

# Historic Columbia River Highway State Trail, Wyeth – Starvation Creek, Segments A-D



Prepared for  
U.S. Department of Transportation  
Federal Highway Administration

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## APPENDIX



# Acronyms and Abbreviations

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API	area of potential impact
BA	biological assessment
BPA	Bonneville Power Administration
CRGNSA	Columbia River Gorge National Scenic Area
DBH	diameter at breast height
ESA	Endangered Species Act
FHWA	Federal Highway Administration
HCRHST	Historic Columbia River Highway State Trail
NSO	northern spotted owl
ODOT	Oregon Department of Transportation
OPRD	Oregon Parks and Recreation Department
PCE	Primary Constituent Element
SMA	Special Management Area
USFS	USDA Forest Service
USFWS	USDI Fish and Wildlife Service
WFLHD	Western Federal Lands Highway Division



# Biological Assessment

## 1.0 INTRODUCTION

### 1.1 PURPOSE AND NEED

The proposed Wyeth—Starvation Creek Trail Segments (Segments A-D) are part of the Historic Columbia River Highway State Trail (HCRHST) Project, an effort to connect intact and abandoned segments of the Historic Columbia River Highway (HCRH) for recreational use, as originally called for in the 1986 Columbia River Gorge National Scenic Area (CRGNSA) Act. While parts of the HCRH are still drivable, portions have been abandoned, removed and fragmented by the construction of I-84. Trail Segments A-D are within a Special Management Area (SMA) of the CRGNSA. The CRGNSA Management Plan specifically calls for the following within the SMA:

"Intact and usable highway segments should be connected with recreation trails to create a continuous route through the Columbia River Gorge that links local, state, and federal recreation and historic sites" (CRGC 2011).

Since 1987, nearly 12 miles of the HCRHST have been completed. Proposed construction of the Wyeth—Starvation Creek Trail Segments (Segments A-D) Project will complete the trail between the Wyeth campground (east of Cascade Locks) to Starvation Creek State Park.

### 1.2 PROJECT BACKGROUND

The purpose of this Biological Assessment (BA) is to address the effects of the trail construction project on species listed as endangered or threatened under the federal Endangered Species Act (ESA), and their critical habitat. Federal Highway Administration (FHWA) funds will partially finance this Project and constitute the federal nexus. Oregon Department of Transportation (ODOT) will be responsible for administering the funds for the Project. A summary of key Project elements is provided in Table 1.

Table 1. Wyeth—Starvation Creek Trail Segments (Segments A-D), HCRHST Project Summary.	
Project Name:	Wyeth—Starvation Creek Trail Segments (Segments A-D) Project
FHWA Project#:	OR DOT CRGNSA 100(1), Historic Columbia River Highway State Trail
Federal Aid Number:	WFL14AE013
Location of Project:	Wyeth Campground - Starvation Creek State Park (I-84 MP 51-55)
Ownership:	ODOT right-of-way; Oregon Parks and Recreation Department properties including Lang State Park, Lindsey Creek Scenic Corridor, and Starvation Creek State Park; and land managed by USDA Forest Service (USFS) Columbia River Gorge National Scenic Area Unit
Watershed (6 <sup>th</sup> HUC):	Columbia River Tributaries (Grays Creek (170701050903)
USGS Quadrangle:	Carson and Mount Defiance, OR Quads; T2N R8E Sec 1; T2N R9E Sec 4,5,6; T3N R9E Sec 31;
Size of Action Area:	3.93 miles long; 16.6 acres
County:	Hood River County
Project Staff:	Mike Odom (WFLHD), Erin Chipps (WFLHD), Steve Mader (CH2M HILL), Pamela Porter (ODOT Biologist).
Site Visits:	October 31, 2013 (CRGNSA Office); November 14, 2013 (site); November 29, 2013 (site)
Site Access	Public land
Current Land Use(s):	ODOT I-84 right of way, state park, and national forest
Columbia River Mile:	RM 156 – 159.5
Waterways on Site:	Summit (Columbia RM 158), Lindsey (RM 158.8), Wonder (RM 159.1), Warren (RM 159.1), and Cabin (RM 159.4) creeks; unnamed drainages, and roadside ditches.
Prior Correspondence:	Email correspondence with Kevin Maurice (USFWS) September – November, 2013; Email correspondence with David Leal (USFWS) – October 18, 2010, June 23, 2011.

Early coordination, pre-consultation and site visits for the proposed Project took place during November 14 and 29, 2013, between Erin Chipps/WFLHD, Brett Carré/USFS, Steve Mader/ODOT-Qualified Biologist, and Kevin Maurice/ODOT-USFWS Liaison. The purpose of pre-consultation was to evaluate the status of northern spotted owl (NSO) habitat within the Project area, to discuss Project design constraints and construction details, and to identify conservation measures to avoid and/or minimize Project effects to the species.

This BA, prepared by FHWA for the U.S. Fish and Wildlife Service (USFWS), addresses the proposed action in compliance with Section 7c of the ESA of 1973, as amended. Section 7 of the ESA assures that, through consultation with the USFWS, federal actions do not jeopardize the continued existence of any threatened, endangered, or proposed species, or result in the destruction or adverse modification of critical habitat.

The Area of Potential Impact (API) overlaps with listed species, Critical Habitat, and Essential Fish Habitat under the jurisdiction of NOAA Fisheries. This BA is in addition to a separate BA and NOAA Fisheries Biological Opinion that covers species and habitats in NOAA Fisheries’ jurisdiction that may be affected by the Project.

### 1.3 SPECIES AND CRITICAL HABITAT

Table 2 summarizes threatened, endangered, and proposed species that are known to occur in Hood River County (USFWS 2014). Note that those species having no potential to occur in the action area are not addressed further in this document.

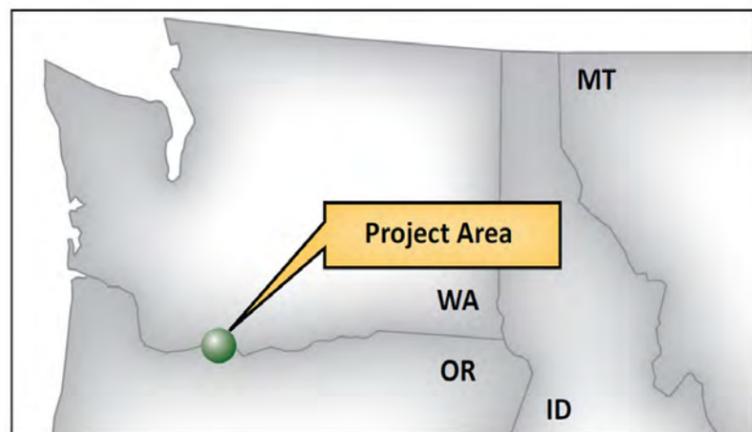
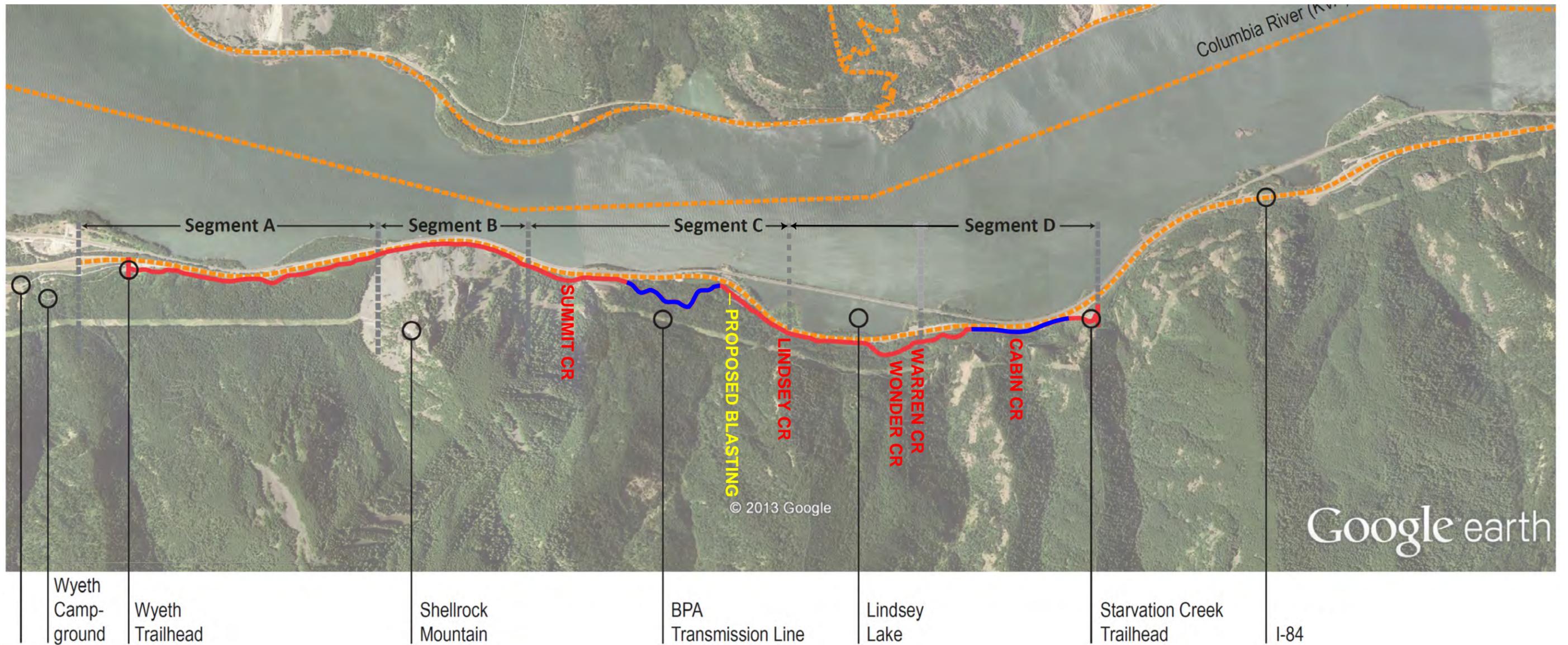
Species	Scientific Name	Federal/State Status	Critical Habitat (Closest Occurrence)	Habitat Requirements	Finding of Effect
Northern spotted owl	<i>Strix occidentalis caurina</i>	Threatened/Threatened	Established	Old growth forests with a multi-layered, multi-species canopy.	NLAA, see this BA.
Bull trout	<i>Salvelinus confluentus</i>	Threatened/Not Listed	Established connecting habitat (Mainstem Lower Columbia River)	Large rivers in water temperatures up to 68 °F. Preferred spawning habitat consists of low-gradient stream reaches with loose, clean gravel.	No Effect, no potential habitat.

This BA will address Project impacts to threatened NSO populations and their associated Critical Habitat (USFWS 2012). The Primary Constituent Elements (PCE) may include, but are not limited to, the following: roost sites, nesting grounds, spawning sites, feeding sites, seasonal wetland or dryland, water quality or quantity, host species or plant pollinator, geological formation, vegetation type, tide, and specific soil types. As discussed below, the clearing of possible foraging and dispersal habitat, unavoidable noise disturbances associated with rock excavation and stabilization of unstable rock face, and trail and bridge construction activities have the potential to affect NSO in the action area. These potential effects constitute the underlying basis of this consultation.

