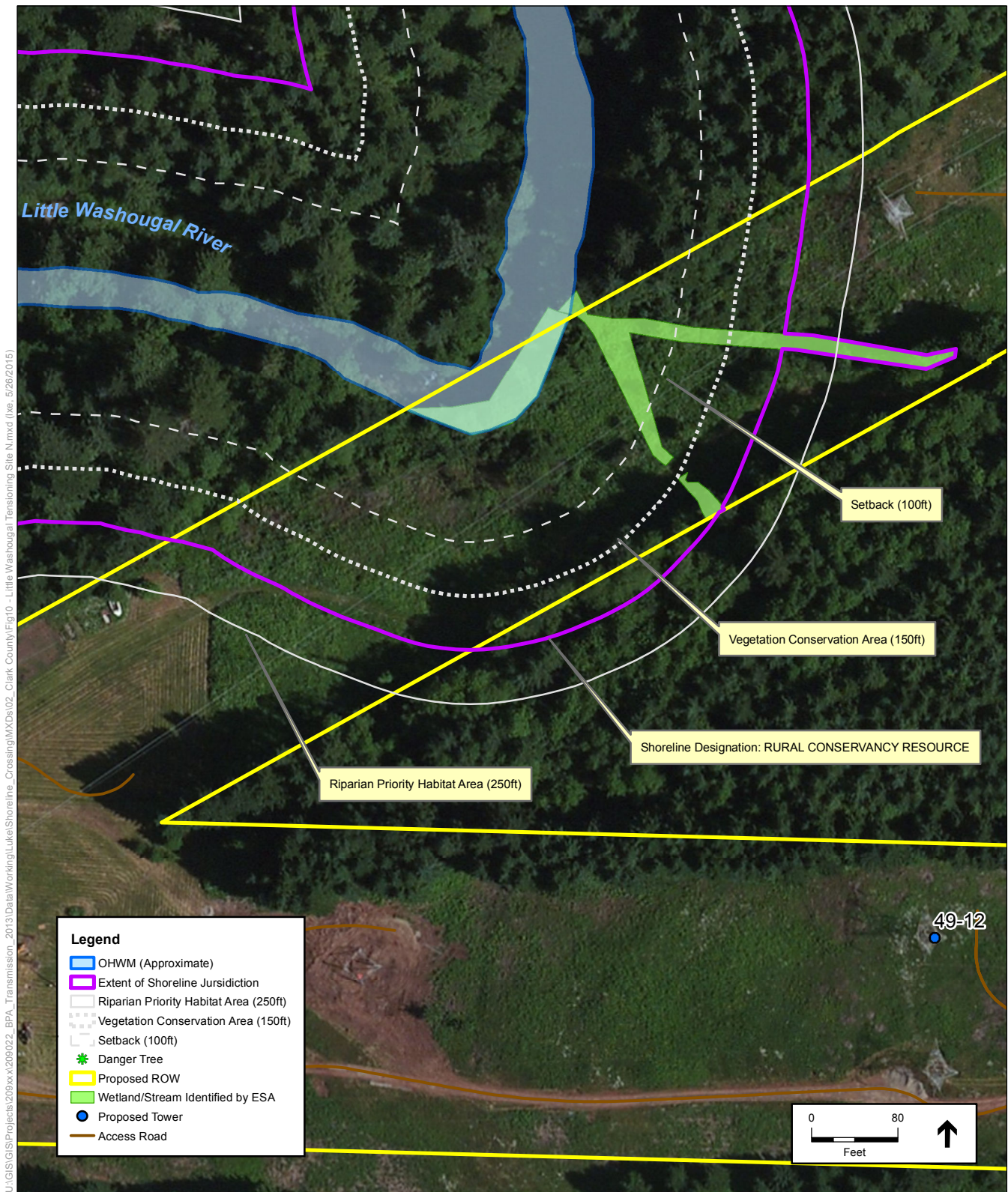
BPA I-5 Corridor Reinforcement - Preferred Alternative

