Cook Creek Road Segment Relocation Project

Tillamook County, Oregon

FEMA-DR-4258-OR PW342 (Public Assistance)

May 2022

U.S. Department of Homeland Security
Federal Emergency Management Agency
Region *X*
130-228th Street SW
Bothell, WA 98021

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ACRONYMS

APE	Area of Potential Effect
BMP	Best Management Practices
CEQ	Council for Environmental Quality
CFR	Code of Federal Regulations
dbh	Diameter at Breast Height
EA	Environmental Assessment
EO	Executive Order
ESA	Endangered Species Act
ESU	Evolutionary Significant Unit
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Agreement
NEPA	National Environmental Policy Act
NHPA	National Historical Preservation Act
NHRP	National Register of Historic Places
NMFS	National Marine Fisheries Service
NWI	National Wetlands Inventory
ODA	Oregon Department of Agriculture
ODF	Oregon Department of Forestry
ODSL	Oregon Department of State Lands
OEM	Oregon Office of Emergency Management
ODEQ	Oregon Department of Environmental Quality
OHWM	Ordinary High Water Mark
OHV	Off-highway Motorized Vehicles
RFFA	Reasonably Foreseeable Future Action
SHPO	State Historic Preservation Officer
TCP	Traditional Cultural Properties
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) is proposing to provide financial assistance to the Oregon Department of Forestry (ODF) to relocate a short segment of Cook Creek Road in the Tillamook State Forest, near Tillamook, Oregon. The existing segment of Cook Creek Road was damaged during storms in December 2015 and a Presidential disaster was declared in the region on February 16th, 2016 (FEMA 4258-DR-OR).

Cook Creek Road is a one lane, gravel road with turn outs and steep slide slopes on both sides. The average width of the roadway, excluding turn outs, is 16 feet. It provides access for forest management, camping, hunting and other recreation activities, and road maintenance in the basin above the project location.

According to ODF, torrential rain from severe winter storms caused soil and vegetation debris to slide down into Cook Creek. The debris forced a change in the creek's course, washing out the integral ground and side slope of a 500-foot section of the road in December 2015. **Figure 1** shows the current aerial and ground perspective photographs. If relocated, the proposed road segment would be approximately 130 feet upslope (north) of the damaged segment of road.

ODF applied to FEMA through the Oregon Office of Emergency Management (OEM) for a grant under FEMA's Public Assistance Grant Program. OEM would be the direct recipient for the grant and ODF would be a subrecipient. Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act authorizes this grant program, under which, federal funds pay 75 percent of the project cost, and the remaining 25 percent comes from nonfederal funding sources.

ODF prepared this draft environmental assessment (EA) in coordination with FEMA in accordance with the National Environmental Policy Act (NEPA) of 1969; the President's Council on Environmental Quality (CEQ) regulations to implement NEPA (40 Code of Federal Regulations [CFR] Parts 1500 to 1508); the U.S. Department of Homeland Security's Instruction 023-01-001, Revision 01; and FEMA Instruction 108-01-1, NEPA implementing procedures.

Changes to the NEPA regulations became effective on September 14, 2020 and as stated in 40 CFR § 1506.13, the new regulations apply to any NEPA process begun after that date. FEMA and ODF began working on the analyses presented in this EA in early 2020, therefore the EA conforms to the CEQ regulations that were in place prior to September 14, 2020. FEMA is required to consider potential environmental impacts before funding or approving actions and projects. The purpose of this draft EA is to analyze the potential environmental impacts of the proposed project. FEMA will use the findings in this draft EA to determine whether to prepare an environmental impact statement or to issue a finding of no significant impact (FONSI).

Figure 1. Aerial and Ground Perspective Photographs

The project site is situated near Cook Creek, on State Forest lands, along a ridge top dividing Cook Creek and Harliss Creek, about 17 miles north of the town of Tillamook (Figure 2). The approximate starting and ending latitude and longitude coordinates are: 45.6844, -123.7237, and 45.6843,-123.7193.

Forest roads in the vicinity of the project site are typically single lane gravel roads with 16-18 foot subgrades, ditches, and turnouts. ODF maintains the primary forest roads, including Cook Creek Road, while timber sale purchasers maintain timber sale access roads. Cook Creek Road provided access to logging operations throughout the area.

The 500-foot segment of Cook Creek Road was completely washed out following severe storms that occurred from December 6 to December 23, 2015 (FEMA-4258-DR-OR). The area experienced severe straight-line winds, flooding, and landslides. The road's south side shoulder, integral ground, side slope, gravel roadway, turn out, and north side back slope were eroded away by significant flood flows in Cook Creek

The damaged segment (Figure 1) is approximately 4 miles east of Foss County Road and 2,300 feet west of the intersection with Clammer Road. The project site is located within a Non-Motorized Recreation Use zone and roads in the vicinity are commonly used by recreational visitors for off-highway motorized vehicles (OHV), camping, and other recreation activities. Hunting is also a common seasonal activity in the area. Some roads in the Cook Creek basin may be temporarily gated in October and November for hunting season. Cook Creek Road serves as the primary route from Foss Road to the designated campsites along Cook Creek upstream from the project site. The roads are also used for forestry, maintenance, and fire protection in the basin above the project location.

Figure 2. Project Vicinity and Location

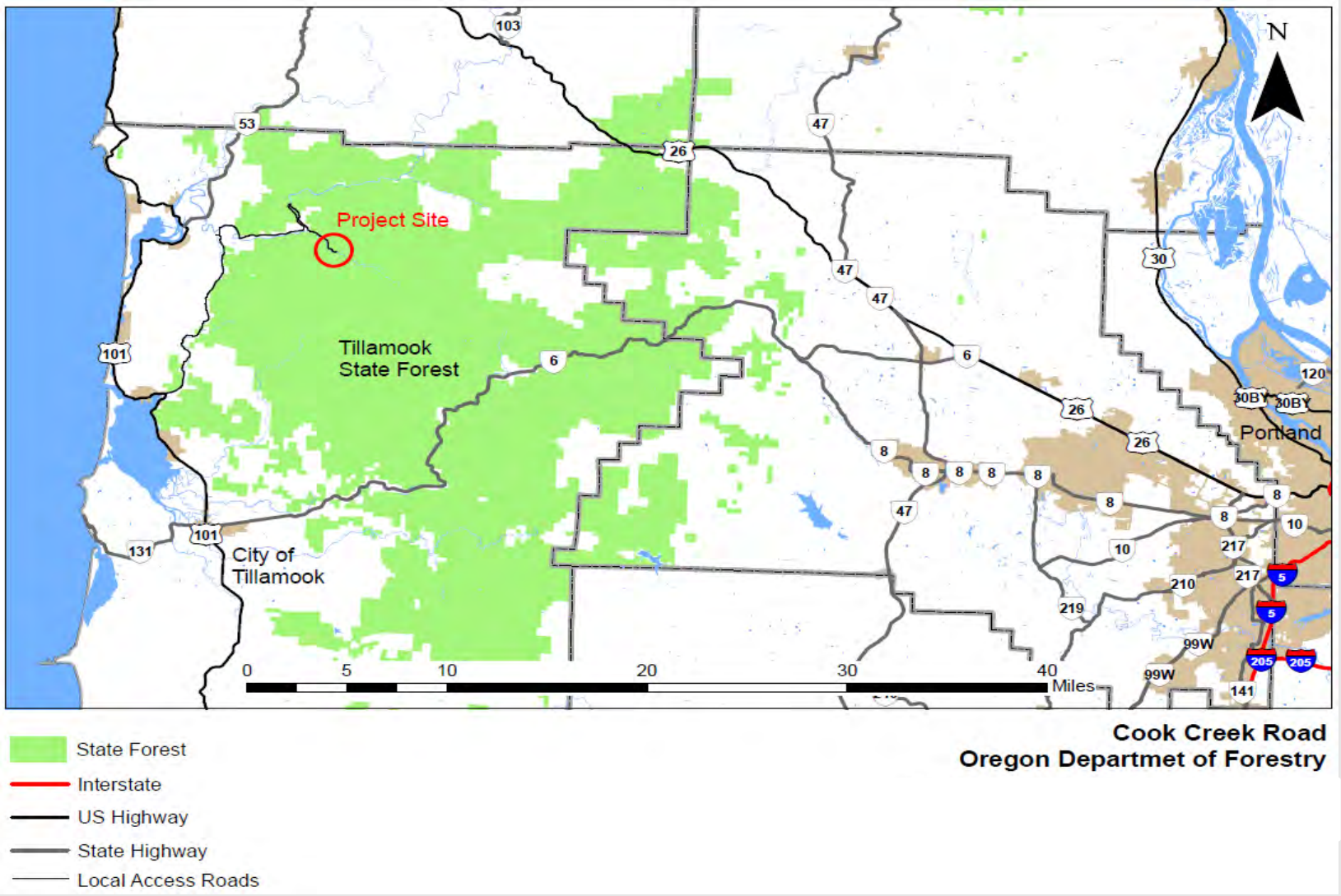
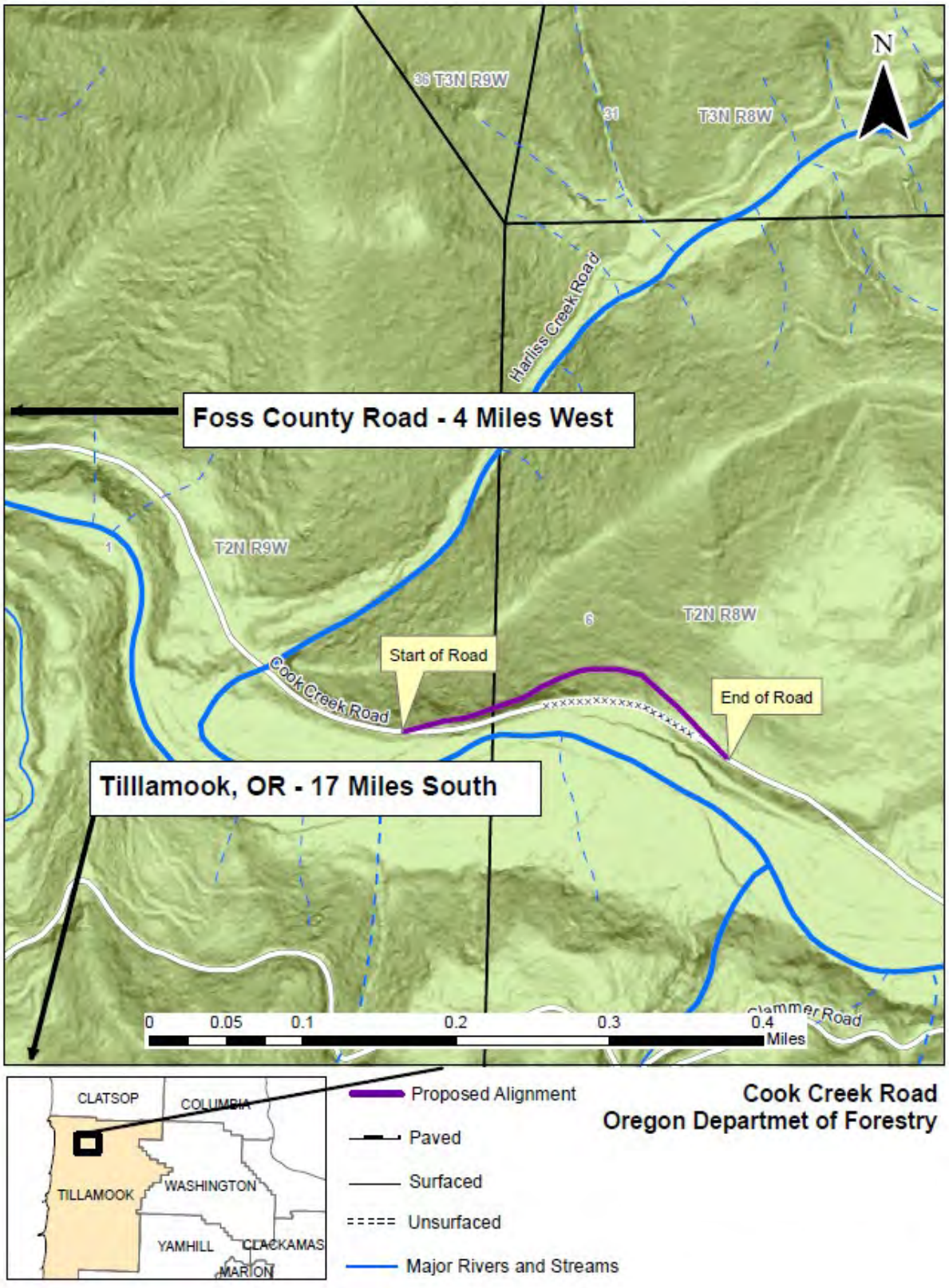


Figure 3. Preferred Alternative



2.0 PURPOSE AND NEED

The purpose of FEMA's Public Assistance Program is to assist communities in recovering from damages caused by natural disasters. The purpose of the proposed action is to restore the Cook Creek Road to its pre-disaster function and capacity.