## 2.0 PROJECT DESCRIPTION

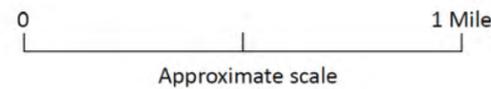
Segments A-D of the HCRHST Project are located adjacent to or near I-84 in the CRGNSA between Wyeth and Starvation Creek in Hood River County, Oregon (Figure 1). The bike/ped Project was originated by the Oregon Parks and Recreation Department (OPRD) and ODOT, then transferred to FHWA’s Western Federal Lands Highway Division (WFLHD) for final design. FHWA and ODOT will be responsible for administering the funds and constructing the Project. Partial funding is provided by the Federal-Aid Highway Program. Segments A-D of the trail alignment are 3.93 miles long and located on ODOT right-of-way; Oregon Parks and Recreation Department properties including Lang State Park, Lindsey Creek Scenic Corridor, and Starvation Creek State Park; and land managed by USFS Columbia River Gorge National Scenic Area Unit. The segments cross several drainages including ESA fish streams. The Project typically includes 12-foot-wide trail with 2-foot-wide shoulders.

The proposed Project will follow the HCRH State Trail Guidelines (ODOT 2011), and includes the following components:



**LEGEND**

- Proposed Project Route
- Existing Historic Highway



**FIGURE 1**  
**Vicinity Map**  
 Columbia River Gorge Historic  
 Highway Trail Extension Project

- Grading, base, paving and drainage for a paved 3.93-mile-long pedestrian/bicycle path, 10-12 feet wide with two 2-foot shoulders, with grades generally up to 5% (occasionally up to 8%).
- Incorporation of remnant sections of the HCRH to reduce new footprint.
- Trailhead improvements (short vehicle road extension, traffic circle, and parking lot) at Wyeth Campground, just west of the Exit 51 interchange of I-84.
- Rock through-cut, including blasting. Blasting will occur outside of critical nesting period for NSO.
- Rock fall protection may involve blasting. Blasting will occur outside of critical nesting period for NSO.
- Retaining walls to support the path and minimize the footprint.
- Viaduct will require earthwork and formwork.
- Traffic barriers will separate the proposed trail from adjacent I-84.
- New 47' single span pedestrian/bicycle bridge over Warren Creek will require tree clearing.
- Extension of an existing 66" culvert at Summit Creek will require in-water work.
- Viewing areas and scenic spur trails will involve grading and earthwork.
- Planting of disturbed areas with native grasses, shrubs and trees.

Blasting will consist of either production or trim blasting, depending upon the final rock slope design. The process consists of drilling near-vertical holes into the rock using an "air-track" drill and loading the holes with explosive appropriate to the specific shot type. Load and initiation timing will be determined to produce the desired effect with the least amount of ground vibration and air-blast (noise). Several shots may be necessary to excavate the rock slope to final design grade. The noise component is two-fold. The air-track drill is expected to produce in excess of 110 dB at the borehole. Blasting will be limited to 0.05 psi (about 145 dB) at the nearest structure or designated receptor, and can be reduced as necessary.

## 2.1 PROJECT AREA AND SEQUENCING

### 2.1.1 Project Area

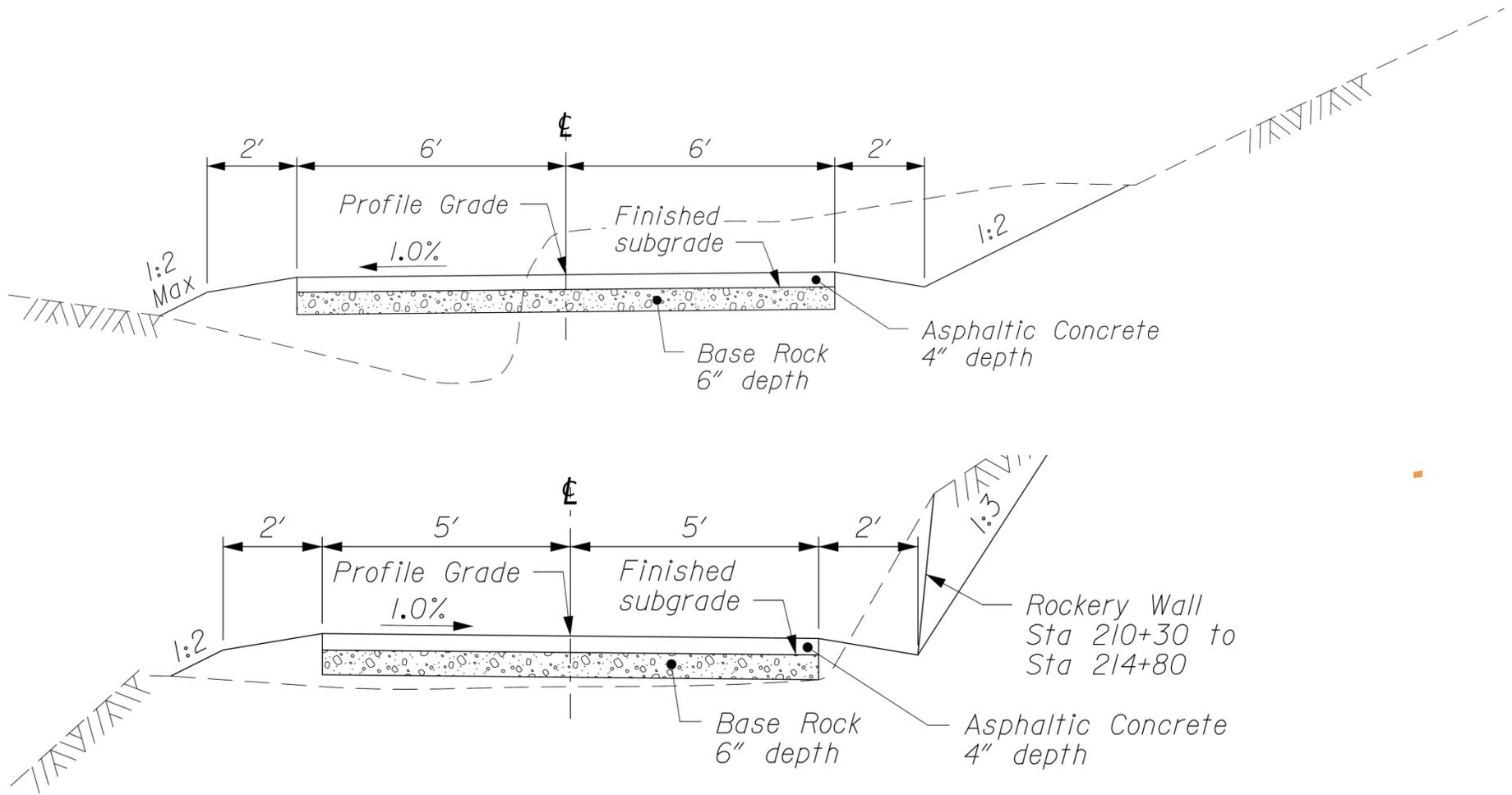
The physical disturbance area (the Area of Potential Impact (API) for the purpose of this BA) consists of the proposed trail footprint and temporary construction impacts, including geotechnical investigation, access roads, staging areas, and allowances for vegetation clearing. A variable width will be cleared on either side of the permanent trail footprint (trail surface and embankment) for sight distance, removal of hazard trees, and for temporary construction activity. The proposed typical trail surface will be 12 feet in width, with 2 foot shoulders (for a total of 16 feet in width) (Figure 2). Occasionally, the trail surface will be narrowed to 10 feet wide, where safe, to avoid large tree removals (Figure 2). Also, spatial allowance is needed for overlooks, rest stops, interpretive areas, and auxiliary trails, widening the total area of disturbance at those locations. Auxiliary trails will be 4-6 feet wide with gravel surfaces. The width of disturbance beyond the trail surfaces will depend on terrain and the types of appurtenances (e.g., retaining walls, railing). On average, vegetation clearing might extend about 10 feet beyond the trail surface; less where the trail profile is close to existing grade and more where cut or fill slopes occasionally extend farther up or down slopes.

The API will be approximately 16.7 acres in size.

The proposed trail will traverse riparian forest associated with Starvation, Warren, Wonder, and Lindsey creeks, mixed deciduous/coniferous forest, mature coniferous forest, young coniferous forest, and ruderal herbaceous vegetation along the I-84 shoulder. The fenced staging areas will be located at previously developed areas and within the proposed trail footprint. The project elements and footprint, in relation to property boundaries, are shown on Sheets 1-15 of the Appendix.

### 2.1.2 Sequencing

- Trail Alignment: Trail alignment has been designed to avoid large trees, talus slopes, and disturbance of wetlands and streams. Orange construction fencing will identify edge of ground disturbance to prevent unnecessary ground disturbance and felling of trees.



**FIGURE 2**  
**Typical Sections**  
 Historic Columbia River Highway  
 State Trail Project

- **Tree Removal:** Trees will be felled between September and March (Segment D trees during 2014 to 2015). About 31 conifers and 3 hardwoods greater than 24 inches in diameter at breast height (DBH) will be cleared for the Project; 8 trees in Segment A, 1 tree in Segment B, and 25 trees in Segment D. Felled trees will be left on site to be limbed and positioned along trail shoulders to provide habitat for sensitive amphibian and mollusk species.
- **Staging and Stockpiling Areas:** Contractor will be required to use designated staging areas.
- **Warren Creek Bridge Construction:** Bridge will be 47 feet in length, and at least 1.5 times the active channel width. The bridge abutments probably will be founded on concrete spread footings.
- **Blasting:** Blasting for a rock cut will occur at about 600 feet of rock face along I-84, west of Lindsey Creek at HCRHST Station 138+00. The rock cut will require blasting into the existing rock cut south of I-84 and creating a new (or additional) 4- to 45-foot-high rock bench for the trail at an ADA-compatible grade. Construction of the bench cut will generate noise to receptors at I-84, the railroad, and the Columbia River. Blasting will be performed outside of the NSO critical nesting period of March 1 - July 15 (Leal 2006). Blasting mats may be used to control potential flyrock and noise levels. Blasting charges will be the minimum needed to accomplish the work. Charge weight will be determined on site. Also, rock fall stabilization will be performed at several locations along the trail. Stabilization typically involves removal of loosened rock using mechanical scaling with a long reach excavator or by crews rappelling the slope or working from high-lift equipment and clearing loose rock and debris by hand. Some rock faces may require blasting prior to installation of the stabilization structures.
- **Trail Construction:** Earthwork, retaining walls, grading and paving will be done with ground disturbance minimized to the greatest extent possible.
- **Signage:** Addition of signs, railings, and rockery around viewing areas.
- **Site Restoration:** Revegetation of disturbed ground using native shrubs, trees, and seed mixes.

## 2.2 INTERDEPENDENT AND INTERRELATED ACTIONS

Interrelated actions associated with this Project include utility relocations, and access road improvements by easement holders (e.g., Bonneville Power Administration (BPA)).