**Figure 15**

Little Washougal River Access Road  
Clark County, WA

Credits: ESA 2015, BPA 2015, Clark County 2012, ESRI 2013



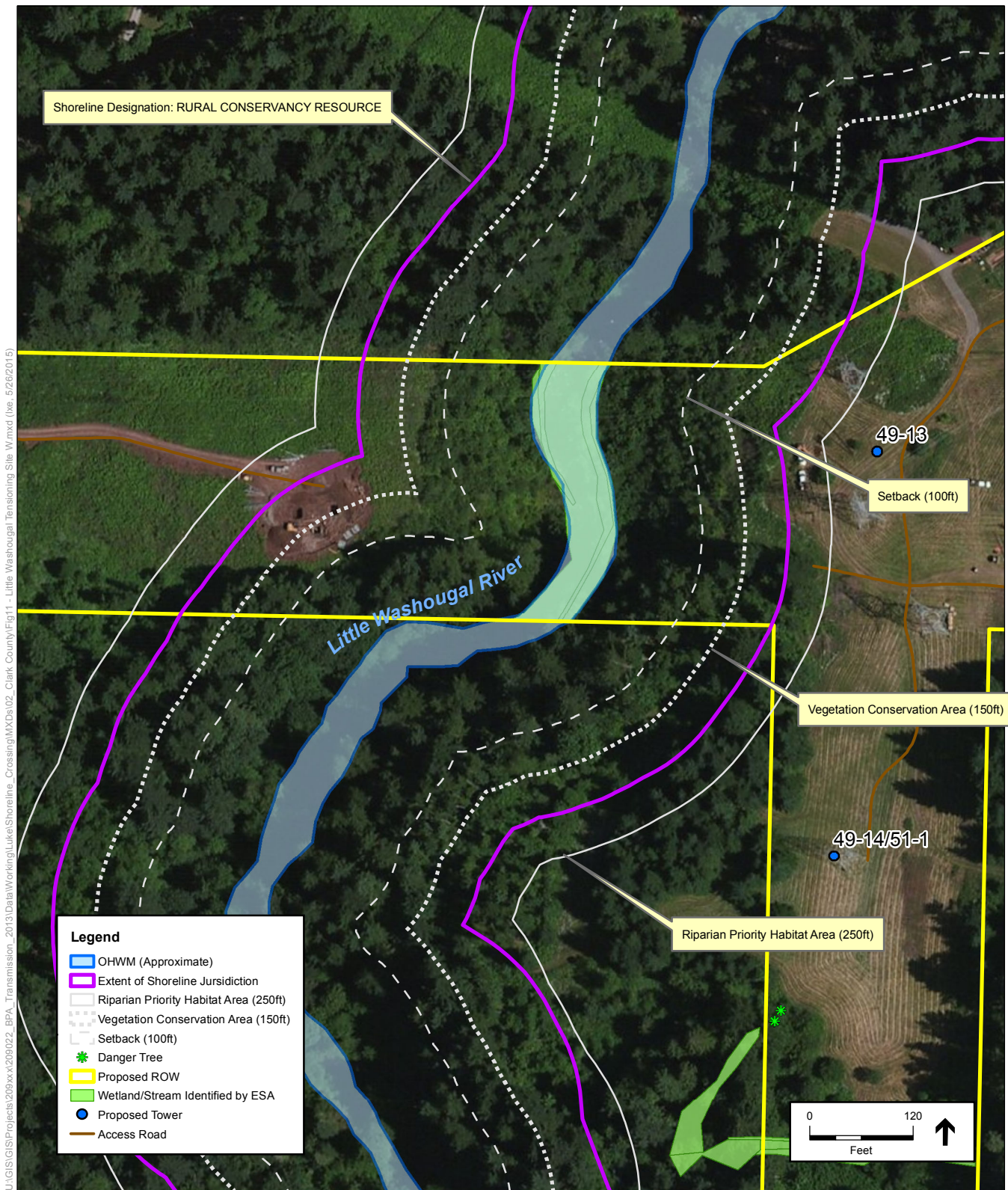


BPA I-5 Corridor Reinforcement - Preferred Alternative

Credits: ESA 2015, BPA 2015, Clark County 2012, ESRI 2013