The need for the project is to provide safe, year-around access to ODF land in the vicinity of Cook Creek that is available for timber management, public recreation, maintenance, and fire suppression.

The project area is in the Tillamook District, which includes the western 252,000 acres of the Tillamook State Forest. ODF actively manages state forest lands under adopted forest management plans to provide economic, environmental, and social benefits to Oregonians. Most of the revenue from timber sales goes to county governments and local taxing districts, and to the Common School Fund to benefit schools throughout the state.

State Forests provide opportunities for public hiking, camping, fishing, hunting and picnicking as well as trails for horseback riding, mountain biking and off-highway motorized vehicles. ODF's Tillamook State Forest Recreation Action Plan 2000 describes the needs and plans.

3.0 ALTERNATIVES

This section describes the no action alternative, the proposed action, and alternatives that were considered but dismissed.

3.1 Alternative 1: No Build Alternative (NEPA No Action Alternative)

The Federal action that FEMA is considering under this EA is whether to fund a grant under the Public Assistance Grant Program. If FEMA decides not to fund the grant, ODF could decide to seek other funding to repair the road in its existing location, relocate the road as described under Alternative 2, or abandon the road and restrict access to the interior basin. To define a No Action Alternative for NEPA to analyze in this EA, FEMA assumes that ODF will simply retain the current conditions by abandoning this section of road and restricting access. This assumption does not fulfill the Purpose and Need of the proposed action, nor ODF's need, but does present an alternative for analysis under NEPA.

Since December 2015, only Clammer Road provides limited access to the basin above the washed out location. Clammer Road is a 12 foot-wide gravel road that is only open to passenger vehicles and downhill loaded log truck haul. Logging trucks, equipment lowboys, recreational trailers, and fire servicing equipment cannot use that road to drive out of the Cook Creek basin due to steep adverse grades.

Alternative access to the interior basin is available via South Fork Cook Creek Road and East Fork Cook Creek Road to the south and Buck Mountain and Tin Shack Roads off Foss County Road to the northeast. However, these roadways are 12 feet wide, and add 27 miles and 1.75 hours to a trip that would otherwise be 15 minutes along Cook Creek Road. Due to steep adverse grades these three alternative routes are also unsuitable for logging trucks, equipment lowboys, recreational trailers, and fire servicing equipment.

The damaged section of Cook Creek Road is closed at this time. The whole road grade in this section is scoured away down to bedrock with nothing left to abandon in this section. Under both alternatives analyzed in this EA, ODF would leave this section as shown in Figure 1 and the photo on the cover page. Access would be restricted for logging, recreation, and firefighting equipment across 10,000 acres of the Tillamook State Forest. Restricted logging activities since 2015 have reduced state and county revenue from the basin by approximately $970,000 annually based on existing planned timber sales that rely on Cook Creek Road as a haul route. This condition and loss of revenue would continue into the foreseeable future.

3.2 Alternative 2: Road Relocation (Proposed Action)

Under the proposed action, ODF would relocate the road segment (Figure 3) to a midslope location by building 1,900 feet of new forest road[1] with FEMA funds. The typical new road section will have a subgrade width of 16 ft with a ditch and an average gravel surfaced width of 12 ft. The new segment will include two turnouts to accommodate passing, one on either end where the new road meets the old road. Figure 4 shows the proposed project area.

Independent of FEMA funding, ODF will vacate approximately 1,400 feet of road on either side of the damaged section of the road. ODF anticipates installing deep water bars every 100 feet to provide long term drainage, scarify and outslope the compacted road surface, seed and mulch disturbed soils, and barricading the road segment to vehicular traffic. ODF will vacate the road in accordance with applicable rules and regulations of the Forest Practices Act, and standards detailed in the ODF State Forests Program, Forest Roads Manual (ODF, 2000). Although this work will be completed in the future without FEMA funds, it is a reasonably foreseeable future action[2] that will occur later in time.

Construction activities will involve clearing and grubbing, culvert installation, excavation of cutbanks, fill, grading, and laying of gravel surface, and seeding, fertilizing and mulching disturbed areas. Clearing, grubbing, and brushing will involve the removal and disposal of all snags, down timber, brush, surface objects and protruding obstructions within the clearing limits. Clearing limits would be 4 ft on either side of the planned subgrade width. Removal of brush would occur an additional 4 ft on either side. Clearing and brushing limits would range from 25 ft to 130 ft in cut slope locations. An average clearing limit width of 50 ft has been assumed for analyzing impacts in this EA.

ODF will remove all danger trees, leaning trees, and snags outside the clearing limits that could fall into the construction area. Clearing and grubbing material will be disposed of by hauling material to one of two waste soil collection locations (Figure 4). Rock for road surfacing will come primarily from the ODF stockpile, located a little over one mile by road to the east of the project site on Cook Creek Road. ODF's Jetty Pit, located approximately 4.5 miles by road to the east of the project site, could also be used as a source for road surfacing rock as needed. Pit run rock for road construction would be delivered to the project site as needed and would not be stockpiled on site. Both rock sources are owned by ODF and located on ODF land. ODF has a Memorandum of Agreement (MOU) with Oregon Department of State Lands (ODSL) regarding operation of the pits and no other permits are required.

Construction is expected to be conducted over two seasons. At the project site, the construction season extends from August 6th through October 31st. Specific standards to minimize impacts

[1] Approximately 1,500 LF of full bench construction and 400 LF balanced grading construction
[2] 40 CFR 1502.15

during construction include, but are not limited to: (1) limiting ground disturbance (clearing, grubbing, grading) to that essential for construction of the project; (2) timing construction activities that expose large areas of soil to occur during the dry spring, summer or early fall when the threat of erosion from disturbed areas is minimal; (3) incorporating erosion control measures such as (mulching, seeding or planting, silt fences, and temporary waterbars); and (4) completing construction activities prior to the onset of the rainy period, around the middle of October. This alternative does not include any in-water work or bank protection.

Specific standards to minimize erosion and sediment production during operation of the project include, but are not limited to: (1) a crowned road surface to allow for quick surface drainage to the forest floor; (2) avoiding flat grades wherever possible; and (3) use of durable crushed rock for the running surface to improve overall road drainage and reduce sediment production.

The design, construction and long-term maintenance of the project would comply with applicable rules and regulations, including those contained in the Forest Practices Act, ODF State Forests Program, Forest Roads Manual (ODF 2000), and agreements with state and federal agencies regarding best management practices (BMPs) for road design, construction and maintenance standards, as well as timber management.

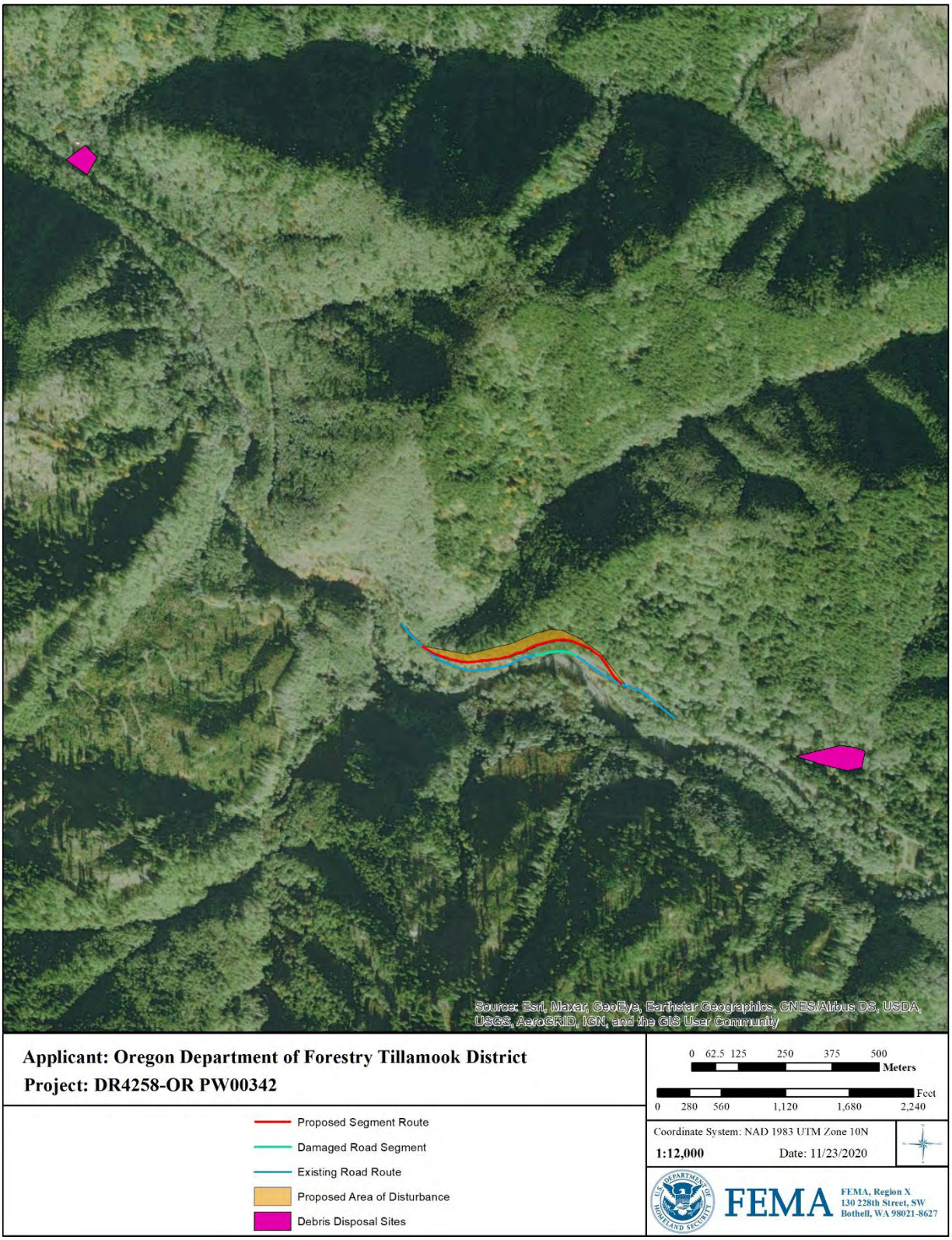
Specific maintenance requirements and strategies include, but are not limited to: (1) maintaining the road to design standards; (2) maintaining a fully functional drainage system that is hydrologically disconnected as much as possible; (3) minimizing soil disturbance during maintenance activities; (4) minimizing impacts to water quality, aquatic habitat, wildlife habitat, and other natural resources during maintenance activities; (5) conducting inspections annually, or more frequently if warranted; (6) regular inspections will be conducted during periods of heavy hauling; (7) conducting maintenance activities at a time when weather conditions allow for a minimal amount of soil disturbance and sediment movement; and (8) follow-up monitoring of maintenance activities to ensure their effectiveness.