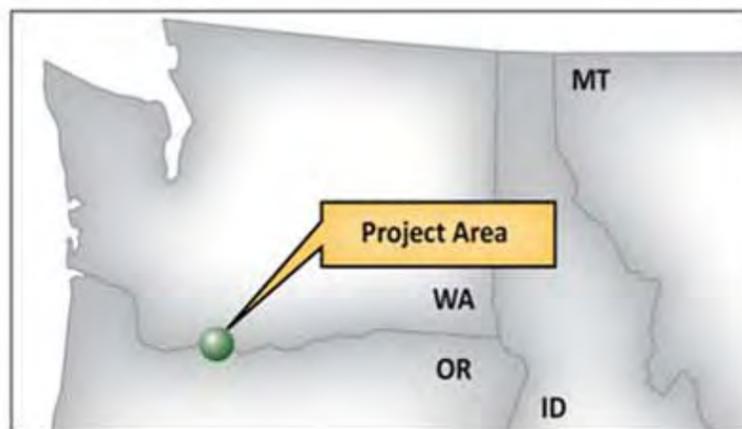
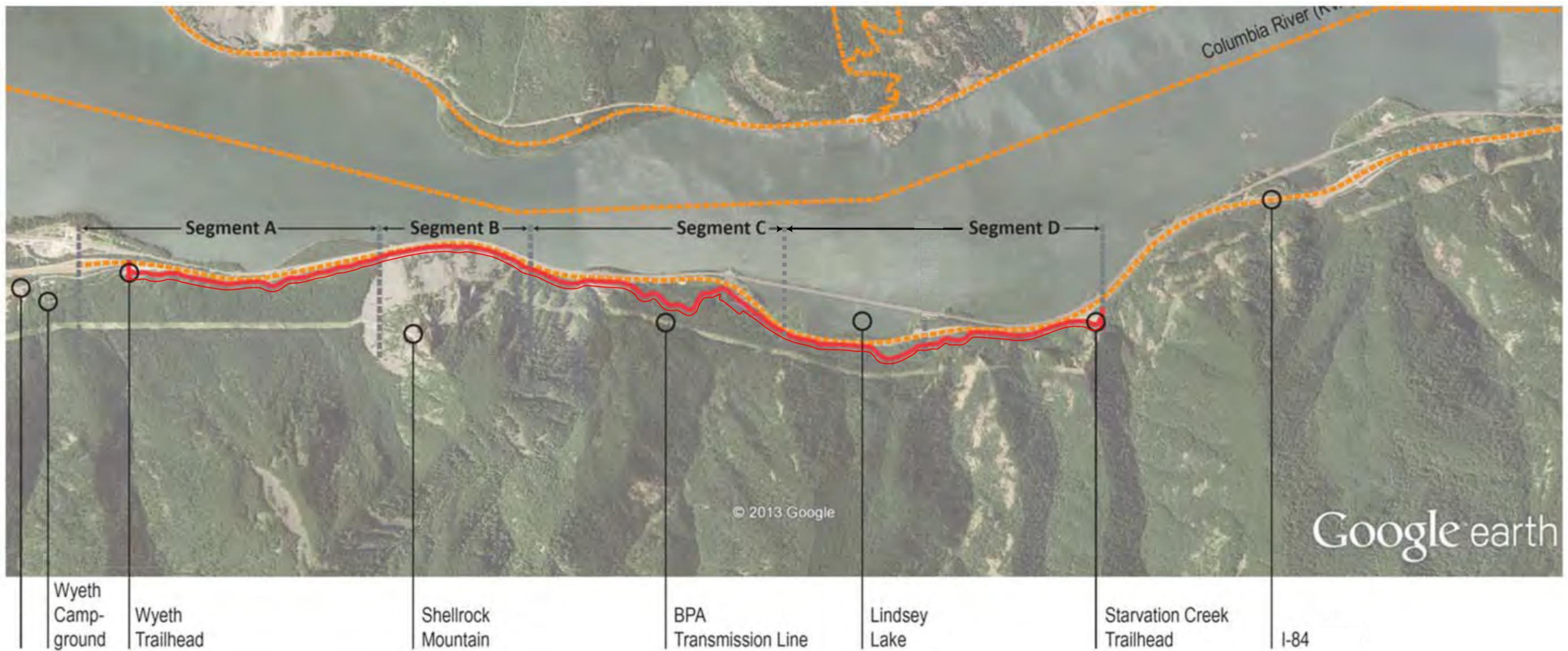
## 2.3 MITIGATION AND MONITORING

Remnants of the historic highway and previously developed features (e.g., I-84 embankment, ODOT right of way, staging and waste areas previously used for I-84 construction) were selected for the trail alignment where practical. The area cleared along the trail and around creek crossings will be minimized to the greatest extent possible. Following trail construction, areas disturbed will be revegetated with native shrubs, trees, and grasses. Large wood from the trees felled during construction will be left on site to provide habitat for salamanders, mollusks, and rodents.

## 2.4 ACTION AREA

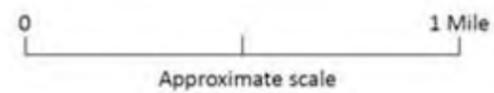
For the purposes of this assessment the Project area is defined as "all areas where project activities will occur," (50 CFR § 402-02) and includes all areas within the construction limits that will be used for permanent trail facilities, construction access, laydown, staging, and stockpiling. The Project area associated with permanent trail, auxiliary trails, bridges, walls, and viewing areas will cover approximately 16.6 acres. Approximately 55% of the trail is immediately adjacent to I-84, and most is within 300 feet.

The action area is defined as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action" (50 CFR 17.11). The action area for the proposed Project includes all areas within the Project area as well as the wider area subject to radiating noise disturbances, as defined by the USFWS harassment thresholds for NSO (Leal 2006). For this Project, only the area south of the proposed trail is included in the calculations. The total action area is 53.53 acres (Figure 3; Table 3).



**LEGEND**

- Proposed Project Route
- Action Area



**FIGURE 3**  
**Action Area**  
*Historic Columbia River Highway State Trail Project*

**Table 3. Project action area determined by noise-generating activities and associated NSO harassment thresholds (Leal 2006).**

Activity	Linear Distance along Trail (feet)	Harassment Threshold Distance (feet)	Area (acres)
Blasting	600	360	4.96
Heavy equipment	20,150	105	48.57
Total			53.53

### 3.0 ENVIRONMENTAL BASELINE CONDITIONS

Regulations implementing the ESA (50 CFR § 402.02) define the environmental baseline as the past and present impacts of all federal, state, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed federal projects in the action area that have undergone Section 7 consultation and the impacts of state and private actions that are contemporaneous with the consultation in progress. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area.

#### 3.1 EXISTING ENVIRONMENTAL BASELINE

The HCRHST alignment is located within the Western Cascades Lowlands and Valleys level IV ecoregion (Thorson et al. 2003), typified by lush, western hemlock-Douglas fir stands. This ecoregion is found on the lower slopes of the Cascades, and contains steep valleys with high-gradient rivers and streams that support cold-water salmonids. The Project is within the Columbia River Gorge, a low elevation river passage carved through the Cascade Range and forming the present boundary between Oregon and Washington. The Gorge is characterized by steep slopes that often rise hundreds to thousands of feet within just a few miles of the river. Cliff faces at different elevations may be comprised of layers of dense (often columnar) basalt, or of much looser, usually sedimentary material. Due to slope steepness, heavy seasonal rainfall, and the highly variable stability among rock layers, debris slides are not uncommon and many relatively level surfaces near the freeway are actually comprised of colluvium from old slides. The trail alignment passes over old colluvium in several places, especially where it moves south and upslope away from I-84 to avoid wetlands or other obstacles. Portions of the alignment closest to the highway cross surfaces that have been disturbed by road construction or other human activities. About 55 percent of trail is immediately adjacent to I-84. The trail construction will reach its maximum distance from I-84 near the proposed Warren Creek bridge crossing, where the alignment is a little over 300 feet south of the highway. The trail alignment winds over 600 feet from I-84 between Summit Creek and Lindsey, where a remnant section of the old highway will be rehabilitated for trail use (Figure 1).

The trail will pass through mixed deciduous/coniferous forest, mature coniferous forest, and young coniferous forest. The riparian forest associated with Warren Creek is primarily composed of big-leaf maple (*Acer macrophyllum*), red alder (*Alnus rubra*), and vine maple (*Acer circinatum*). Adjacent hillslopes are forested with a mix of Douglas-fir (*Pseudotsuga menziesii*) and western hemlock (*Tsuga heterophylla*). The understory vegetation is dominated by salmonberry (*Rubus spectabilis*), sword fern (*Polystichum munitum*), vine maple, and snowberry (*Symphoricarpos albus*).

The open areas dominated by non-native species have a history of disturbance, for example, staging and waste soil areas for I-84 highway construction. Common open area species include tall fescue (*Festuca arundinacea*), red fescue (*Festuca rubra*), bentgrass (*Agrostis* spp.), orchardgrass (*Dactylis glomerata*), and sweet vernal grass (*Anthoxanthum odoratum*). Common weedy forbs include vetch (*Vida* spp.), ox-eye daisy (*Chrysanthemum leucanthemum*), St. John’s wort (*Hypericum perforatum*), Himalayan blackberry (*Rubus armeniacus*), and English ivy (*Hedera helix*).

The Columbia River Gorge has a long, complex land use history prior to and after Euro-American settlement. Major alterations to the immediate Project area have occurred within recent decades due to Interstate-84

construction and subsequent, periodic road maintenance activities. Highway construction has necessarily impacted a wider corridor than the currently paved areas. Localized hydrology has been permanently altered by construction in some areas. Road cuts and reshaping of slopes has altered the location and character of groundwater seepages near the right-of-way. Also, perennial streams may have been temporarily impacted during construction of the railroad line and I-84 bridge structures and approaches. For example, Warren Creek was realigned through Hole-in-the-Wall Falls.

Owl activity in the API is likely to be low due to the proximity to human disturbance, including I-84 and the nearby active railroad. The forest habitat in the Project area contains some of the functional habitat elements required to support NSO life history. Mt. Hood National Forest contains NSO critical habitat. Field observations indicate that forest structure may be suitable for NSO to forage, disperse, and avoid avian predation. NSO nesting habitat is unlikely to be present within the API due to:

- the lack of old growth forest
- the high noise levels
- vulnerability to predation
- better habitat upslope (south) within Mt. Hood National Forest

General occupancy of this habitat must nevertheless be assumed. However, as indicated above, any owls occupying this area would already be acclimated to high levels of human activity and traffic-related noise disturbance.

## 4.0 NATURAL HISTORY AND SPECIES OCCURRENCE

### 4.1 NORTHERN SPOTTED OWL

#### 4.1.1 Site Specific Biological Requirements and Context

This Project is within the Western Oregon Cascade Province, as identified in the Northwest Forest Plan (USDA 1994). Roost sites selected by spotted owls have more complex vegetation structure than the forests generally available to them (Barrows and Barrows 1978; Forsman et al. 1984; Solis and Gutierrez 1990). Nesting habitats are usually multi-layered forests having high canopy closure and large diameter trees in the overstory. This type of habitat is not present within the API.

NSO generally rely on older forest habitats because they contain the structures and characteristics required for nesting, roosting, foraging, and dispersal. These characteristics of older forests include the following: a multi-layered, multi-species canopy dominated by large overstory trees; moderate to high canopy closure; a high incidence of trees with large cavities and other types of deformities; numerous large snags; an abundance of large, dead wood on the ground; and open space within and below the upper canopy for owls to fly (Thomas et al. 1990; USFWS 2011). Forest stands with high canopy closure also provide thermal cover (Weathers et al. 2001), as well as protection from predation. Generally, NSO do not select intermediate- or younger-aged stands (Solis and Gutierrez 1990).

Foraging habitat is the most variable of all habitats used by territorial owls (Thomas et al. 1990). Foraging habitat ranges from complex structure (Solis and Gutierrez 1990) to forests with lower canopy closure and smaller trees (Gutierrez 1996).

Generally, the habitat in the action area is best described as dispersal habitat, although there are small pockets of trees adjacent to the proposed trail alignment that NSO could use for roosting. Owl movements would likely be impeded by the noise and activity along I-84, the railroad, and the barrier formed by the Columbia River. In a study of NSO juvenile and adult dispersal, owls never crossed large bodies of water (Forsman et al. 2002).

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## 4.1.2 Site Specific Critical Habitat Context

USFWS determined that physical and biological habitat features are essential to support nesting, roosting, foraging, and dispersal of northern spotted owls. Habitat that supports nesting, roosting, foraging and dispersal, and the characteristics of that habitat (i.e., canopy cover, older trees, presence of snags, etc.), are considered NSO critical habitat. Designated critical habitat is located about 4 miles west-southwest of the western terminus of the trail project near Wyeth, and about 5.9 miles west-southwest of proposed blasting at trail Station 138+00.