**Figure 16**  
Little Washougal River Tensioning Site North  
Clark County, WA





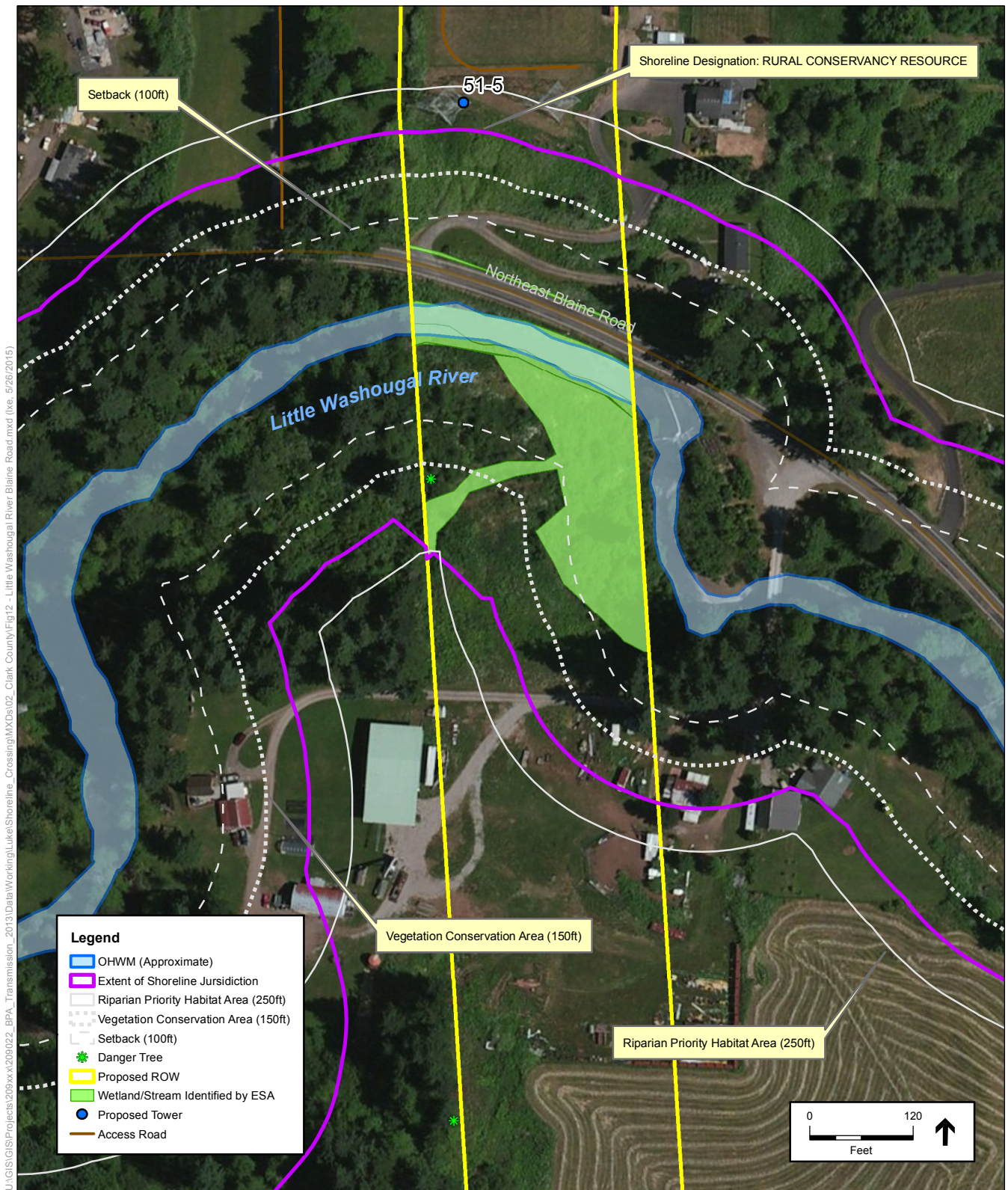
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BPA I-5 Corridor Reinforcement - Preferred Alternative