3.3 Alternatives Considered and Dismissed

ODF and FEMA considered and dismissed the option of rebuilding the 500-foot road segment at the former location because this option would require in-stream work, streambank stabilization (520 feet of riprap), stream isolation with fish exclusion, and mitigation of 25,000 square feet of fill would be needed (Otak, 2020). In addition, the repaired section, due to its proximity to the stream, would be subject to future flood damage.

ODF considered reconnecting the road network from other alignments in the basin but dismissed this alternative because of unstable slopes, steep road alignments, and the potential to adversely affect surface waters, riparian habitat, sensitive fish, and other aquatic organisms. These options are not discussed further in this EA.

Figure 4. Proposed Project Area



4.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

This section describes the environment potentially affected by the alternatives, evaluates potential environmental impacts, and recommends measures to avoid or reduce those impacts. The potential impacts are evaluated qualitatively based on the criteria listed in Table 1. The study area generally includes the project area, access, and disposal sites needed for the proposed action. Differences in study areas for a particular resource category may be presented in the appropriate subsection.

Table 1. Evaluation Criteria for Potential Impacts

Impact Scale	***Criteria***
None/Negligible	The resource area would not be affected, or changes or benefits would be either nondetectable or, if detected, would have impacts that would be slight and local. Adverse impacts would be well below applicable regulatory standards.
Minor	Changes to the resource would be measurable, although the changes would be small and localized. Adverse impacts would be within or below applicable regulatory standards. Mitigation measures, if applied, would reduce any potential adverse impacts.
Moderate	Changes to the resource would be measurable and have short- or long-term adverse or beneficial localized or regional-scale impacts. Adverse impacts would be within or below applicable regulatory standards. Mitigation measures may reduce any potential adverse impacts.
Major	Changes would be readily measurable and would have substantial consequences on a local or regional level. Adverse impacts that exceed regulatory standards may be significant. The major adverse impacts would be less than significant if mitigation measures offset these adverse impacts. However, long-term changes to the resource may be expected.

The impact analysis in this EA evaluates the potential direct and indirect impacts on resources that may be affected by the proposed action or no build alternatives. Table 2 summarizes these potential impacts. For most resources, the methodology included gathering data on the current condition of the resource from existing data sources and limited field investigations. FEMA evaluated how each alternative would or would not change the existing conditions and the magnitude of that change.

Given the scale of the proposed project (1,900 foot road segment) and location (state forest with the nearest development on Foss Road, 4 miles away), other environmental resources would not be not impacted and are not further discussed in this EA. These resources include noise, air quality, wild and scenic rivers, sole source aquifers, coastal resources, land use, and zoning. While the project area is located within Oregon's Coastal Zone, the project will not have any foreseeable effects on any land or water use or natural resource of the coastal zone. The Oregon Department of Land Conservation and Development (DLCD) confirmed that FEMA does not need to require applicants to contact DLCD to request federal consistency review and concurrence on projects for which FEMA plans to release federal funding. (DLCD, May 20, 2021 see Appendix A).

Table 2. Summary of Environmental Impacts

Section	*Area of Evaluation*	*Alternative 1: No Build Impacts*	*Alternative 2: Road Vacating Impacts (RFFA)*	*Alternative 2 Road Relocation Impacts (FEMA)*
5.1	Geology and Soils	None	Minor short-term adverse Moderate long-term stabilization benefit	Minor short-term adverse Minor long-term adverse
5.2	Hydrology and Water Quality	None	Minor short-term adverse Moderate long-term benefit	Minor short-term adverse Minor long-term adverse
5.3	Vegetation	None	Minor long-term benefit	Minor short-term adverse Negligible long-term adverse
5.4	Wetlands	Negligible adverse	Minor short-term adverse Minor long-term benefit	Minor short-term adverse Minor long-term adverse
5.5	Threatened and Endangered Species	None	No effect	No effect
5.6	Other Fish and Aquatic Life	None	Minor short-term adverse Moderate long-term benefit	Minor short-term adverse Minor long-term adverse
5.7	Other Wildlife	None	Negligible adverse	Negligible adverse
5.8	Recreation	Moderate adverse	None	Moderate beneficial
5.9	Visual Quality and Aesthetics	None	Minor short-term adverse Negligible long-term adverse	Minor short-term adverse Negligible long-term adverse
5.10	Cultural and Historic Resources	None	None	None
5.11	Transportation and Access	Major adverse	None	Minor short-term adverse Major long-term benefit

4.1 Geology and Soils

The Tillamook District is located within the Tillamook Highlands geologic province, a large area in the north Coast Range consisting of volcanic flows, igneous rock, and derived sediments. The landforms are geologically youthful with on-going uplift and erosion. With high precipitation levels combined with steep slopes, high erosion rates and debris slides are a dominant process on the landscape. The major soil series in the district are deep, well-drained soils (ODF 2009).

The elevation of the ridge along the proposed project corridor ranges from approximately 250 to 320 feet. Slopes on the project site range from 55 to 90 percent. Figure 5 shows the geomorphology in the project area.

According to the Geotechnical Investigation (Otak 2020), through the project site, Cook Creek is confined by steep bedrock hillslopes with small pocket floodplain along the narrow valley bottom. The channel alignment broadly follows the geologic contact between sedimentary and volcanic rock units, resulting in a relatively sinuous path that is reflective of the underlying geology. The downstream extent of the project reach is demarcated by narrow geologic constrictions, in which steep bedrock walls confine the channel with a negligible available floodplain.

Washout of the existing road occurred just upstream of one constriction as swift flows were driven toward the valley wall. Upstream of the constriction, the valley widens slightly allowing for pocket floodplain formation. The remaining, still intact, road sits atop of a remnant floodplain bench.

Alternative 1: No Build

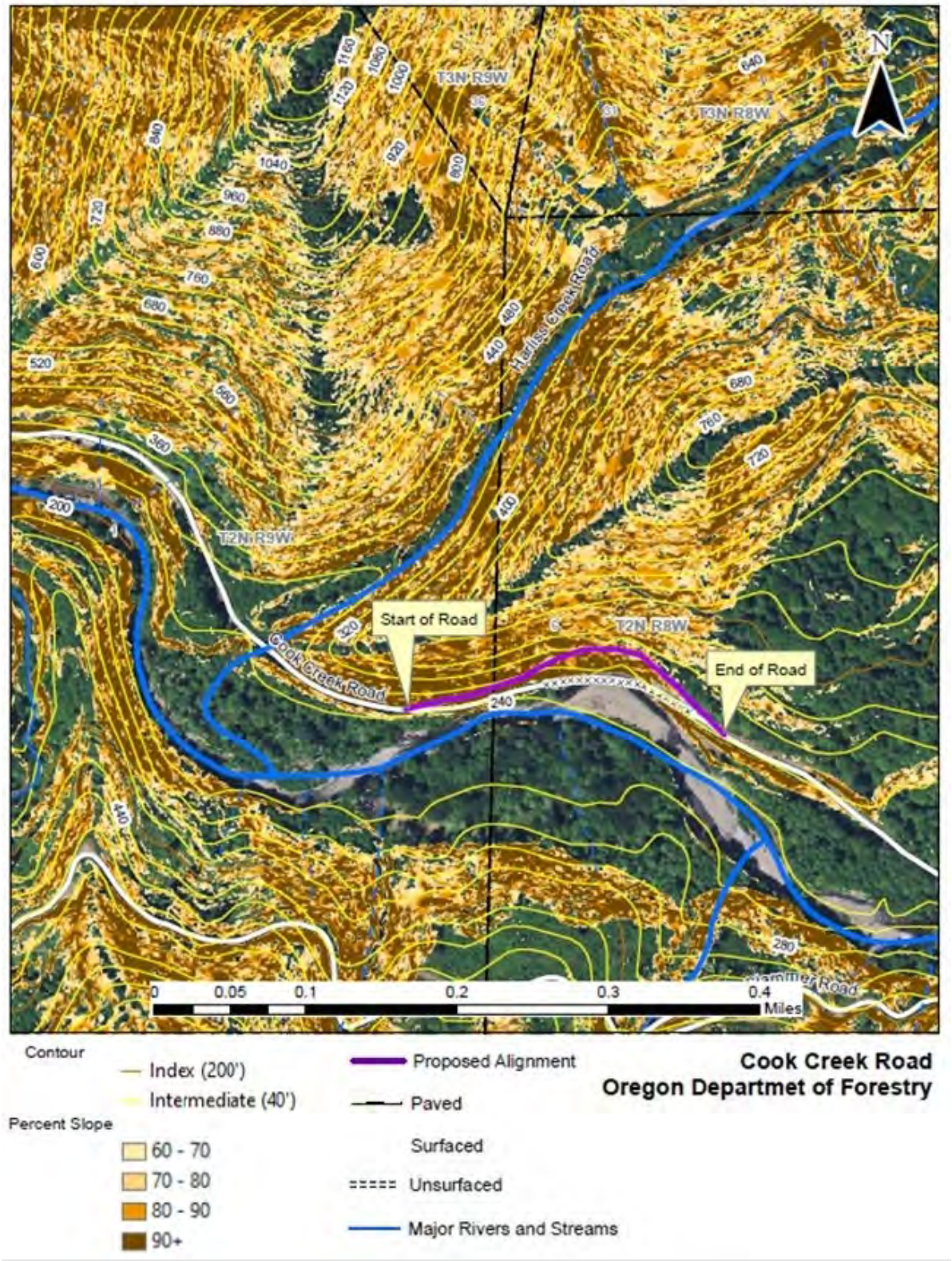
Under this Alternative, no road construction or related activities would take place and **this alternative would have no impacts on soils and geology.**

Alternative 2: Road Relocation

As discussed in Section 4.2, as a reasonably foreseeable future action, ODF will vacate the remaining 1,400-foot road segment without FEMA assistance. ODF will provide long term drainage, scarify and outslope the compacted road surface, and seed and mulch disturbed soils. **These actions would have a minor short-term adverse impact on soils during the work period, followed by a moderate long-term stabilization benefit on soils and geology**.

The proposed new road segment would traverse an ancient deep seated slide feature on the east and through a rocky hillside to the west. Minor rockfall is expected from the new cutbanks but the proposed road is not expected to affect the overall geologic stability in the project area (Otak 2020).

Figure 5. Geomorphology Map



ODF will use full-bench construction methods where slopes are greater than 55 percent. Removed soil and rock materials will be hauled to fill sites or approved debris disposal sites. Construction activities (clearing and brushing, grubbing, excavation, and grading) will disturb approximately 2.9 acres of soil along the length of the road alignment (1,900 feet) and within the clearing and brushing limits.

The construction activities would create minor increases in erosion. To minimize these impacts, the project will be designed and constructed in accordance with the ODF State Forests Program, Forest Roads Manual (ODF, 2000), which includes road design, construction and maintenance standards for minimizing erosion and sedimentation. Section 4.2 discusses these specific strategies (e.g., limiting ground disturbance, appropriate timing of construction activities and incorporating erosion control measures).