Protocol calling surveys for NSO have not been conducted for the proposed Project action area. Consequently, dispersal and foraging use have been assumed for all suitable forested habitats in the Project vicinity. The major habitat type within the Project area is I-84 right of way. Also present is younger Douglas-fir forest with discontinuous canopy, which may provide functional values for NSO of juvenile dispersal and foraging. However, this habitat has low suitability due to high ambient noise levels from heavy traffic on nearby I-84.

## 4.1.3 Site Specific Limiting Factors for Recovery

The *Revised Recovery Plan for the Northern Spotted Owl* (USFWS 2011) identified habitat fragmentation and habitat loss as the primary reasons for NSO population decline within the Western Oregon Cascade Province. The proposed trail will not constitute a significant barrier to migration and will not contribute to the fragmentation of NSO habitat within the action area. Habitat loss resulting from trail construction will be insignificant due to the trail's proximity to I-84, the railroad, and Columbia River. Any habitat lost as a result of the proposed action will have marginal quality.

# 5.0 ANALYSIS OF EFFECT OF THE ACTION

## 5.1 DIRECT EFFECTS

The trail alignment has been shifted to minimize removal of large trees. This proposed action is expected to have insignificant and discountable effects to NSO nesting, roosting, foraging or dispersal from habitat removal. The proposed action will not destroy or adversely modify designated critical habitat because none exists within the action area.

Any direct effects from the Project to NSO would result from noise disturbances associated with blasting, drilling, earthwork, formwork, and paving activities. A disturbance response involves an individual showing apparent recognition or avoidance of the sight or sound by hiding, defending itself, moving its wings or body, or postponing a feeding visit to its young. In the case of the proposed Project, NSO may notice construction-related noise disturbances, but due to a variety of site-specific factors, these disturbances are not expected to rise to the level of harassment (e.g., flushing from a nest or aborting a feeding visit). This expectation is based upon the following factors:

1. The Project area is in close proximity to I-84 and the Union Pacific Railroad. Dispersal habitat is not a limiting factor at the forest/highway edge.
2. There is no NSO nesting habitat within the potential harassment zone because of the lack of old growth trees and high ambient noise levels from heavy vehicle and train traffic, as well as increased exposure to predators along the open edge of the highway and railroad corridor.
3. Any NSO that roost, forage or travel through the sub-optimal setting of the highway and railroad corridor are expected to be habituated to high baseline noise levels. Therefore, NSO occupying the highway and railroad corridor should be tolerant to temporary construction-related disturbances that are similar in type and intensity to existing environmental baseline levels. Heavy equipment activities fall within ambient noise levels; therefore, construction timing for all work other than blasting will not be restricted.
4. Blasting will not be performed during the critical NSO nesting season (March 1 - July 15). An owl present during the blasting would only be exposed to this noise at most twice a day. This work may extend for about one month.

## 5.2 INDIRECT EFFECTS

Indirect effects are impacts caused by or resulting from the proposed action, but occur later in time or outside of the area of direct effect; they are reasonably certain to occur. It is expected that indirect effects will be absent or minimal. The increased public usage of the area is not expected affect NSO usage of area.

## 5.3 EFFECT OF PROPOSED ACTION ON TRIBAL RESOURCES OR INTERESTS

No impact on tribal resources is anticipated. FHWA is responsible for contacting affected tribes with regard to this Project.

## 5.4 ESTIMATED TAKE

Avoidance and minimization of take will be achieved through:

- Designing the trail alignment to limit removal of large trees.
- Specifying that blasting will only occur during July 16 to February 28 (the fall/winter non-breeding season) when there is no risk of disturbing a nesting NSO.
- Specifying that the contractor will limit vegetation disturbance and environmental impacts.

The Project is expected to have only insignificant and discountable effects on NSO and its habitat.

## 5.5 CUMULATIVE EFFECTS

Cumulative effects (50 CFR § 402.2) are those impacts of future state and private actions that are reasonably certain to occur in the watershed where the federal action occurs. ODOT plans to perform maintenance activities on I-84 during roughly the same time period as trail construction. Highway maintenance will include pavement rehabilitation and median barrier replacement, generating equipment noises resembling that of highway traffic. Future federal actions will be subject to the consultation requirements established in Section 7 of the ESA and are not considered cumulative to the proposed action.

The trail is located on Mt. Hood National Forest, Oregon state park, and ODOT right of way lands. The ownership precludes any private projects in the action area. Increased public usage is not expected to affect NSO usage of area.

## 6.0 AVOIDANCE, MINIMIZATION AND CONSERVATION MEASURES

The Federal Highway Administration has developed standard specifications to address environmental concerns of transportation projects, which benefit NSO and their habitat. These contractor requirements address regulatory compliance for air, noise, and water pollution; erosion and sediment control; vegetation protection; as well as site restoration and planting materials. Communication between the construction contractor and the Engineer of Record is a common specification to ensure proper coordination of activities that may affect NSO.

The Federal Highway Administration will address the following through special provisions:

- Designate staging and disposal areas for contractor use. The site limits will be delineated with fencing for the duration of the Project, and removed when the Project is complete and the sites have been restored.
- Clear vegetation during the non-nesting season (September – early March). In the event the nesting birds are encountered during construction, the Engineer may suspend the work.

- Restrict blasting to July 16 to February 28. Blasting will be limited to 0.05 psi (about 145 dB) at the nearest structure or designated receptor, and can be reduced as necessary. The first shot can be monitored to determine the dB level. Subsequent shots can be adjusted accordingly.
- Maintain a copy of the BA and NLAA Concurrence Letter at the construction project manager's field office.
- Use remnant historic highway segments and previously disturbed ground for trail siting, as much as possible.
- Route the trail alignment near I-84 and the railroad, where possible.
- Minimize removal of large trees and root damage with careful trail location.
- Narrow trail width to 10 feet, and use retaining walls or steepened slopes, to reduce clearing of large trees.
- Minimize tree canopy fragmentation.
- Leave large down wood on the forest floor.
- Use woody debris, e.g., slash, limbs, bark, small trees, as temporary erosion control, after chipping and stockpiling onsite.

## 7.0 FINDING OF EFFECT

After evaluating the potential effects FHWA has concluded that the Project elements described in this document will not adversely affect NSO, nor will they result in incidental take. As discussed in the effects analysis of this document, few NSO are expected to be present within the action area, acoustic outputs associated with construction will be at or only slightly above ambient levels for this highly-utilized transportation corridor. All blasting activities will take place after the end of the critical nesting period for NSO. Moreover, acoustic impacts will be temporary and short-term in duration and should not hinder the attainment of relevant functioning indicators for this taxon over the long-term. The proposed Project will impact about 16.6 acres of marginal or sub-optimal habitat and up to about 34 trees greater than 24 inches DBH, but will not contribute to the fragmentation of NSO habitat. The reduction of marginal habitat is considered insignificant and discountable.

As such, FHWA makes a determination of **may affect, not likely to adversely affect** for northern spotted owl.

The proposed Project **will not destroy or adversely modify designated critical habitat** of the northern spotted owl. Due to this finding of effect, FHWA is requesting initiation of informal consultation in accordance with Section 7 of the ESA for the northern spotted owl.

## 8.0 REFERENCES

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## Appendix

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STATE	PROJECT	SHEET NUMBER
DOT	CRGNSA 100(1)	A.1

U. S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION



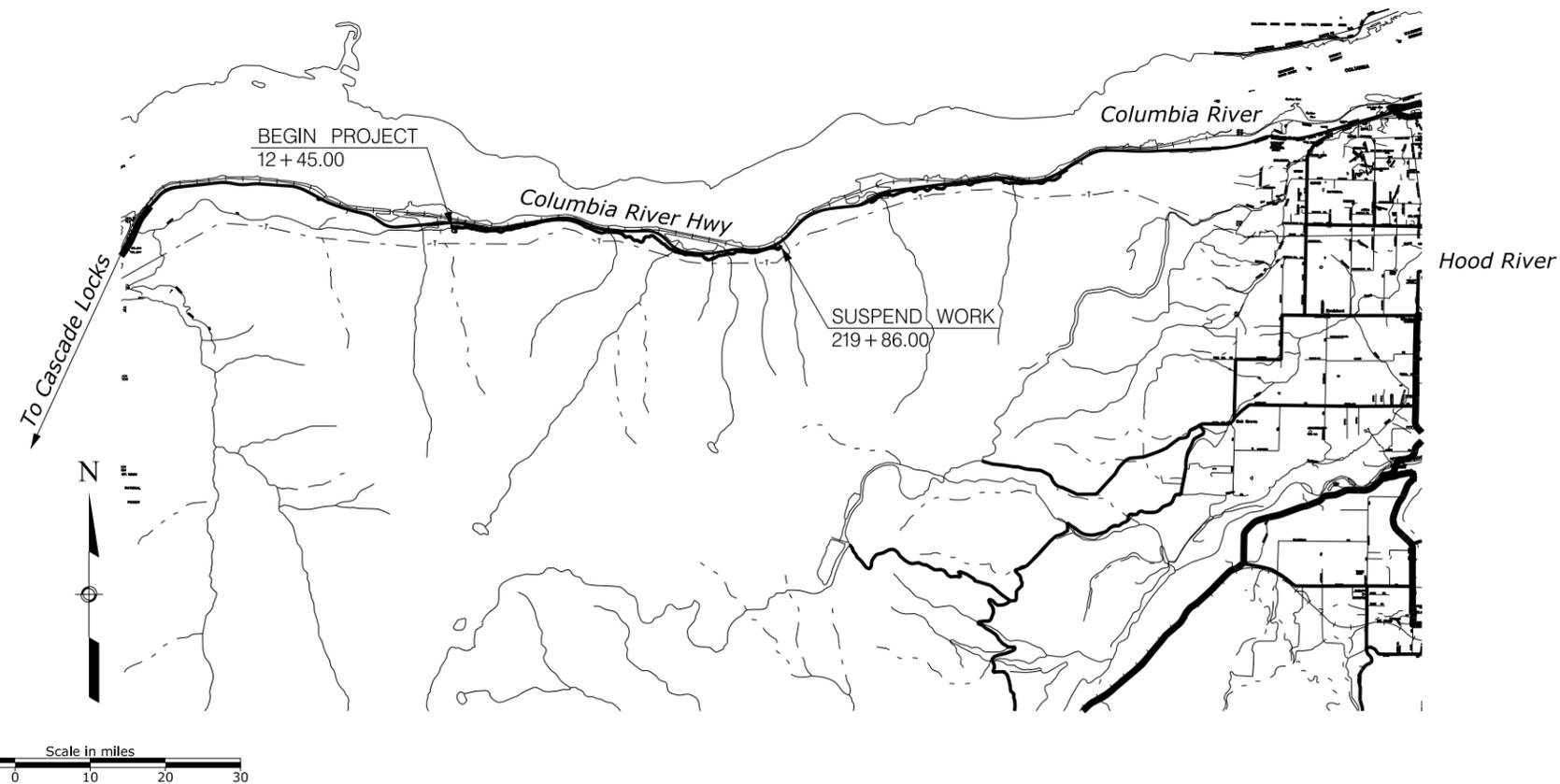
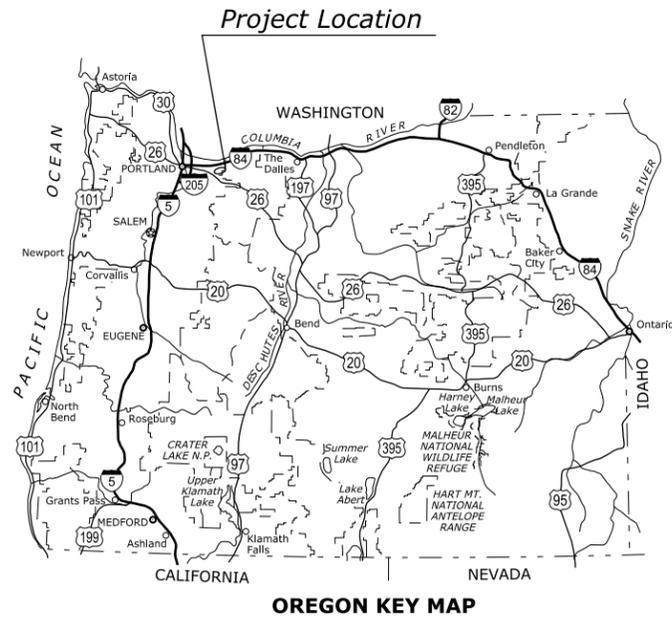
SIGNIFICANT NATURAL RESOURCES  
NSA PERMIT MAPS