Credits: ESA 2015, BPA 2015, Clark County 2012, ESRI 2013

**Figure 17**  
 Little Washougal River Tensioning Site West  
 Clark County, WA





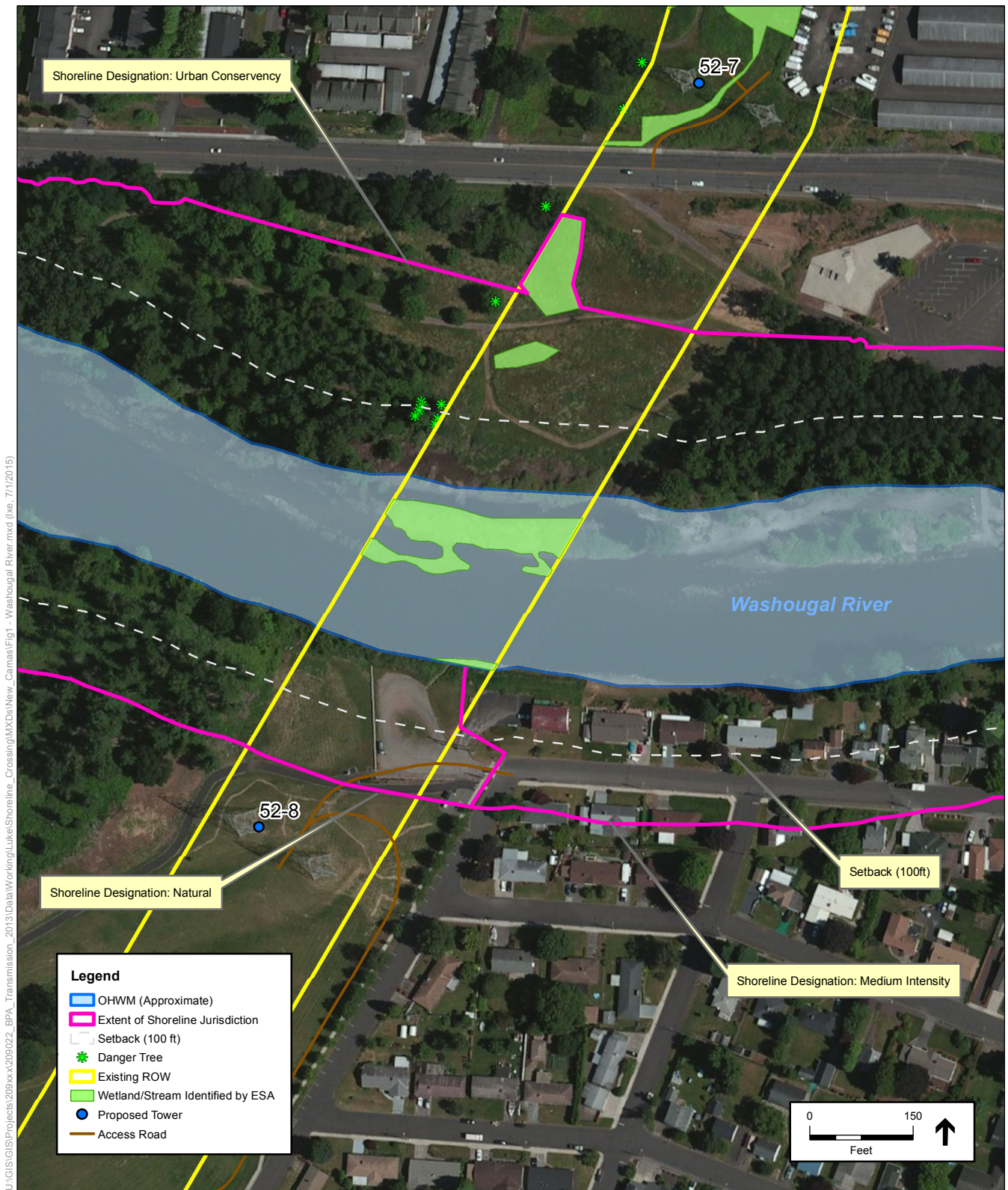
BPA I-5 Corridor Reinforcement - Preferred Alternative