Cook Creek Road serves both commercial (forestry) and public (recreational) users. It is intended for heavy vehicles/equipment associated with forestry operations, as well as off-highway motorized vehicle use. Road use is expected to be heavy during periods of log hauling and may have a high level of recreational usage during parts of the year. Specific strategies to minimize erosion and sediment production during regular use include both design and long-term maintenance strategies as discussed in Section 4.2 and summarized in Section 5.12.

With no impact on overall geological stability, and with short- and long-term strategies to minimize erosion and sediment production, **this alternative would have a minor short- and long-term adverse impact on geology and soils.**

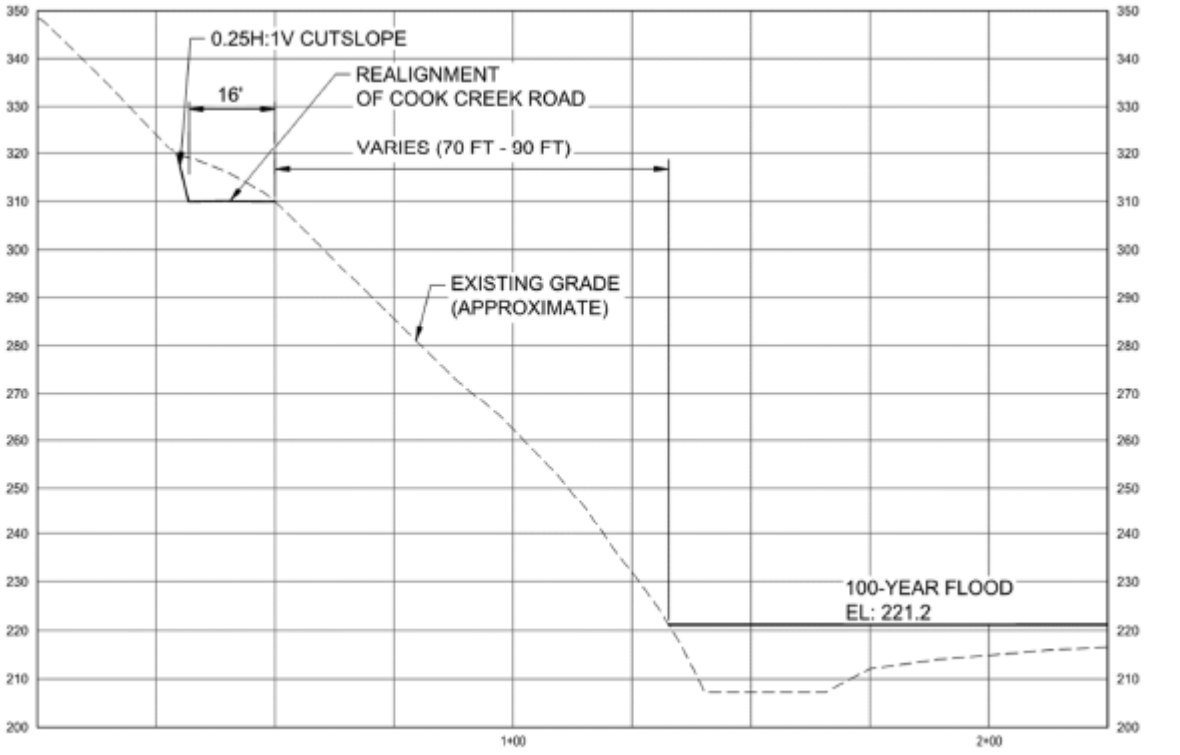
4.2 Floodplain Management

E.O. 11988, Floodplain Management requires federal agencies to avoid, to the extent possible, short- and long-term adverse impacts associated with the occupancy and modification of a floodplain when there is a practicable alternative. FEMA regulations (44 CFR Part 9.7) use the 1-percent annual chance flood as the minimal area for floodplain impact evaluation.

The project location occurs in an area where flood hazards remain undetermined and unmapped by FEMA (FIRM panel 41057C0275F, effective 9/28/2018). The hydraulic report shows that Cook Creek's channel is confined by steep valley margins with minimal floodplain (Otak 2020). The hydraulic model, based on channel geometry, peak flow depths and velocities was used to determine the base flood elevation (BFE)[3]. The existing roadway, to be vacated, is not in the 1-percent floodplain. The elevation of the ridge along the proposed project corridor ranges from approximately 250 to 320 feet; the 100-year flood elevation is at 221 feet as shown in Figure 6.

[3] The level that surface water is anticipated to reach during a base flood. "Base flood" refers to a flood that has a 1% chance of being either equaled or exceeded in a given area in a given year

Figure 6. Cross Section



Source: Otak 2020.

Alternative 1: No Build

As shown in Figure 13, although the existing grade of the affected area of Cook Creek Road is above the 100-year flood level, the roadbed was eroded from the torrential rain event and washed out from below flood-caused erosion. Under the no build alternative, although the damaged road segment would not be vacated or relocated, some continued sediment erosion of the remainder of the roadbed is likely to occur. Because of the amount of time that has elapsed since the initial mass wasting event, any remaining erosion of the roadbed into the floodplain and Cook Creek is expected to be limited and would quickly dissipate because of the steep stream gradient and flows. **Thus, adverse impacts on the floodplain would be negligible.**

Alternative 2: Road Relocation

With the realigned roadbed being well above the floodplain, cut into the slope, and designed with drainage features, the proposed action would have no impact on Cook Creek's floodplain. Completing construction during the dry season and implementing BMPs during site work would minimize any potential incidental sedimentation during construction. The proposed action protects infrastructure by moving the road segment further away from the flood hazards.

4.3 Hydrology and Water Quality

The project area is located in the Coast Range hydrologic area in the Nehalem basin. This range has a maritime climate, with wet winters and relatively dry summers, which is being exacerbated by climate change. Precipitation occurs mainly as rainfall, averaging between 50 and 90 inches annually along the coast and east of the Coast Range crest, but totaling as much as 200 inches at higher elevations in the mountains (Beschta et al. 1995 cited in ODF 2010).

Coast Range streams and rivers generally have steep gradients in their headwater sections, and very flat gradients in their lower reaches. Stream densities are high in this region, ranging from two to three miles of stream per square mile of land. The project area is located in the lower Cook Creek branch of the Nehalem River watershed, which drains directly into Nehalem Bay and the Pacific Ocean.

Figure 6 depicts the surface hydrology and duration of flow in the project area. The Oregon Forest Practices Act defines perennial streams as having surface flow after July 15th and intermittent streams as streams that normally do not have surface flow after July 15th.

The Oregon Department of Environmental Quality (ODEQ) online database of impaired streams (Section 303(d) list of water bodies) shows that no water bodies in the Cook Creek subbasin are listed on ODEQ's 2018/2020 Section 303(d) list (ODEQ 2020).

The Board of Forestry administers ODEQ's water quality program for forest lands through the Forest Practices Act's administrative rules. Oregon forest practices rules are approved as sufficient to implement water quality standards under the Clean Water Act. These rules specify BMPs for forest operations, which ensure that water quality will meet ODEQ standards. Any forest operation that complies with the rules is deemed to comply with the state's water quality standards.

Alternative 1: No Build

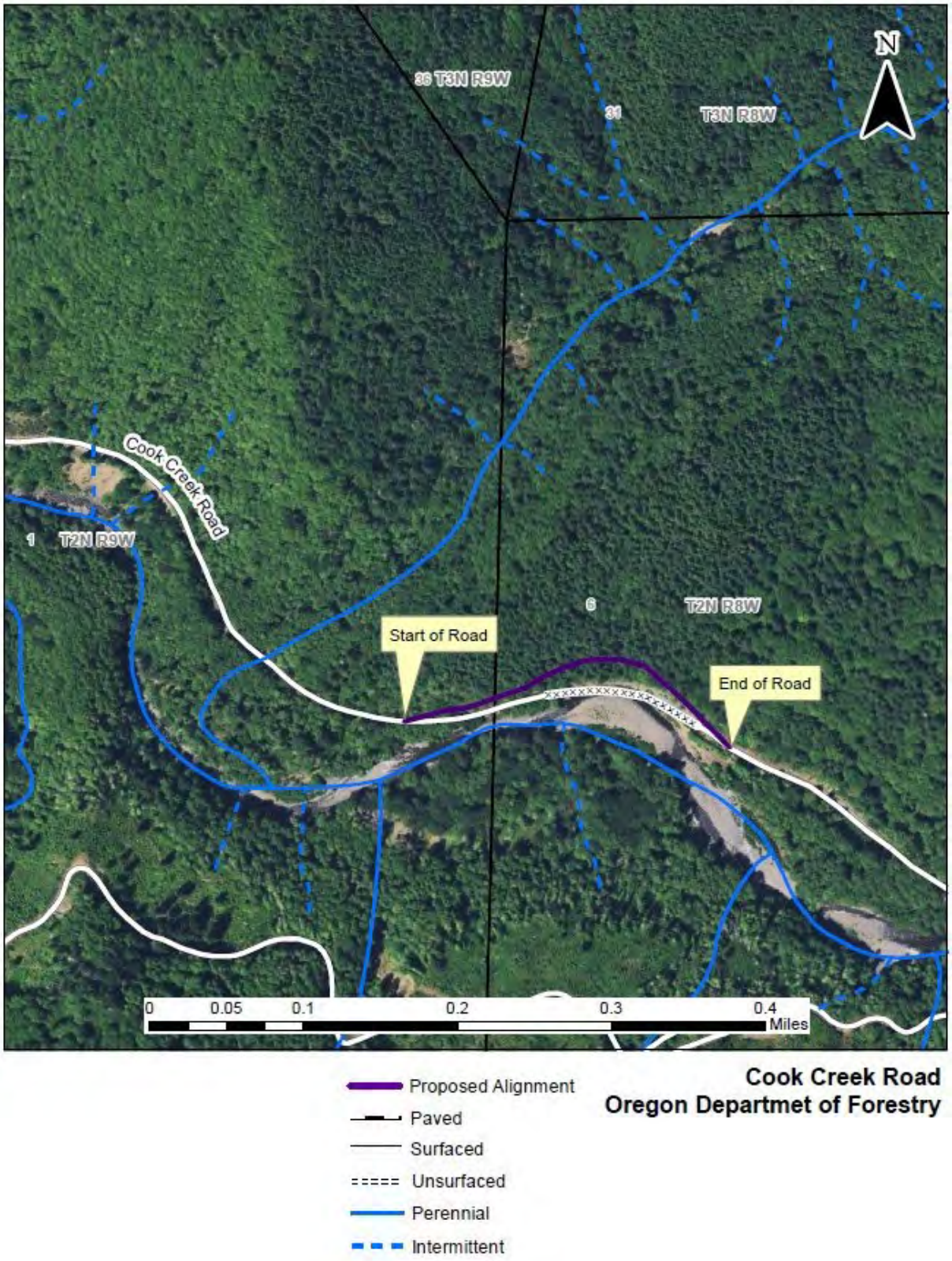
Under this alternative, no road construction or related activities would take place and there would be no impact on local hydrology and surface water quality.

Alternative 2: Road Relocation

Under this alternative, as described above for Geology and Soils, ODF will vacate the remaining 1,400-foot road segment without FEMA assistance, **resulting in a potential minor adverse impact on water quality during the work period, followed by a moderate long-term benefit on hydrology and water quality**.