OR DOT CRGNSA 100(1)

**HISTORIC COLUMBIA RIVER  
HIGHWAY STATE TRAIL**

HOOD RIVER COUNTY  
OREGON

SEGMENTS A-D LENGTH 3.93 MILES

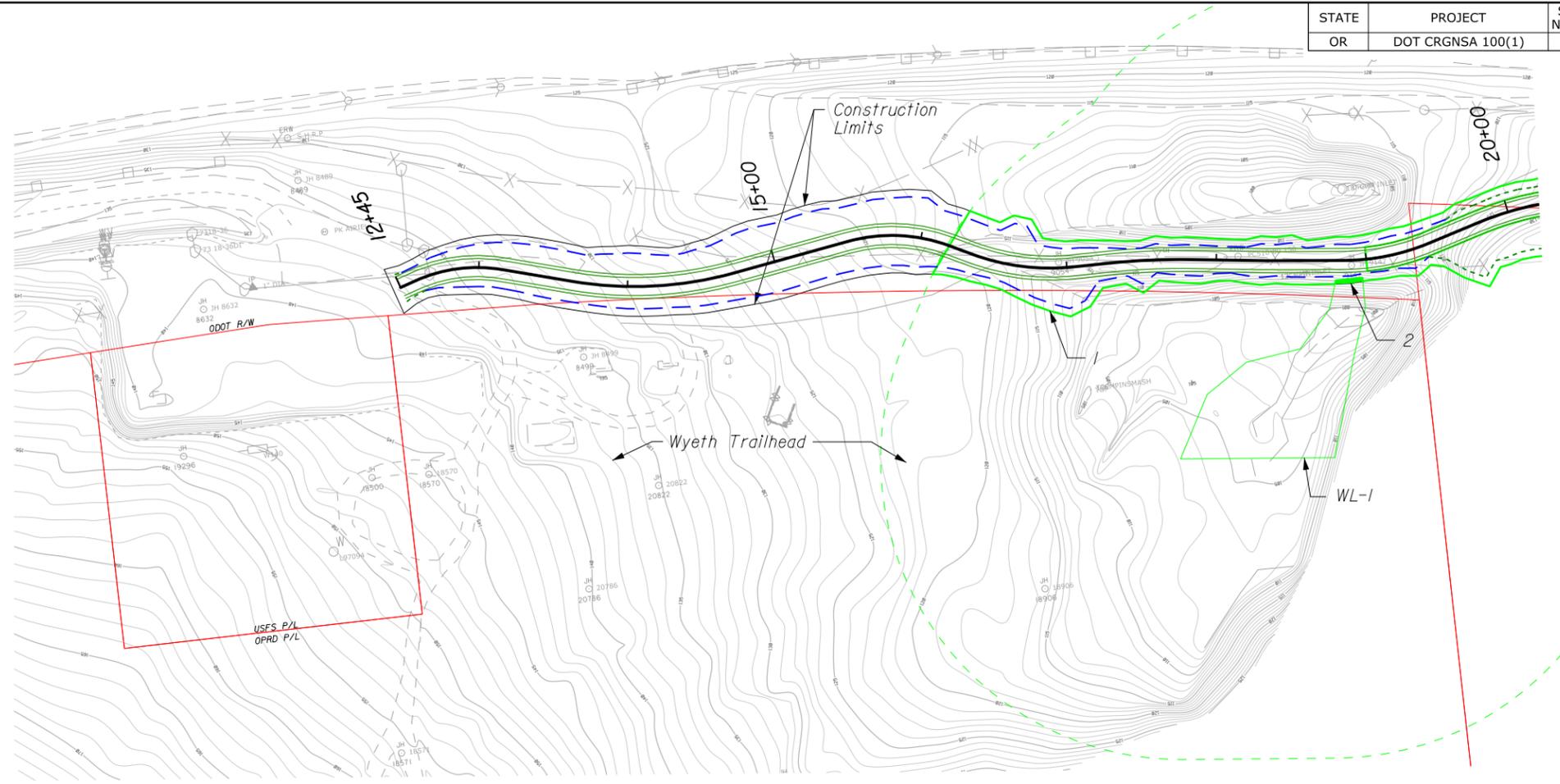


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|  PLANT BUFFER IMPACT         |  WETLAND BUFFER IMPACT       |
|  SNAGS/LOGS IMPACT           |  WILDLIFE SITE BUFFER IMPACT |
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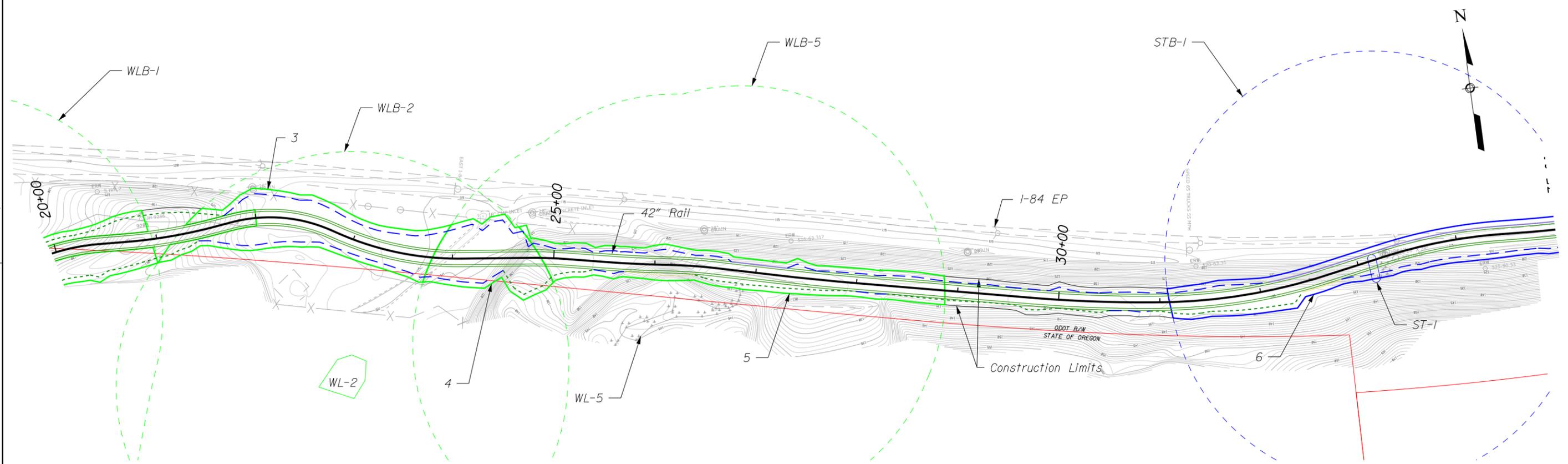
**NOTE:**  
The numbers correspond to Appendix B Impact Area Numbers.

SCALE 1"=100'

Segment A

**SIGNIFICANT  
NATURAL RESOURCES  
NSA PERMIT MAPS**

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**NOTE:**  
 The numbers correspond to Appendix B Impact Area Numbers.

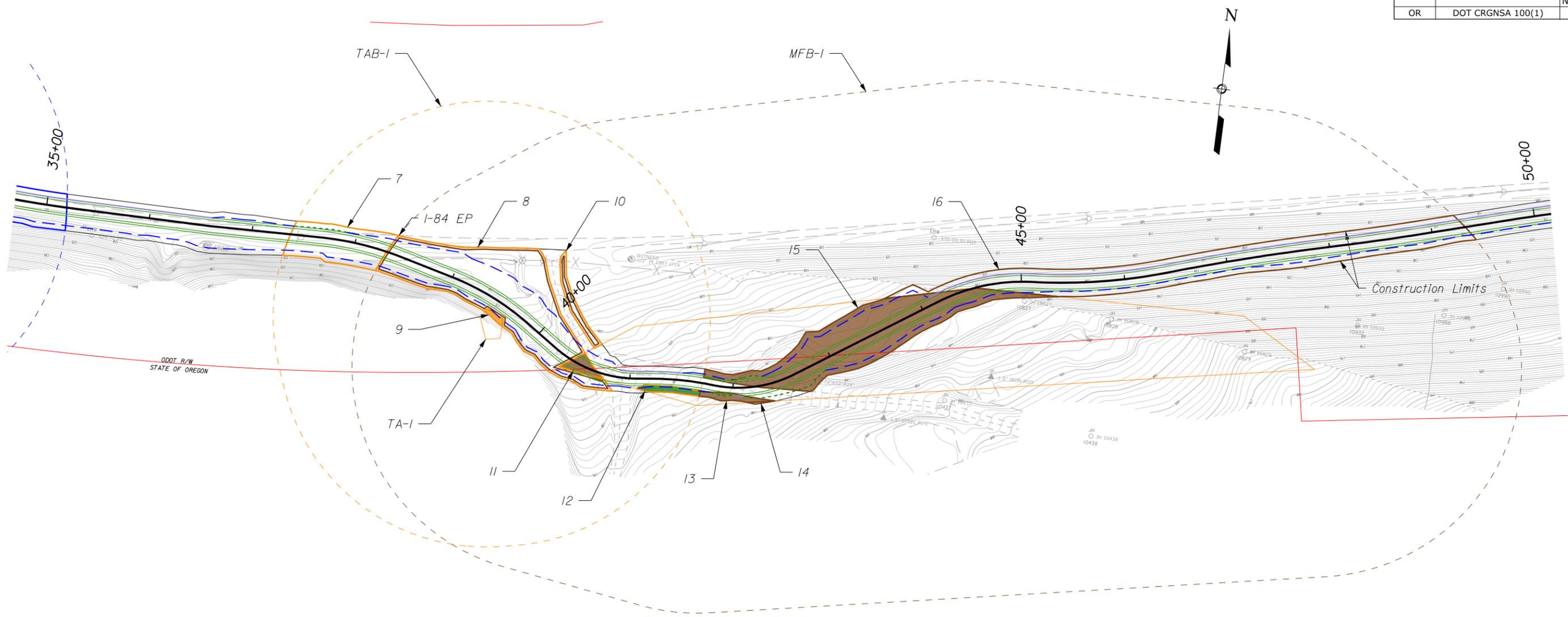
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Segment A

**SIGNIFICANT  
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 NSA PERMIT MAPS**

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**NOTE:**  
 The numbers correspond to Appendix B Impact Area Numbers.