**Figure 18**

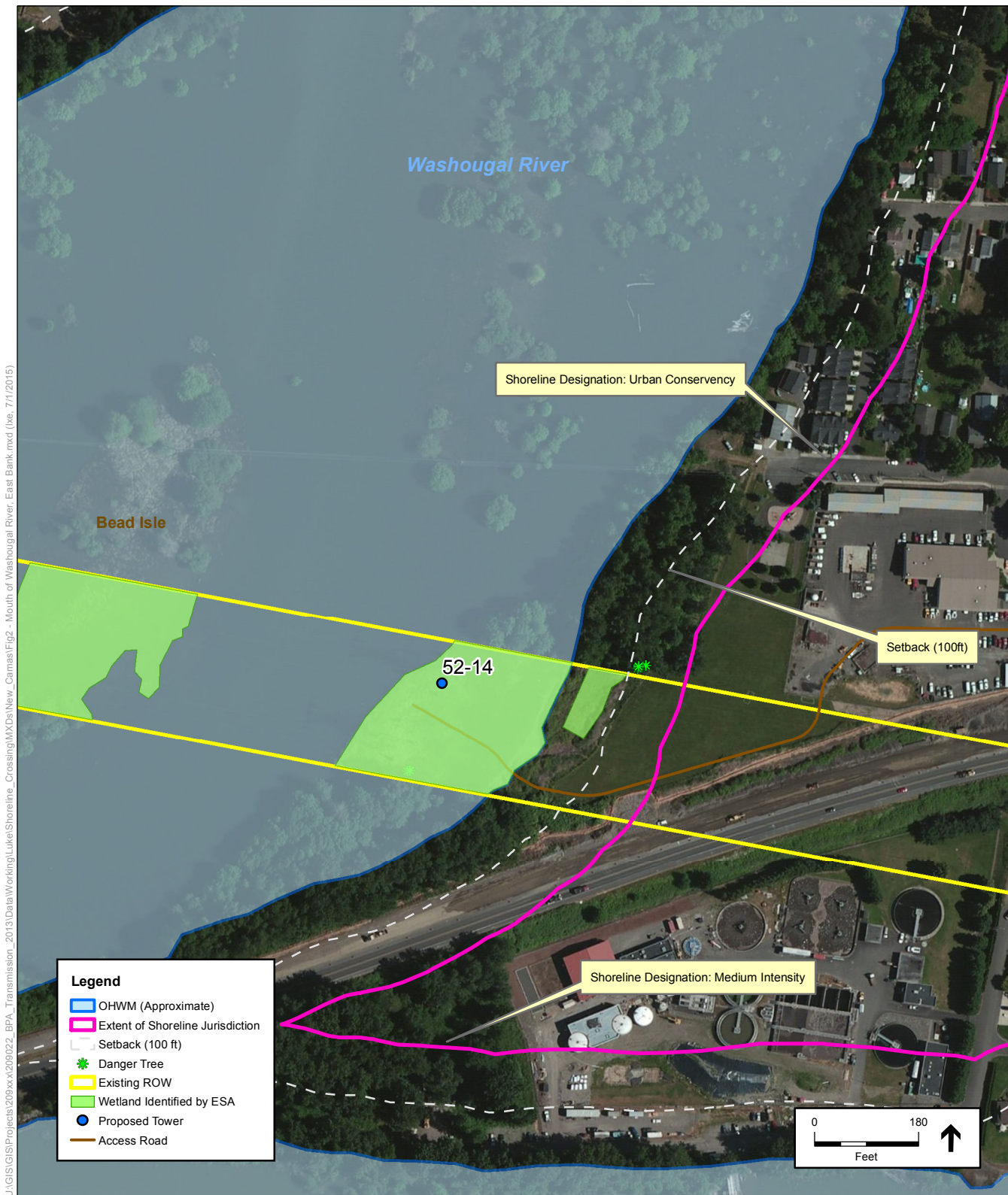
Little Washougal River Blaine Road  
Clark County, WA