The proposed road alignment does not cross, abut, nor is it adjacent to surface water features, and will require no in- or near-water work or alter the existing drainage patterns in the area. The alignment does intercept the start of a small drainage basin but no defined channel or surface flows were evident during an ODF site visit in December 2020. The new road alignment will be approximately 130 feet upslope (north) of the damaged segment of road.

Figure 7. Project Surface Hydrology



The new road would be a minor long-term source of sediment to streams down-slope of the project area, when compared to the current conditions in which there is no traffic on the road. With the short- and long-term strategies to minimize erosion and sediment production described above, and the increased distance between the road and creek, the proposed action will not increase sediment to streams in the area in the long-run, nor violate any water quality standards. **This alternative would have a minor short-and long-term adverse impact on hydrology and water quality.**

4.4 Vegetation

Vegetation and plant communities in the Tillamook State Forest have been modified from the original native composition by silviculture and forest fires. The forest is dominated by closed single canopy conifer and hardwood stands 25 to 45 years old. Riparian areas are dominated by hardwood species, especially adjacent to perennial streams. (ODF 2009).

The project site and surrounding areas burned in the 1933 (Tillmaook) and the 1945 (Wilson River) fires, salvage logged in the 1950s, and were replanted between 1965-1970. Currently, vegetation communities on the project site and in the surrounding areas are mixed species stands of Western Hemlock, Douglas-fir and scattered Red-Alder that are approximately 53 years old. Conifer trees in the project area average 16 inches in diameter at breast height (dbh); red alder average 14-inches dbh. Understory shrub species are comprised primarily of Western Sword-fern and vine maple with patches of salmonberry.

For the purposes of this EA, special-status plants species in this section are defined as plants that are legally protected or that are otherwise considered sensitive by State resource conservation agencies and organizations. Specifically, this includes species that are State listed as rare, threatened, or endangered, those considered candidates for listing as threatened or endangered, or species listed by the Oregon Department of Agriculture (ODA) as plant species of special concern.

Special-status plant species which are known to occur or that could potentially occur within the Tillamook District are listed in Table 3. (ODF, 2009). Species with legal protection under the federal Endangered Species Act (ESA) are discussed in Section 5.5.

Table 3. Special-status plant species in Tillamook District

Common Name	*Scientific Name*	*ODA Status*[1]	*Potential to Occur in the Project Area*
Saddle Mt. bittercress	*Cardamine pattersonii*	SC	None
Chamber's paintbrush	*Castilleja chambersii*	SP	None
Point Reyes Bird's-beak	*Cordylanthus maritimus palustris*	SE	None
Frigid shootingstar	*Dodecatheon austrofrigidum*	SP	None
Coast Range fawn-lilly	*Erythronium elegans*	ST	None
Queen-of-the-forest	***Filipendula occidentalis***	**SC**	**Low**
Saddle Mt. saxifrage	*Micranthes hitchcockiana*	SC	None
Bristly-stemmed sidalcea	*Sidalcea hirtipes*	SC	None

[1] **ODA Status: SE**=State Endangered; **ST**=State Threatened; **SC**=State Candidate; **SP**=Plants of Special Concern. Source: ODF, 2003

Tillamook Forest Roads Supervisor conducted site visits on December 4, 2020 and June 25, 2021 to collect information on general site conditions, special habitat features and vegetation communities along the project corridor. Most of the special-status species listed in Table 3 have specific habitat requirements that are not met on the project site. Of the species listed in Table 3, only Queen-of-the-forest has the potential to occur in the project area. None of the species listed above were observed during the site visits.

Alternative 1: No Build

Under this alternative, no road construction or related activities would take place and existing vegetation at the project site would be unaltered. Therefore, there are **no impacts to vegetation**.

Alternative 2: Road Relocation

Vacating the remaining 1,400-foot road segment without FEMA assistance would facilitate natural vegetation to recolonize the roadway and shoulders **with a minor long-term beneficial impact.**

In addition, the Proposed Action, construction activities (clearing and brushing, grubbing, excavation, and grading) will permanently displace approximately 2.9 acres of vegetation, including both mixed species coniferous forest (Douglas fir and western hemlock) and patches of red alder, along with an understory shrub layer and herb layer. Understory shrubs that would be removed are primarily western sword fern, vine maple, and salmonberry.

ODF would conduct long-term maintenance of the road in accordance with the ODF Forest Roads Manual to prevent vegetation from obstructing the roadway segment. **This alternative would result in a minor short-term adverse impacts and negligible long-term adverse impacts on vegetation.**

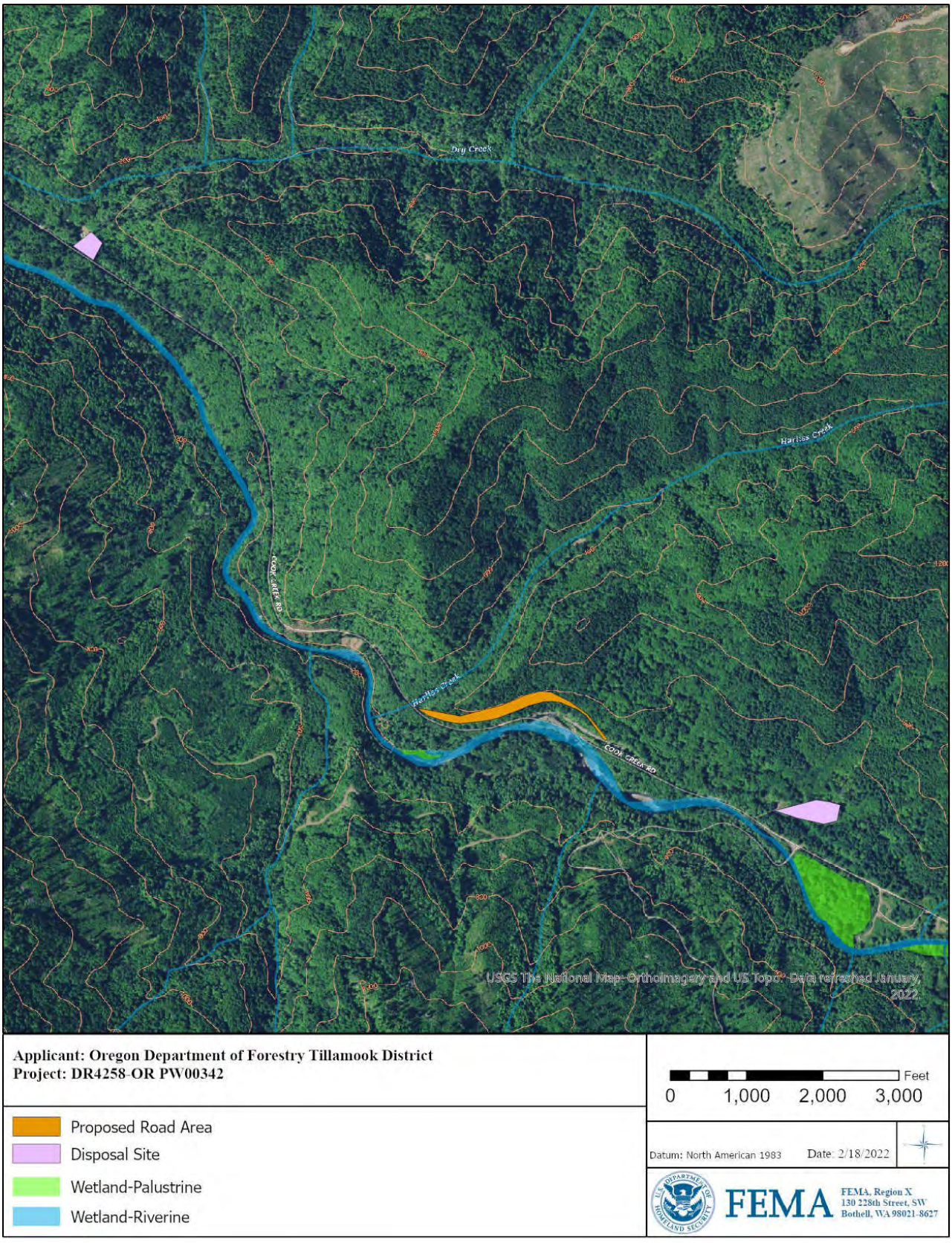
4.5 Wetlands

Executive Order (EO) 11990, Protection of Wetlands requires federal agencies to consider alternatives to work in wetlands and limits potential impacts on wetlands if there are no practicable alternatives. Activities that fill jurisdictional wetlands require a permit from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act of 1977 (33 U.S.C. 1344). FEMA regulation 44 CFR Part 9, Floodplain Management and Protection of Wetlands, sets forth the policy, procedures, and responsibilities to implement and enforce EO 11990. According to the USFWS National Wetland Inventory maps[4], the following wetlands, shown in Figure 7, exist near the proposed project areas:

- Riverine, Cook Creek
    - Upper perennial, unconsolidated bottom, permanently flooded (R3UBH).

[4] https://www.fws.gov/wetlands/Data/Mapper.html Project ID: R01Y08P14 Oregon Coast Range, retrieved 2/8/2020

Figure 8. Wetlands



    - Upper perennial, unconsolidated shore, seasonally flooded (R3USC).
- Freshwater Forested/Shrub Wetland
    - Nontidal, scrub-shrub, broad-leaved deciduous, seasonally flooded (PSS1C), approximately 250 feet southwest of the start of the proposed new road alignment.
    - Nontidal, forested, broad-leaved deciduous, seasonally flooded (PF01C), north of Cook Creek, adjacent to the Clammer Road bridge.
- Riverine, Harliss Creek
    - Intermittent, streambed, seasonally flooded (R4SBC), approximately 1,000 feet west of the road washout where Harliss Creek confluences with Cook Creek and 500 feet west of the start of the proposed new road alignment.
- Riverine, Dry Creek
    - Upper perennial, unconsolidated bottom, semi-permanently flooded (R3UBF), 180 feet north of an existing debris disposal site that the project may use.

Alternative 1: No Build

Vehicles that can maneuver the narrower Clammer Road would continue to contribute negligible amounts of sediment to Cook Creek and the PF01C wetland adjacent to the bridge and at the intersection with Cook Creek Road upstream of the project site. This road is only open to passenger vehicles. Under this alternative, no road construction or related activities would take place and there would be **negligible adverse impacts to wetlands**.

Alternative 2: Road Relocation

Vacating the remaining 1,400-foot road segment without FEMA assistance would not have any impact on Cook Creek or other wetlands because the road segment is currently impassable and not a source of traffic-related sediment at the washed-out location. Impacts to the wetland near Clammer Creek (PF01C) and Cook Creek at the Clammer Road bridge would continue as in Alternative 1.

The proposed road alignment does not cross or abut any surface water features. Harliss Creek is 500 feet west of the start of the proposed new road alignment. The project requires no in- or near-water work. This alternative would increase traffic to and from the project site, both during and after construction. Construction traffic would include the hauling of excavated materials and debris to the existing disposal sites northwest and southeast of the project site.