SCALE 1"=100'

Segment A

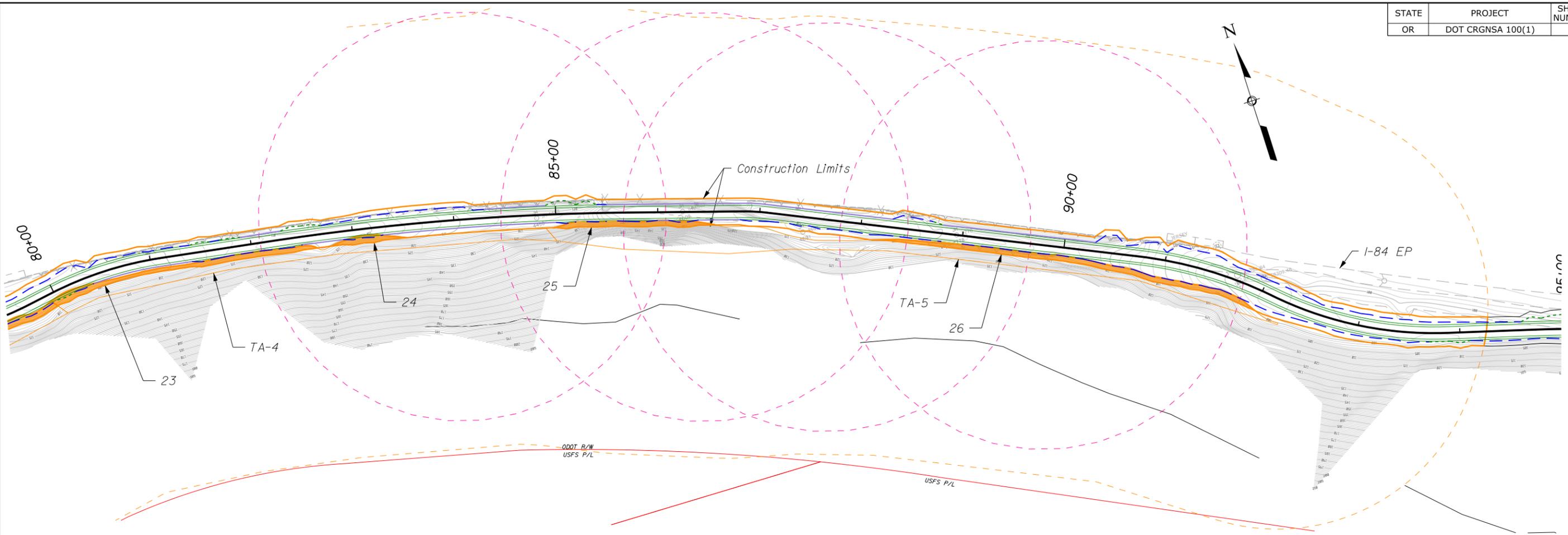
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**NOTE:**  
The numbers correspond to Appendix B Impact Area Numbers.

SCALE 1"=100

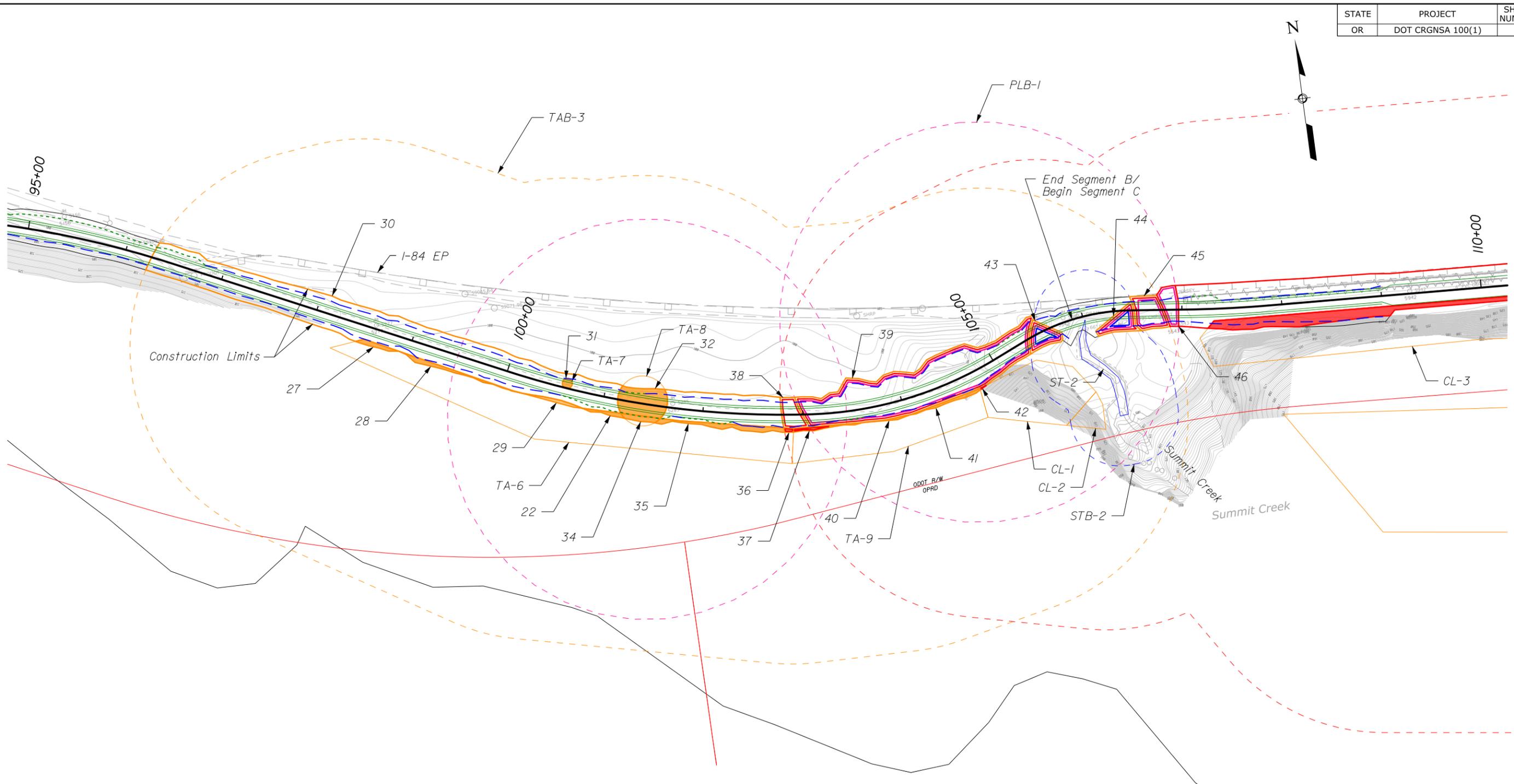
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NSA PERMIT MAPS**

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**NOTE:**  
 The numbers correspond to Appendix B Impact Area Numbers.

SCALE 1"=100'

Segment B  
 Segment C

**SIGNIFICANT  
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 NSA PERMIT MAPS**

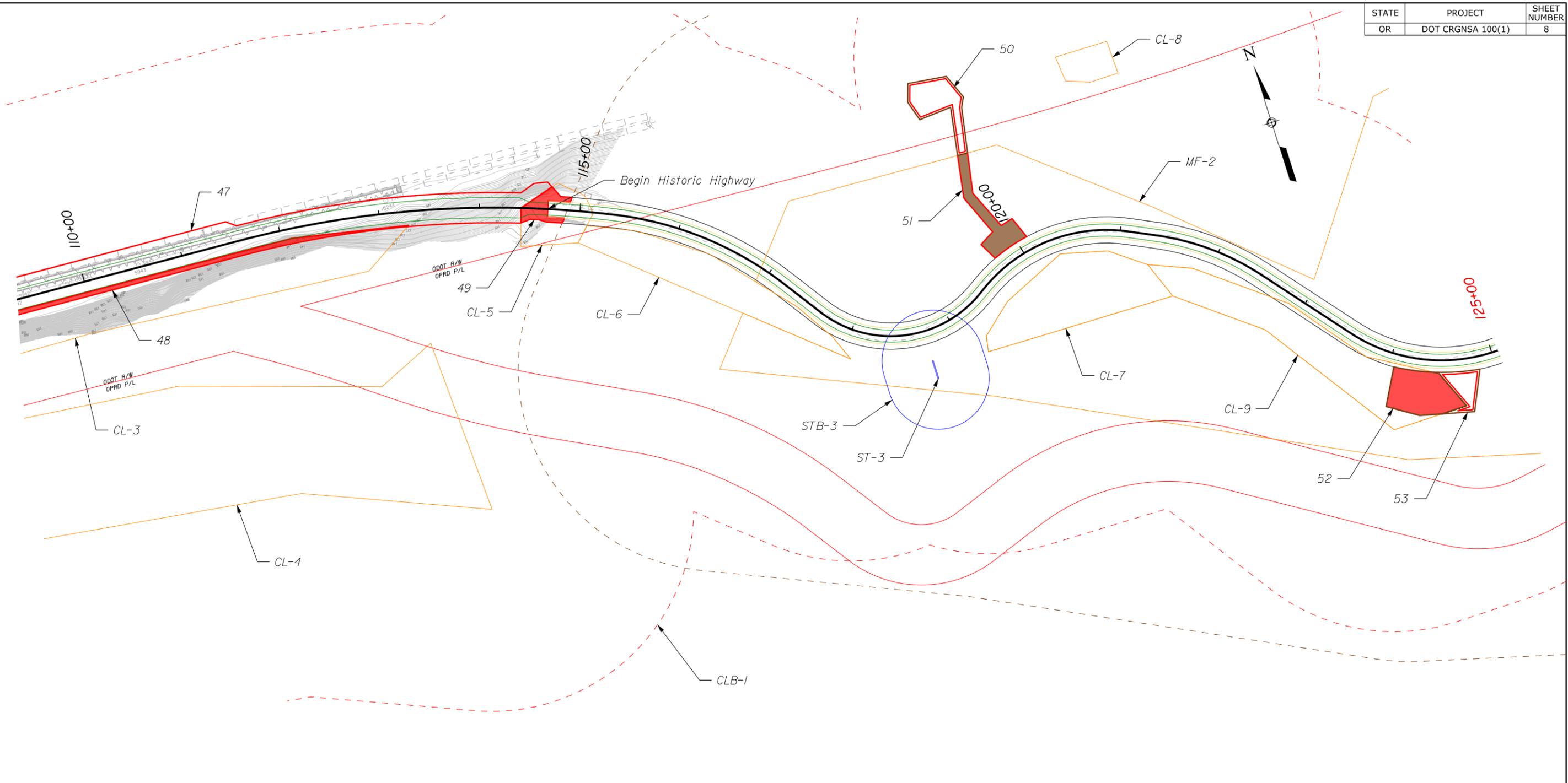
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**NOTE:**  
 The numbers correspond to Appendix B Impact Area Numbers.