Credits: ESA 2015, BPA 2015, Clark County 2012, ESRI 2013



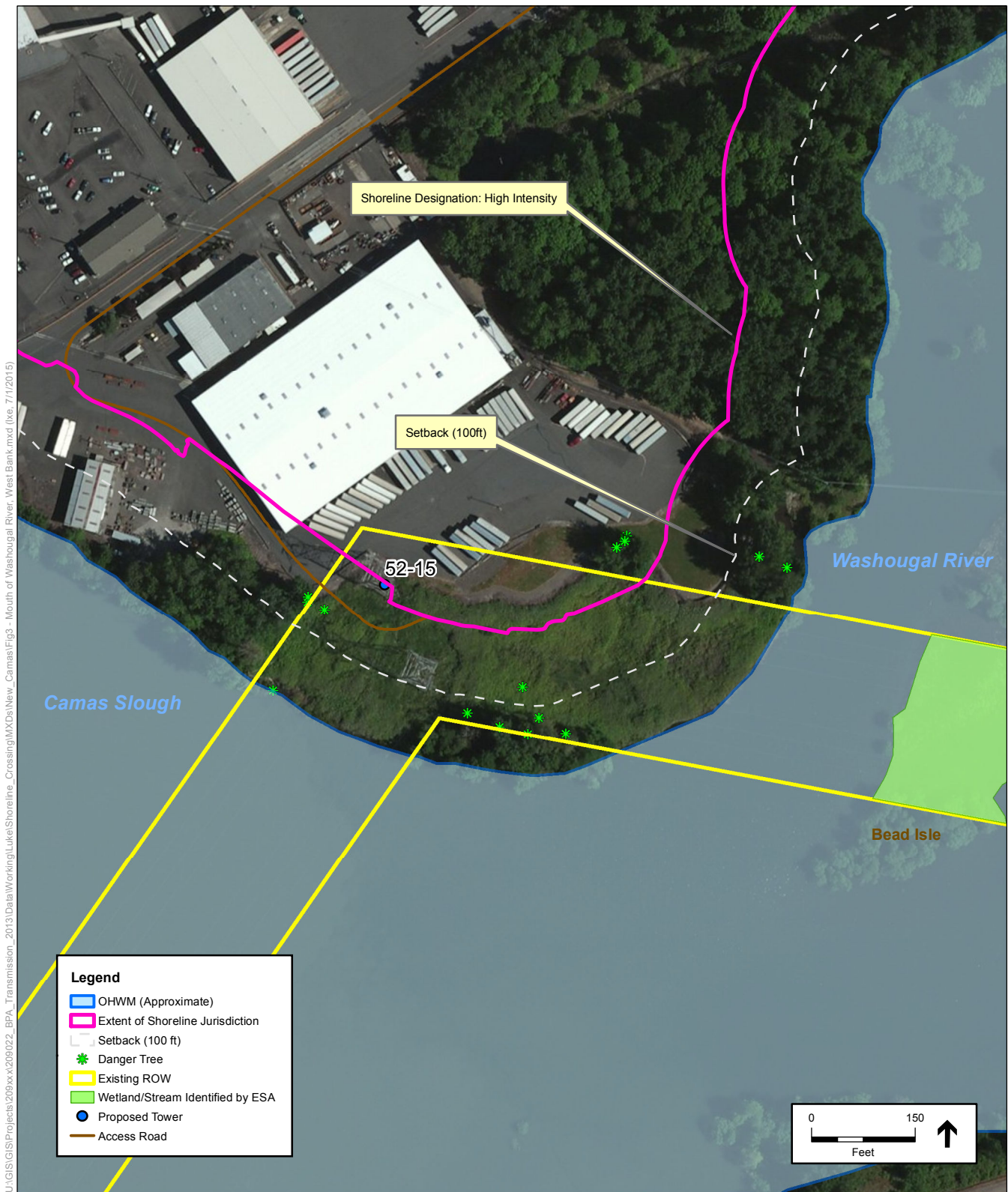






Credits: ESA 2015, BPA 2015, ESRI 2013