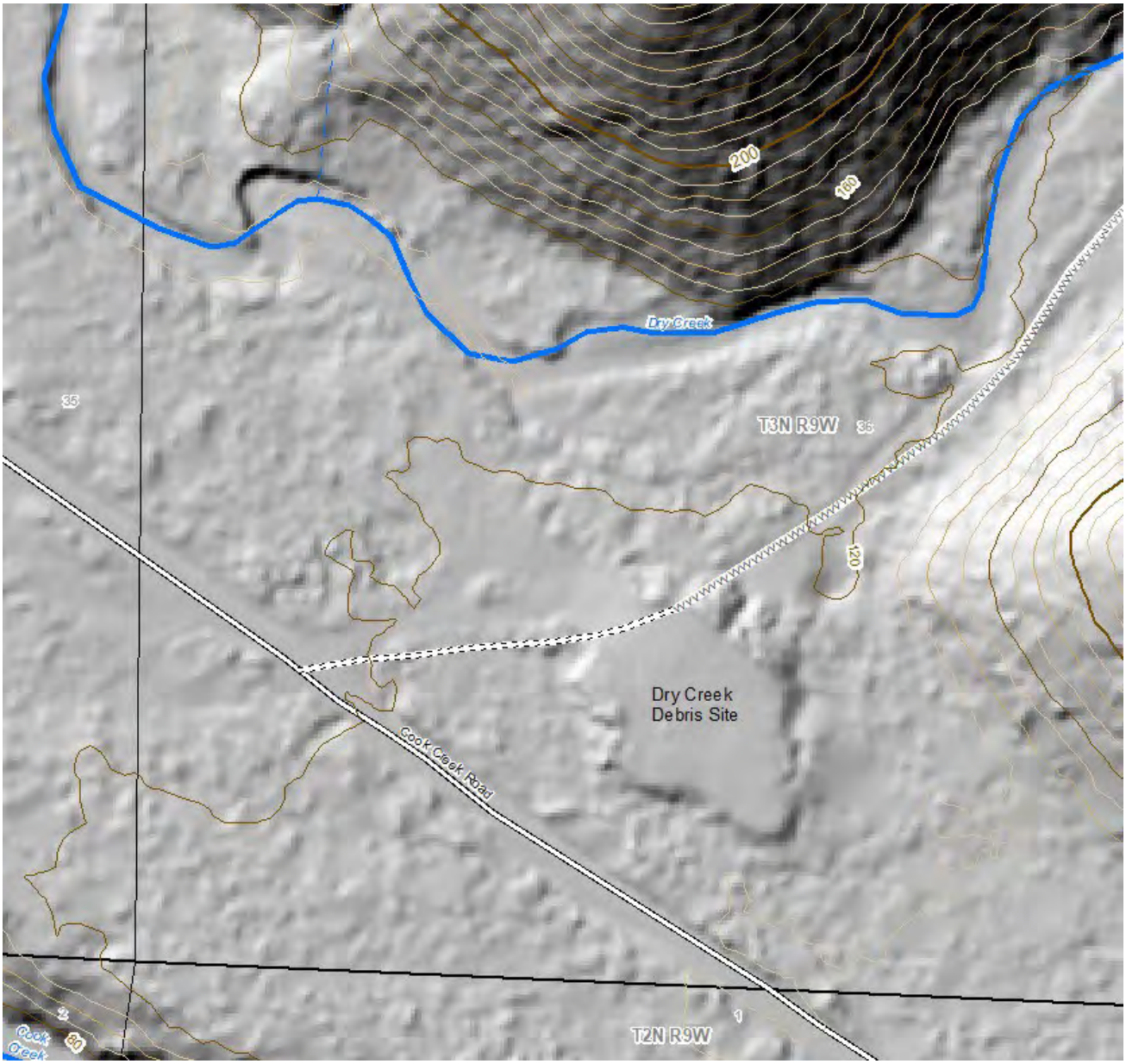
Dry Creek (R3UBF) is located 180 feet north and Cook Creek (R3UBH) is 300 feet southwest of the northern disposal site. The southern disposal site is near the Clammer Road bridge; Cook Creek (R3UBH) is 190 feet southwest of this site while the Freshwater Forested/Shrub Wetland habitat near Clammer Bridge (PFO1C) is 300 feet south of the site. The Cook Creek related Riverine habitat (R3USC) is located 520 feet east of the site.

Dump trucks will deliver materials from the project to both disposal sites. A bulldozer will spread and compact the materials to reduce erosion and shape the material for drainage. The disturbed compacted

soils will be seeded with grass and mulched with straw at the end of the project to further reduce erosion, retain materials on the site, and prevent impacts to the wetlands. Woody debris will be piled separately at the debris site. At both sites there are roads between the debris sites and the mapped wetlands except a small portion of Dry Creek directly north of the site.

At the Dry Creek site, disposal will occur within the footprint of the existing debris site. The slopes to the north of the site are gently sloped (5-8% gradient) toward the creek with a 12-15-foot elevation difference between the creek and the debris site. (Figure 8).

Figure 9. Dry Creek Debris Site



Lidar hillshade with 10 foot contours (2020). Source: ODF, 2022

This slope currently is vegetated with brush and mature timber. ODF's policy is to located debris disposal sites at a minimum outside the riparian management buffer (100 feet for a fish bearing stream).

With the short- and long-term strategies to minimize erosion and sediment production described in Section 3.2 and the increased distance between the proposed work area, disposal areas, and wetlands, the proposed action is not expected to increase sediment to wetlands in the area in the long-run, nor violate any water quality standards. **This alternative would have a minor short-and long-term adverse impact on wetlands.**

4.6 Threatened and Endangered Species

Federally listed threatened and endangered species include all plant, fish, and wildlife species designated by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) as threatened, endangered, proposed, or as candidates for listing under the federal Endangered Species Act (ESA) of 1973, as amended.

Federal or state-listed species that are known to occur or that could potentially occur within the project area are listed in Table 4 (USFWS 2021a; NMFS 2021).

Table 4. Federal or State listed threatened and endangered species that are known to occur or that could potentially occur within the Project area

Common Name	***Scientific Name***	***Status***	***Critical Habitat****	***Potential to Occur in the Project Area***
Flowering Plant: Nelson's checker-mallow	*Sidalcea nelsoniana*	FT, ST	N/A	Low potential due to lack of appropriate habitat. The project corridor ranges from 250 to 320 feet in elevation and does not overlap the known elevation range for this species.
Bird: Marbled murrelet	*Brachyramphus marmoratus*	FT, ST	None	Not known to occur in the project area. Low potential due to lack of suitable habitat. Unsurveyed potentially suitable habitat near the project site.
Bird: Northern spotted owl	*Strix occidentalis caurina*	FT, ST	None	Not known to occur in the project area and spotted owl suitable habitat is not present in the project area.
Fish: Coho salmon (Oregon Coast ESU)	*Oncorhynchus kisutch*	FT	None	Known to use Cook Creek as spawning and rearing habitat
Mammal: Red Tree Vole	*Arborimus longicaudus*	FSC	N/A	Not known to occur in the project area and red tree vole suitable habitat is not present in the project area

Status: **FT**=Federally Threatened; **FSC**=Federal Species of Concern; **ST**=State Threatened

* Critical Habitat present in the project area.

Source: USFWS 2021a; NOAA Fisheries 2021 ESU: Evolutionary Significant Unit

There is no critical habitat in the project area. Marbled Murrelet and Coho salmon are discussed below. Suitable habitat for the other three species listed in Table 4 is not found in the project area.

Alternative 1: No Build

Under this alternative, no road construction or related activities would take place and existing conditions at the project site would remain unaltered. Therefore, **there are no potential effects to threatened or endangered species.**

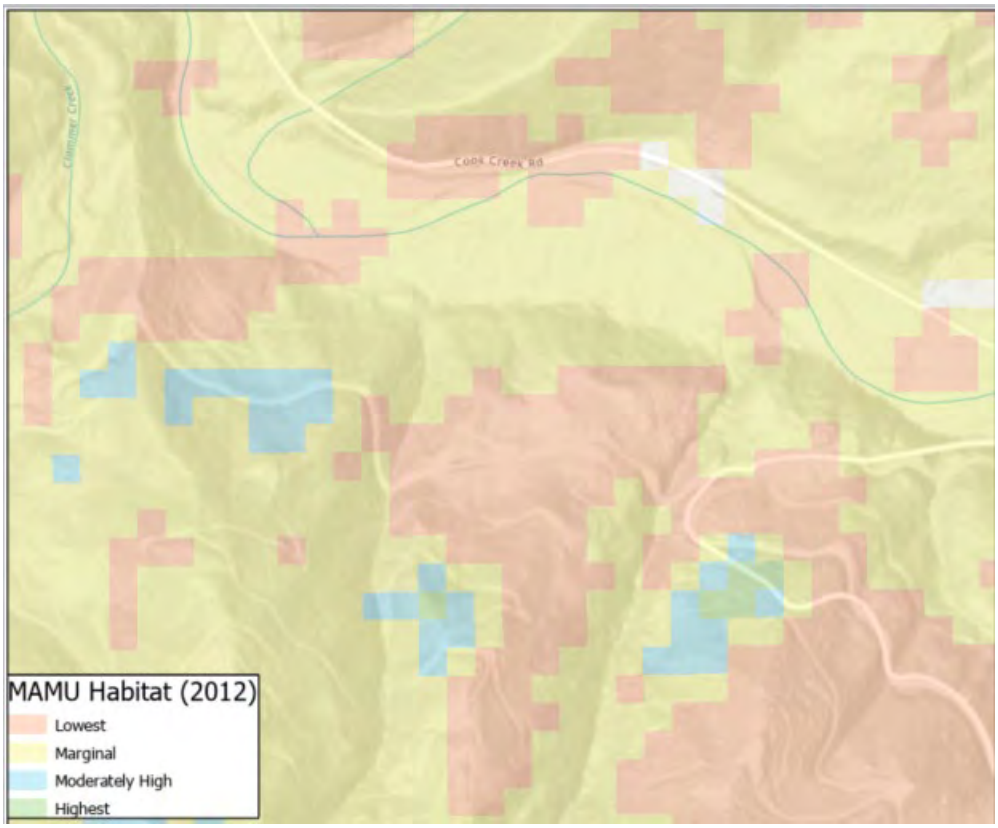
Alternative 2: Road Relocation

While vacating the remaining 1,400-foot roadway, ODF will ensure the following:

Marbled Murrelet

Marbled Murrelet are a small sea bird that typically nests on wide distorted or moss covered branches of old growth trees up to 60 miles inland from the shoreline. The nearest documented nesting activity is about 5 miles to the northwest (ORBIC 2021). Based on 2012 habitat suitability raster for marbled murrelet (Faxla et al 2016), there are three small patches (3.0, 1.8, and 4.7 acres) of unsurveyed potentially suitable habitat that are 1,100 feet or more to the south on the far side of a ridgeline (Figure 9). These are all likely undersized habitat patches but may still have suitable sized nesting trees with proper branch platforms. Marbled murrelet nesting habitat is 5 acres of continuous conifers that contain sufficiently sized trees with nesting platforms (WSDOT 2017).

Figure 10. Modeled marbled murrelet nesting habitat conditions around the Project Site



However, between the distance and intervening ridgeline, it is unlikely that any noise generated from the project will affect any undetected nesting marbled murrelet. There is a fourth small patch (1.3 acres) that is approximately 1,800 feet to the east, which is outside of expected noise disturbance range. Across Cook Creek from the washed out road segment, ODF identified five individual potentially suitable trees with large limbs that could support nests. Based on 2020 lidar imaging, three were over 125 feet tall and the other two are 100-125 feet tall. However, these are individual trees within a floodplain bench which appears to be mostly deciduous with patchy conifers. No work will be conducted on the south side of the creek.

While these individual trees are located in habitat indicated as lowest or marginal quality, it is not impossible that they could still be utilized by marbled murrelets even though there are better habitat options nearby. While occupation of these 5 identified trees by marbled murrelet is low, ODF will still include seasonal work timing restrictions as part of their BMPs.

- No construction activities will be allowed from April 1 to August 5 annually within 330 feet of the trees on the south side of the creek. Project achieves this timing restriction by not starting construction until August 6.
- Between August 6 and September 15 operations will not be allowed from 2 hours before sunset to 2 hours after sunrise.