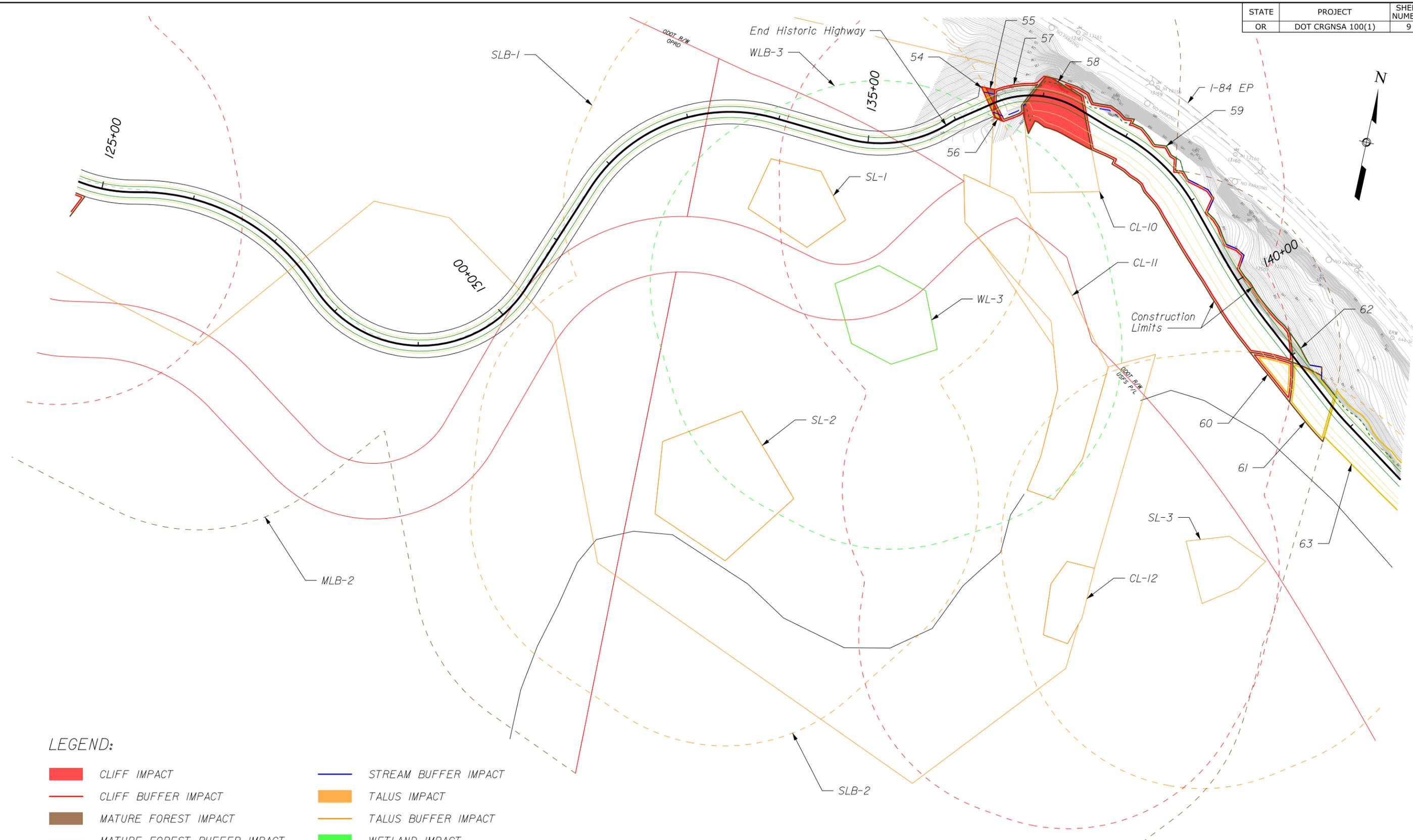
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Segment C

**SIGNIFICANT  
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 NSA PERMIT MAPS**

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NOTE:  
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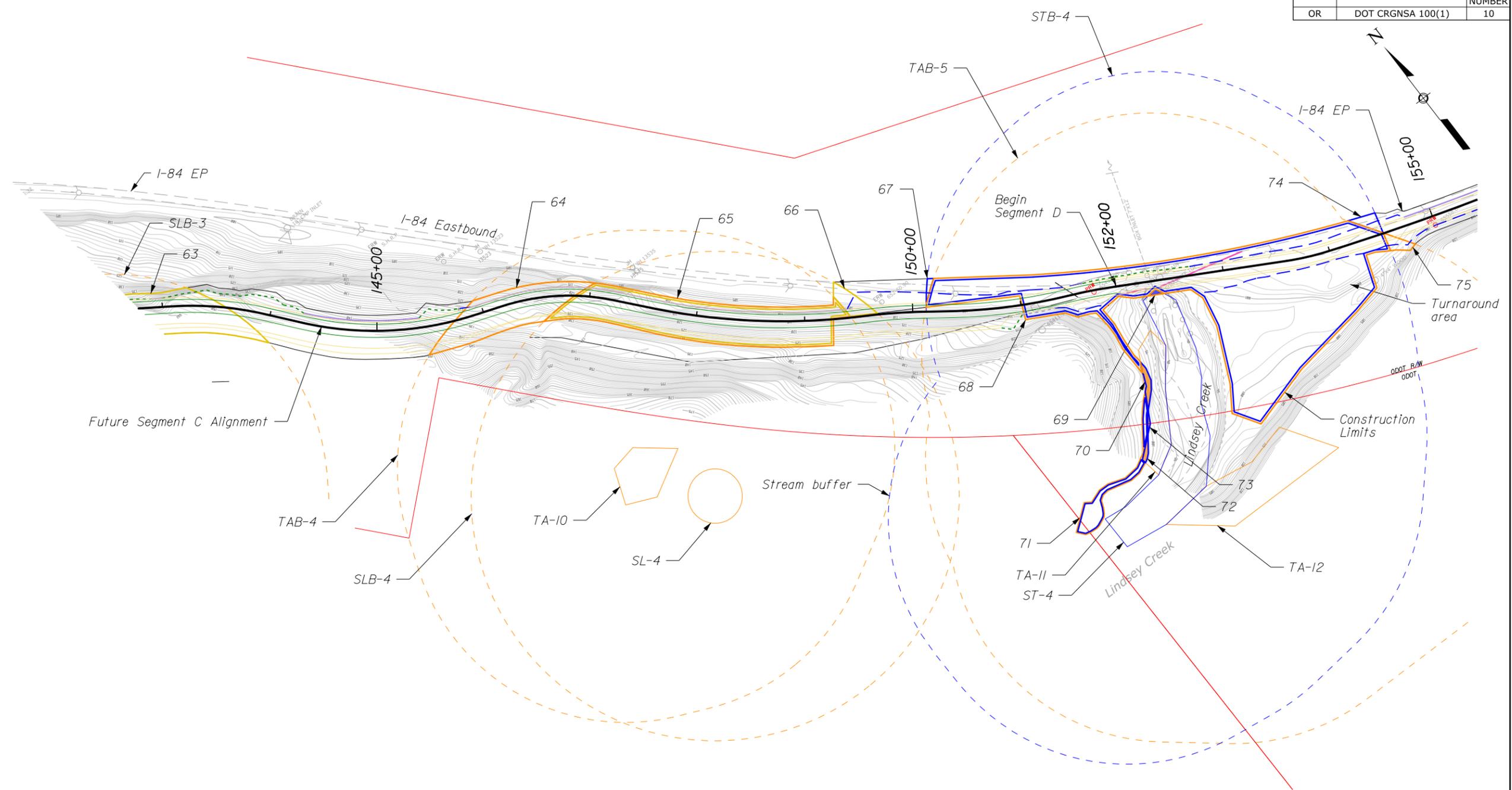
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Segment C

## SIGNIFICANT NATURAL RESOURCES NSA PERMIT MAPS

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**NOTE:**  
 The numbers correspond to Appendix B Impact Area Numbers.

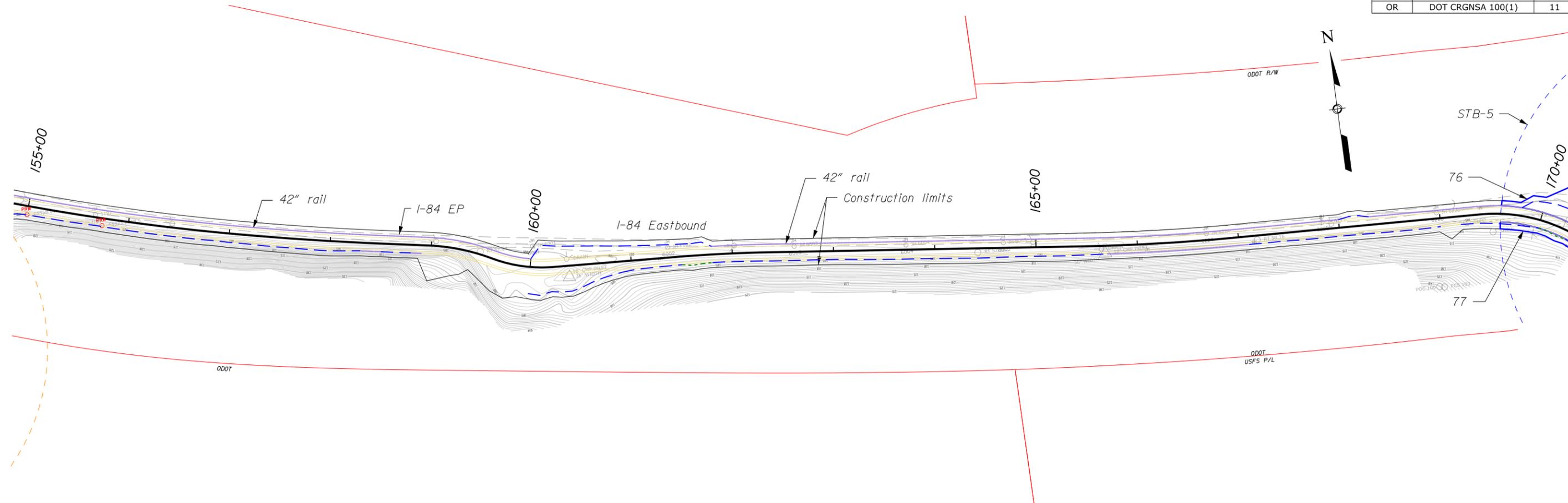
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Segment D

**SIGNIFICANT  
 NATURAL RESOURCES  
 NSA PERMIT MAPS**

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STATE	PROJECT	SHEET NUMBER
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|  MATURE FOREST BUFFER IMPACT |  WETLAND IMPACT              |
|  PLANT BUFFER IMPACT         |  WETLAND BUFFER IMPACT       |
|  SNAGS/LOGS IMPACT           |  WILDLIFE SITE BUFFER IMPACT |
|  SNAGS/LOGS BUFFER IMPACT    |  TOE OF FILL SLOPE           |
|  STREAM IMPACT               |  TOP OF CUT SLOPE            |

NOTE:  
The numbers correspond to Appendix B  
Impact Area Numbers.

SCALE 1"=100

Segment D

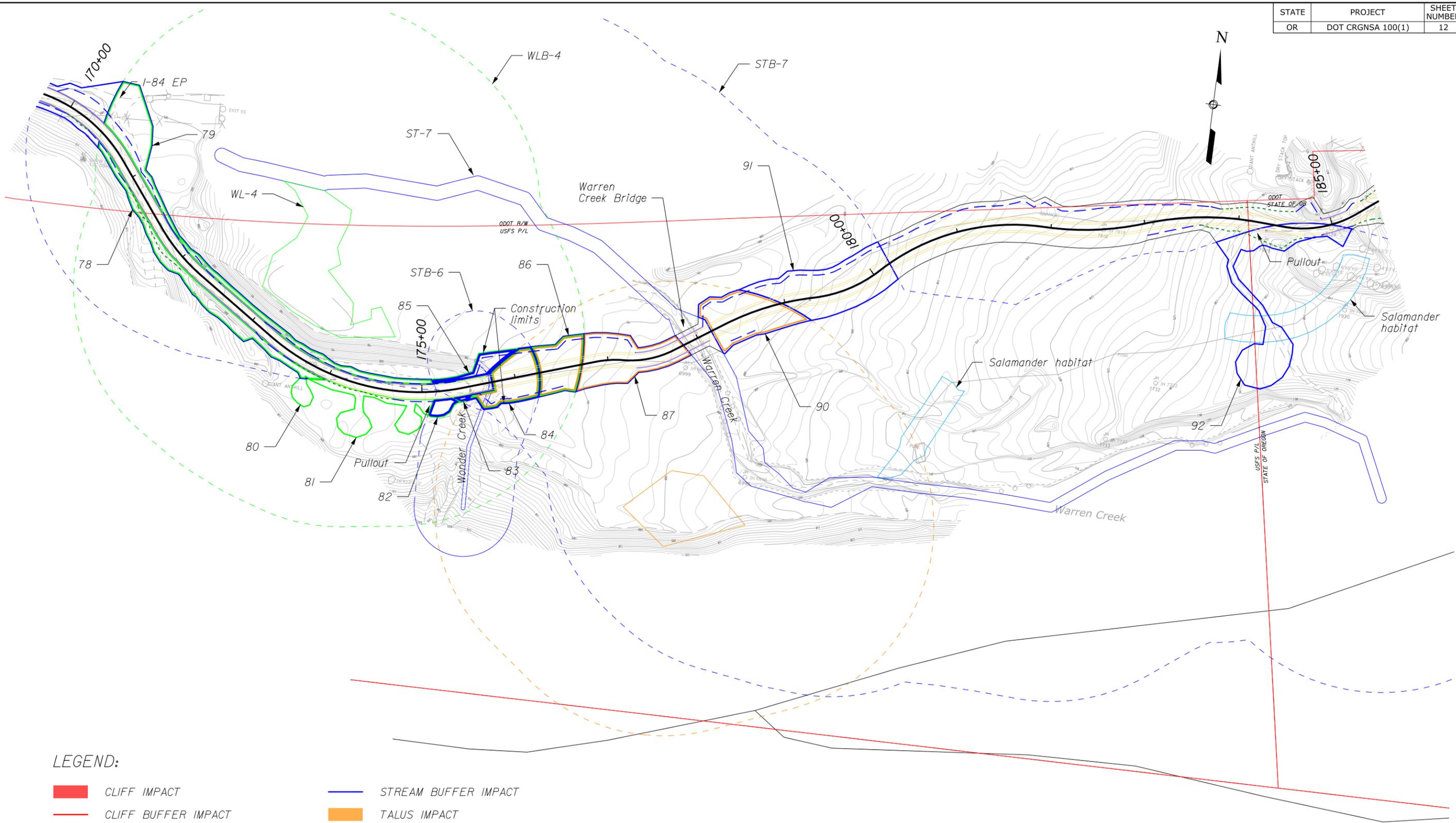
**SIGNIFICANT  
NATURAL RESOURCES  
NSA PERMIT MAPS**