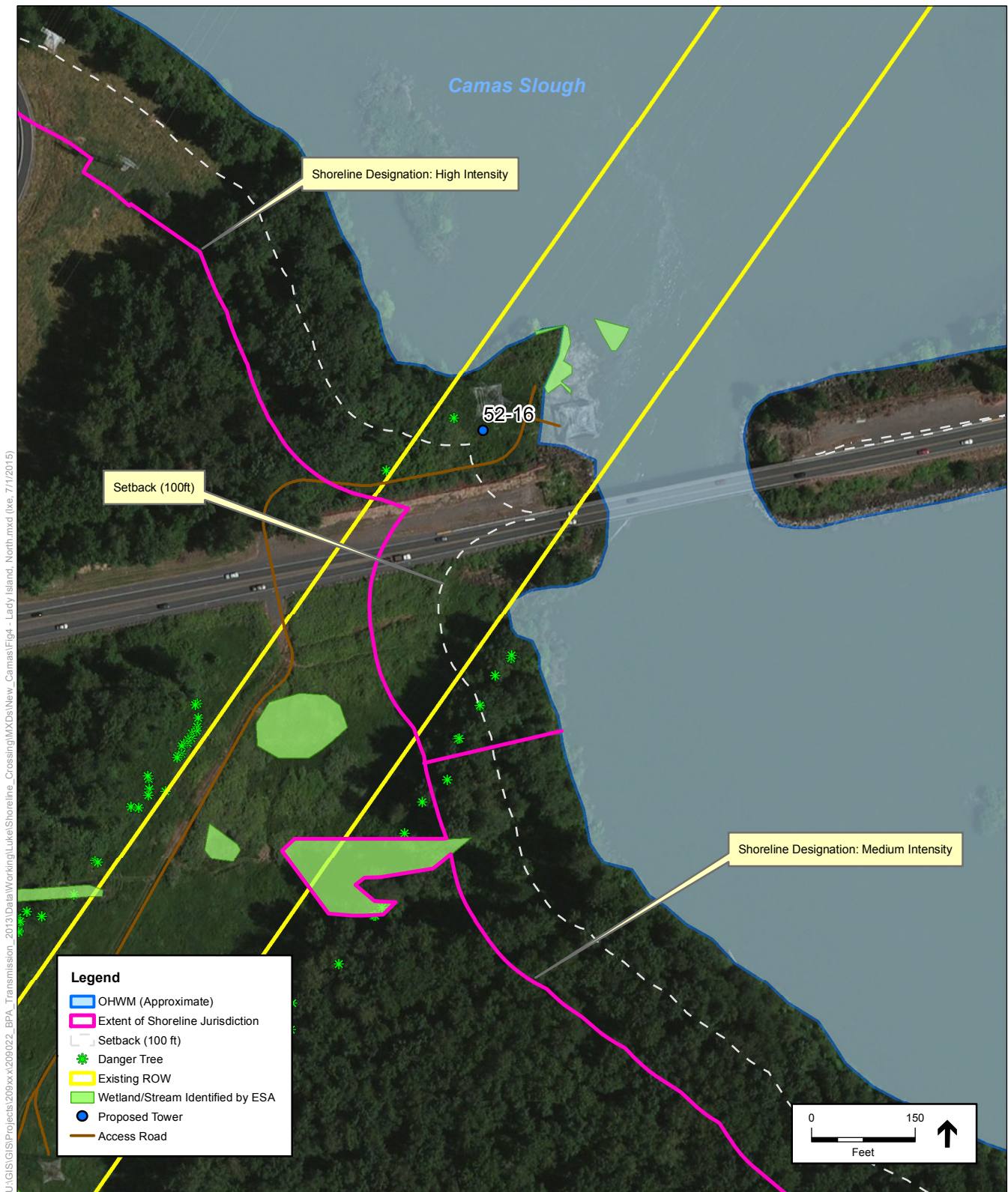
BPA I-5 Corridor Reinforcement - Preferred Alternative  
**Figure 20**  
 Mouth of Washougal River, East Bank  
 Camas, WA