FEMA has determined that this alternative will have no effect on Marbled Murrelet or its designated Critical Habitat as defined under Section 7(a)(3) of the ESA.

Coho salmon:

Coho salmon are known to use Cook Creek as spawning and rearing habitat.

There will be no work along the banks or within the Ordinary High Water Mark (OHWM) of Cook Creek. The new roadway segment will be located upslope of the vacated road, buffered by vegetation, which will reduce any surface sediment transport that the construction BMPs do not capture. ODF will follow the Forest Management Guidelines and ODF standard BMPs for road construction and maintenance while vacating the road. These include operational timing restrictions, minimizing disturbance of existing vegetation, pullback of any identified sidecast material, and progressive erosion control such as seeding and ground covering mulch (Section 4.2). Additionally, the road grade will be ripped and outsloped to accelerate native vegetation recolonization and provide drainage.

ODF will replant trees on the eastern portion of the road (0.2 acres) after vacating the road segment. These trees will help stabilize the soil and provide future large wood recruitment to Cook Creek. The western portion is founded on excavated rock and will only support a limited growth rate.

FEMA has determined that this alternative will have no effect on Coho salmon or its designated Critical Habitat as defined under Section 7(a)(3) of the ESA.

4.7 Other Fish and Aquatic Life

The ODF Tillamook District has over 573 miles of fish-bearing streams. Some of these streams have important populations of native salmonids. Anadromous runs on the district include coho, chum, spring and fall chinook salmon, summer and winter steelhead, and sea-run cutthroat trout. Resident cutthroat trout populations are also found in the district's streams.

The Magnuson-Stevens Fisheries Conservation and Management Act (16 U.S.C. § 1801 et seq.), designates Essential Fish Habitat (EFH) for certain commercially managed marine and anadromous fish species and is intended to protect the habitat of commercially managed fish species, including anadromous fish species, from being lost because of disturbance and degradation. Federal agencies are required to consult with NMFS on activates that may adversely affect EFH.

Pacific salmon species of interest related to EFH in the action area are Chinook and coho salmon. EFH is present within the action area at Cook Creek. Tributaries to the Nehalem River, including Cook Creek, are important salmonid spawning habitat (ODF 2009). Within the Cook Creek subbasin, Cook Creek is a large Type F (fish-bearing) stream and Harliss Creek is a medium Type F stream (Figure 10).

Fall chinook, winter steelhead, Chum Salmon, and Pacific Lamprey use Cook Creek as spawning and rearing habitat (ODFW 2021b). Winter Steelhead use the lower reach of Harliss Creek as spawning and rearing habitat. Table 5 summarizes fish use in each of these streams, along with species and habitat use, and approximate distance from the project site.

Table 5. Fish use in Project Area Streams

Stream	*ODF Stream Type*	*Species Present*	*Habitat Use*	*Distance from Project Site (feet)*
Cook Creek	Type F	Fall Chinook Winter Steelhead Chum Salmon Pacific Lamprey	spawning and rearing habitat	85 ft
Harliss Creek	Type F	Chum Salmon	spawning and rearing habitat	500 ft

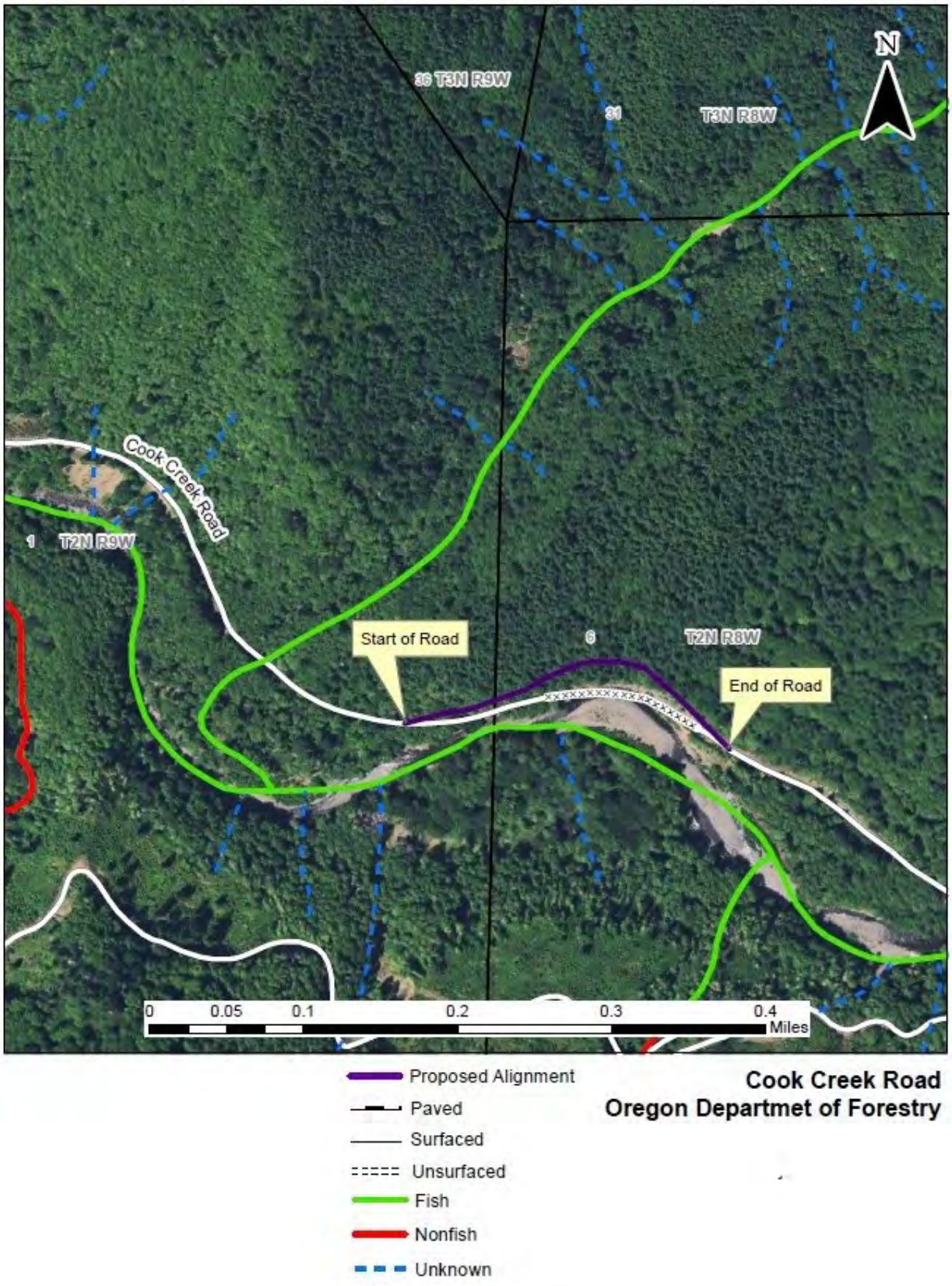
Sources: ODFW, 2021b and ODF

Alternatives 1 and 2

The impacts of both alternatives on other fish and aquatic life are the same as described for Water Quality (Section 5.2) based on the anticipated erosion and sediment production during and after construction.

The No Build alternative would have no adverse impact on fish, other aquatic life, or essential fish habitat.

Figure 11. Fish Presence in Project Area Streams



The proposed project increases the vegetative buffer between the road and Cook Creek (described in Section 5.3) that would further filter surface runoff from the relocated roadway. Thus, the proposed action would result in a minor long-term benefit on EFH in or around the action area.

The Road Relocation alternative would result in a minor adverse impact on fish, aquatic life, and EFH during the work period; a moderate long-term soil stabilization benefit after vacating the lower road segment; and a a minor adverse long-term impact from traffic and maintenance of the road.

4.8 Other Wildlife

Other wildlife includes terrestrial wildlife in the project area and all native birds including those protected the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act. The MBTA, as amended (16 U.S.C. §§ 703–711), provides protection for migratory birds and their nests, eggs, and body parts from harm, sale, or other injurious actions. All native birds, including common species, are protected by the MBTA. According to the USFWS Information for Planning and Consultation (IPaC) online database, there are no migratory birds of conservation concern expected to occur in the project area.

The Tillamook State Forest contains many indigenous mammal, reptile and amphibian species, including mule deer (black-tailed deer*)* elk, black bear, and cougar (ODF 2009). Over much of the forest, habitat is currently dominated by dense single-species stands that do not allow sunlight to reach the forest floor, resulting in limited available forage. However, recent commercial thinning and clearcuts have opened up many stands and increased forage, and elk populations in large portions of the forest are at or above management objectives (ODF 2009). Evidence of wildlife observed during the December 4, 2020 site visit includes elk hide and tracks, black-tailed deer tracks and scat, woodpecker cavities in snags, and some unidentified songbird vocalizations.

Habitat in the immediate vicinity of the project is primarily mixed species conifer or alder patches with little layering of the tree crowns, with a single shrub layer (sword fern, vine maple, and salmonberry) and little diversity in the understory. Snags and downed wood are prominent features on the landscape in the project area. Riparian habitat lower in the landscape, along Cook Creek and its tributaries provide valuable habitat for wildlife, including amphibians, neo-tropical migrant birds, raptors, small mammals, deer, elk, and other mammals.

Bald eagles are found on and adjacent to state forest lands year-round, using available habitats for nesting, foraging and roosting. The nesting season for bald eagles is January 1 to September 30. Eight nesting territories are known to occur in the Tillamook State Forest; however, no nesting sites are documented in the project area (OSU 2005) or have been observed.

Alternative 1: No Build

Under this alternative, no road construction or related activities would take place and there would be **no impacts on wildlife**.

Alternative 2: Road Relocation

Under the Proposed Action, construction activities (clearing and brushing, grubbing, excavation, and grading) will permanently displace approximately 2.9 acres of vegetation as described in Section 5.3 (Vegetation). Due to the lack of overall habitat diversity, including the lack of riparian or other aquatic habitat on the project site, the proposed action is expected to have only minor adverse impacts on wildlife as described below.

The Proposed Action is likely to have little impact on amphibians, as most require riparian or other aquatic habitat for breeding and foraging. However, some species of amphibians are both aquatic and terrestrial, and adults use downed woody debris and the forest floor for resting and feeding. Two of these, Cope's giant salamander and Pacific giant salamander, use clear, high to low gradient streams for breeding, which are present down-slope of the project area. According to the wildlife species lists in the Northwest Oregon State Forest Management Plan (ODF 2010), these species are known to use the stand types present in the project area. Adults of these species could potentially use the forest floor in the project area. Snakes, such as the rubber boa and the common garter snake are also found in forested areas and are known to occur in the stand types present in the project area (ODF 2010). Clearing of the forest floor in the project area would remove some potential habitat for these species.

A variety of songbirds, including neo-tropical migrants, are likely to nest (live trees or snags) and forage in trees and on the forest floor (winter wrens also use downed wood for nesting) on the project site. Small mammals such as shrews, voles, moles, deer mice, bats (use snags for breeding), chipmunks, Douglas squirrels, raccoons, porcupines (uses snags and downed logs for breeding), and long-tailed weasels are known to use the stand types in the project area. These generally use mixed deciduous-conifer forest stands with greater percent cover of red alder (ODF 2010). Most of these songbirds and small mammals are likely to be found in higher densities in higher quality riparian habitats down-slope of the project site.

However, the removal of live trees, snags, or downed wood would directly affect many of these species by removing potential nesting or foraging habitat (ODF 2010). These impacts would be negligible given the relatively small project area, the availability of higher quality habitat nearby, and the absence of migratory birds of conservation concern.