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OR	DOT CRGNSA 100(1)	12



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| <span style="color: yellow;">█</span> SNAGS/LOGS IMPACT          | <span style="color: purple;">▬</span> WILDLIFE SITE BUFFER IMPACT |
| <span style="color: yellow;">▬</span> SNAGS/LOGS BUFFER IMPACT   | <span style="color: blue;">▬</span> TOE OF FILL SLOPE             |
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**NOTE:**  
 The numbers correspond to Appendix B Impact Area Numbers.

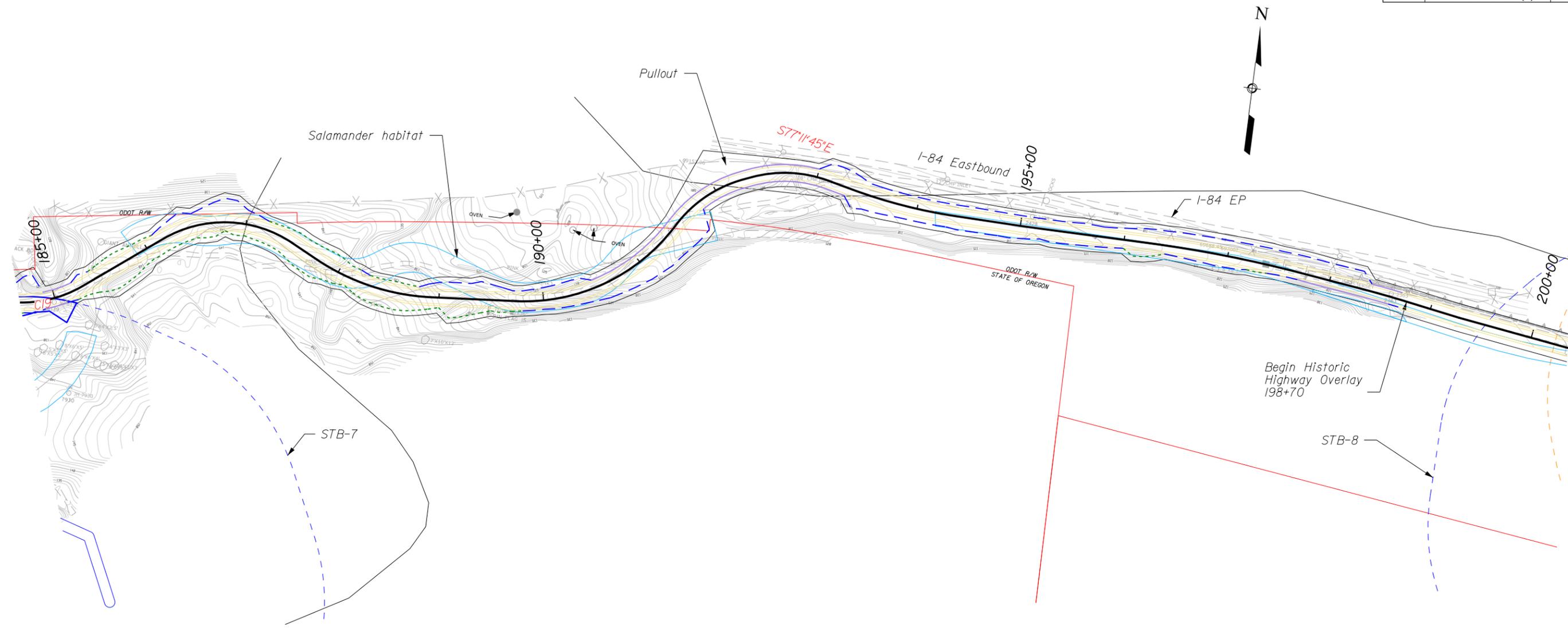
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Segment D

**SIGNIFICANT  
 NATURAL RESOURCES  
 NSA PERMIT MAPS**

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STATE	PROJECT	SHEET NUMBER
OR	DOT CRGNSA 100(1)	13



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|  PLANT BUFFER IMPACT         |  WETLAND BUFFER IMPACT       |
|  SNAGS/LOGS IMPACT           |  WILDLIFE SITE BUFFER IMPACT |
|  SNAGS/LOGS BUFFER IMPACT    |  TOE OF FILL SLOPE           |
|  STREAM IMPACT               |  TOP OF CUT SLOPE            |

**NOTE:**  
The numbers correspond to Appendix B Impact Area Numbers.

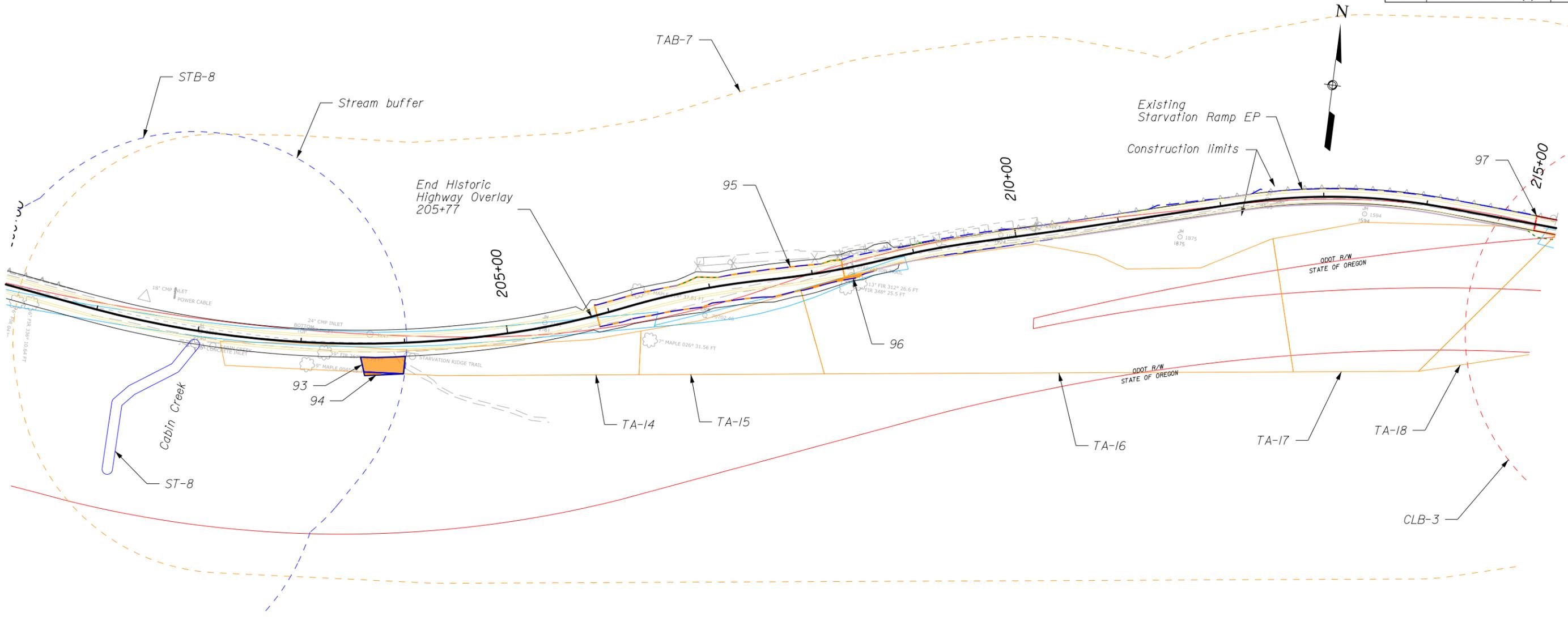
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Segment D  
**SIGNIFICANT  
NATURAL RESOURCES  
NSA PERMIT MAPS**

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| <span style="display:inline-block; width:15px; height:10px; background-color:red; border:1px solid black;"></span> CLIFF IMPACT               | <span style="display:inline-block; width:15px; border-bottom:2px solid blue;"></span> STREAM BUFFER IMPACT                           |
| <span style="display:inline-block; width:15px; border-bottom:2px solid red;"></span> CLIFF BUFFER IMPACT                                      | <span style="display:inline-block; width:15px; height:10px; background-color:orange; border:1px solid black;"></span> TALUS IMPACT   |
| <span style="display:inline-block; width:15px; height:10px; background-color:lightblue; border:1px solid black;"></span> MATURE FOREST IMPACT | <span style="display:inline-block; width:15px; border-bottom:2px solid orange;"></span> TALUS BUFFER IMPACT                          |
| <span style="display:inline-block; width:15px; border-bottom:2px solid lightblue;"></span> MATURE FOREST BUFFER IMPACT                        | <span style="display:inline-block; width:15px; height:10px; background-color:yellow; border:1px solid black;"></span> WETLAND IMPACT |
| <span style="display:inline-block; width:15px; border-bottom:2px solid yellow;"></span> PLANT BUFFER IMPACT                                   | <span style="display:inline-block; width:15px; border-bottom:2px solid yellow;"></span> WETLAND BUFFER IMPACT                        |
| <span style="display:inline-block; width:15px; height:10px; background-color:lightgreen; border:1px solid black;"></span> SNAGS/LOGS IMPACT   | <span style="display:inline-block; width:15px; border-bottom:2px solid purple;"></span> WILDLIFE SITE BUFFER IMPACT                  |
| <span style="display:inline-block; width:15px; border-bottom:2px solid lightgreen;"></span> SNAGS/LOGS BUFFER IMPACT                          | <span style="display:inline-block; width:15px; border-bottom:2px dashed blue;"></span> TOE OF FILL SLOPE                             |
| <span style="display:inline-block; width:15px; height:10px; background-color:blue; border:1px solid black;"></span> STREAM IMPACT             | <span style="display:inline-block; width:15px; border-bottom:2px dashed green;"></span> TOP OF CUT SLOPE                             |

**NOTE:**  
 The numbers correspond to Appendix B Impact Area Numbers.

SCALE 1"=100'

Segment D

**SIGNIFICANT  
 NATURAL RESOURCES  
 NSA PERMIT MAPS**