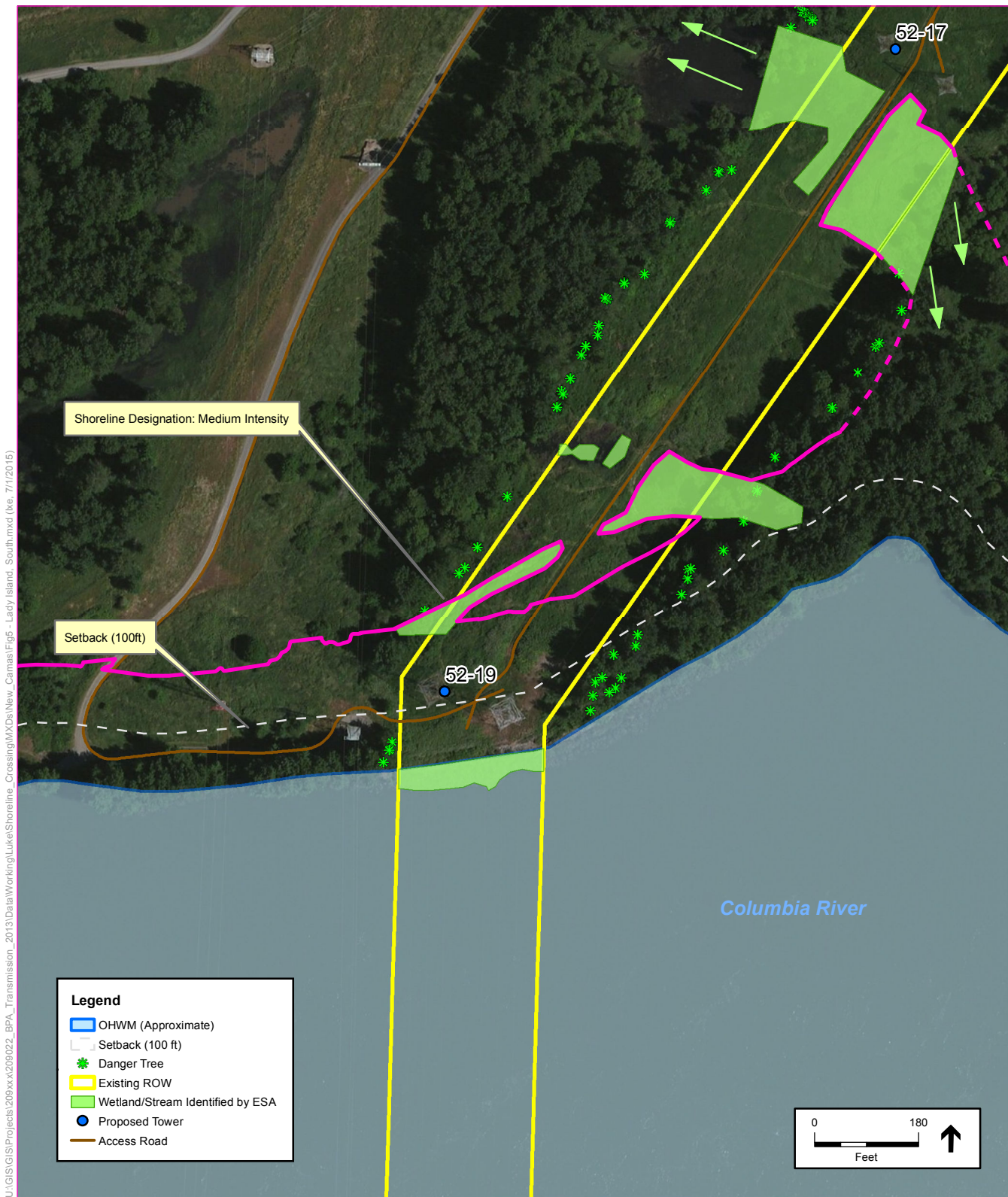
Credits: ESA 2015, BPA 2015, ESRI 2013

BPA I-5 Corridor Reinforcement - Preferred Alternative  
**Figure 21**  
 Mouth of Washougal River, West Bank  
 Camas, WA





U:\GIS\Projects\209\209022\_BPA\_Transmission\_2013\Data\Working\Luke\Shoreline\_Crossing\MXDs\New\_Camas\Fig4 - Lady Island, North.mxd (x: 7/1/2015)



BPA I-5 Corridor Reinforcement - Preferred Alternative

**Figure 23**

Lady Island, South Camas, WA

Credits: ESA 2015, BPA 2015, ESRI 2013