Vegetation to be removed as part of the proposed action provides little forage for deer, elk, or black bear, and trees lack the minimum diameters needed for species such as the pileated woodpecker and northern flying squirrel.

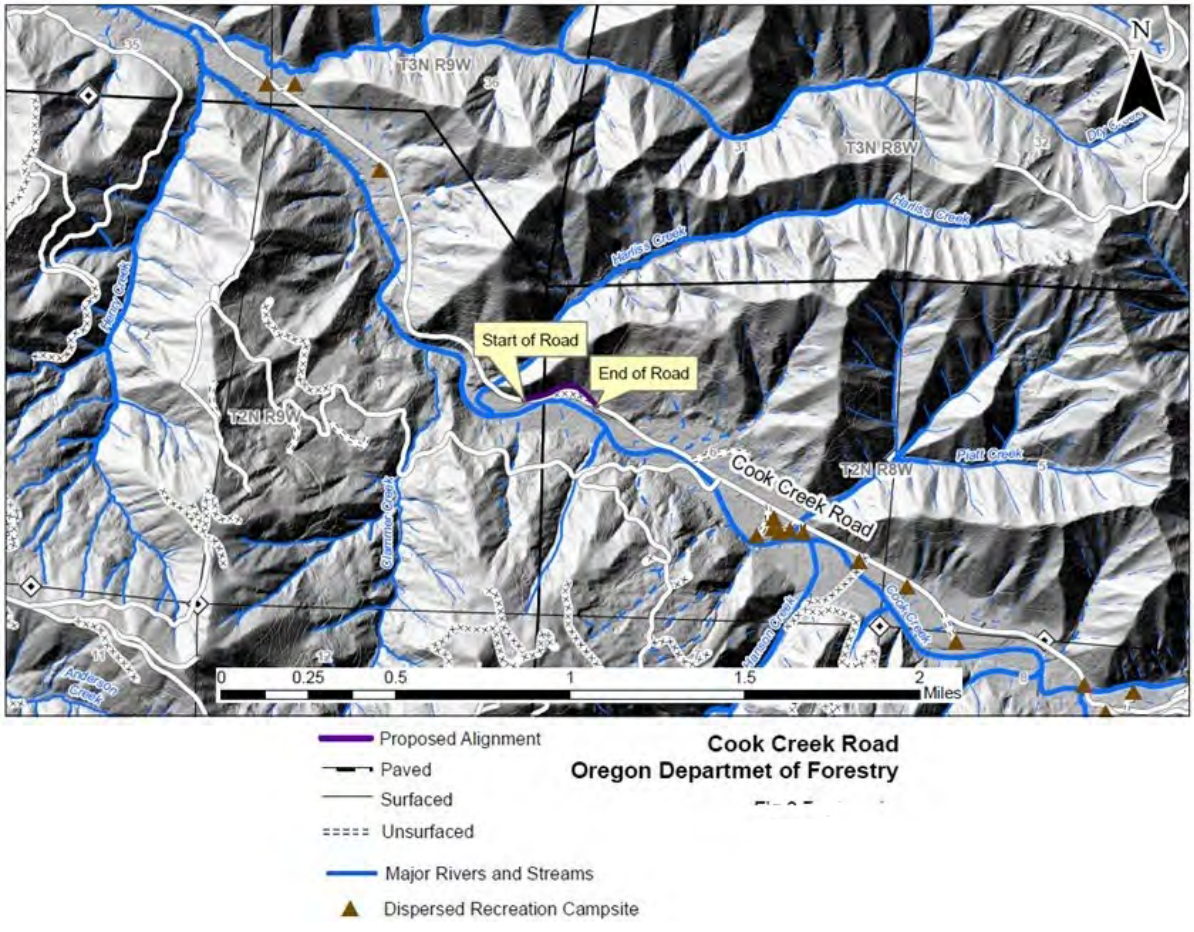
Most wildlife species potentially in the area would frequent nearby riparian/aquatic areas as their primary habitat and would use habitat on the project site only peripherally. **Overall, the removal of potential habitat on or adjacent to the project site, and the vacating of the old road segment would result in a negligible adverse impact on wildlife.**

4.9 Recreation

The Tillamook State Forest is a popular regional outdoor recreation destination within the Lower Nehalem basin and the Cook Creek sub-basin. Recreation activities common in the Lower Nehalem basin include dispersed camping, hunting, fishing, OHV use, hiking, and day-use activities such as swimming and kayaking (ODF 2009).

The project site is within a Non-Motorized zone in the Cook Creek sub-basin, which includes dispersed camping along Cook Creek and the Nehalem River, and high scenic viewpoints such as Pinochle Peak, and Lost Creek Ridge. (ODF 2009). Dispersed camping upstream of the project site is popular but has seen a marked reduction in use since Cook Creek Road was damaged. A total of 14 designated dispersed campsites, offering fire rings, portable chemical toilets, and dumpster service are located on Cook Creek Road. (Figure 11).

Figure 12. Recreation Sites



Alternative 1: No Build

Under this alternative, access to recreation sites and activities upstream of the project site would be limited to those with passenger vehicles who elect to use the longer, narrower Chambers Creek Road. Access for recreational trailers would be restricted as would access to ODF's maintenance and management services for campsite maintenance and trash collection. **This alternative would continue the current conditions, a moderate adverse impact on recreation.**

Alternative 2: Road Relocation

With the proposed road relocation, Cook Creek Road would provide access to the dispersed camp sites and other recreational opportunities. Use of existing recreation facilities would return to historic levels similar to prior to the road being closed. ODF's active recreation management program would be able to maintain and manage the use of facilities to ensure that physical deterioration does not occur. The proposed action will restore access to the same quantity and quality of opportunities for recreational activities that existed before the road was damaged. **This alternative would result in moderate beneficial impacts to recreational uses compared to the current conditions.**

4.10 Visual Quality and Aesthetics

The landscape surrounding the project site is characterized by steep hills and dense Douglas-fir and alder forest ranging from 45 to 60 years of age. Forest canopy at the project site and in its vicinity is generally unbroken. Neither the forested hillside nor the project site are visible from Highway 101. Portions of the forested hillside are visible from short segments of Clammer Road and Firebreak 3 Road. Views of the hillside from other forestry roads in the vicinity are very limited, but it is visible from some locations where vegetation or topography does not obscure views. Figure 12 illustrates a view of the ridge from Clammer Road.

Figure 13. View of ridge and road realignment location from Clammer Road

ODF has established a visual management program for northwest Oregon state forests applied at both the landscape and stand level. ODF determines an area's degree of visual sensitivity based on a number of viewer factors (number of viewers, viewer perception, viewing distance, duration, angle, and position) and physical factors (cultural modifications such as logging patterns, roads, and powerlines, landform, vegetation, water, and uniqueness). The scenic classifications and management objectives are described in Table 4-4 of the April 2010 Northwest Oregon States Forest Management Plan (ODF 2010.

Evidence of human presence in the vicinity of the project site primarily exists in the form of forest lands subject to harvesting activity and Cook Creek Road. Due to dense vegetation along roads, these are only occasionally visible and do not have a significant impact on visual resources at the landscape scale. Existing forest roads are only occasionally visible due to dense vegetation and do not have a significant impact on visual resources at the landscape scale.

Alternative 1: No Build

Under this alternative, the road would not be vacated or relocated and there would be **no visual or aesthetic impacts**.

Alternative 2: Road Relocation

ODF has assigned a visual classification of Level 3 (low sensitivity) to the project area. This classification is applied to areas that have low levels of public use or have low visibility. Per this designation, residual affects of management activities, including road construction, do not need to be addressed at the stand level to meet visual management objectives (ODF, 2010).

In addition to the vacating the existing road segment, a new road segment would be relocated under this alternative as described in Section 4.2. Existing tree cover adjacent to the road alignment would initially obstruct views of construction work, but removal of timber along the alignment would create a linear gap in the forest canopy. Because the proposed road would be located midslope, gaps in the canopy would be expected to have some visibility from Clammer Road (Figure 12). Visual impacts due to quarrying would be minimized according to Forest Practice Rules and BMPs. Waste soil that is not used as fill during road construction would remain at one or both of the disposal locations (Figure 4), which would only be visible from the immediate vicinity and would not have a significant impact on visual resources.

Because of the project site's low visibility and the relatively limited amount of clearing involved, this alternative would have minor short-term adverse visual impacts during construction.

Over the long-term, the ODF would maintain the road in the same manner as the rest of its road network, while the vacated roadway, closer to the river, would return to a natural state. **This combined effect results in negligible long-term adverse visual impacts.**

4.11 Cultural Resources and Historic Properties

Section 106 of the National Historic Preservation Act (NHPA), as implemented through 36 CFR Part 800, requires federal agencies to consider the effects of undertakings that are federally funded if those undertakings have the potential to affect any district, site, building, structure, or object that is listed, or eligible for listing, in the National Register of Historic Places (NRHP). The federal agency must provide the State Historic Preservation Officer (SHPO), affected tribes, and other stakeholders with an opportunity to comment on such undertakings. Additional direction is provided by Oregon Laws ORS 358.905 and ORS 97.740, protecting archaeological sites, objects, and human remains.

The affected environment for cultural resources is the Area of Potential Effects (APE) shown in Figure 4 as the Proposed Area of Disturbance and Debris Disposal Sites. The APE constitutes part of the northern coastal river valleys, which are of cultural importance to the Nehalem Tillamook Indians (now included among the Confederated Tribes of Siletz Indians).

In the 1950s the entire APE and surrounding area was salvage logged and clear-cut. The general topographic setting consists of steep terrain and an earlier landslide slope on the eastern end of the proposed road segment.

Based on the nature and location of the undertaking, the probability of in situ precontact or historic cultural resources within the APE is considered low. A records search of the Oregon Archaeological Records Remote Access (OARRA), Oregon SHPO's online GIS database of recorded historic properties, was completed and no archaeological sites, TCPs, or built environment structures were identified within or near the APE. Based on the lack of recorded historic properties in the area, the general topographic setting of the APE, and previous disturbances, it was determined that no further identification and evaluation efforts were warranted.

Alternative 1: No Build

This alternative, with no construction or federal undertaking, will have no effects on cultural resources or historic properties since no site work would occur.

Alternative 2: Road Relocation

FEMA initiated consultation with the SHPO on the proposed relocation of Cook Creek Road with a determination of "No Historic Properties Affected" in a letter dated January 6, 2021 (Appendix). Although the SHPO confirmed receipt of the consultation submission the same day, no timely response was subsequently received. In addition, FEMA initiated consultation with the Confederated Tribes of the Grand Ronde and the Confederated Tribes of the Siletz Indians on January 11, 2021 (Appendix B) to determine if the Undertaking may affect historic properties of religious and or cultural significance. Neither of the Tribes responded to the consultation request. The unanticipated discovery of previously unrecorded cultural resources during project work would trigger additional consultation with the SHPO and Tribes under the appropriate laws and implementing regulations. In the event that any

archeological resources are discovered during project implementation, work will immediately cease, the area will be secured, and ODF will immediately notify the FEMA archaeologist and SHPO for further evaluation.

Accordingly, this alternative is expected to have no effects on cultural resources.

4.12 Transportation and Access

The project site is located within a Non-Motorized Recreation Use zone. Recreational visitors as well as forestry and fire protection related traffic constitute the primary users. Cook Creek Road serves as the primary route from Foss Road to the designated campsites along Cook Creek upstream from the project site (Figure 2 and Figure 11).

There are two primary routes to access the project site: directly along Cook Creek Road to the west end of the washed out road or via Clammer Road to the east side of the project site. The latter access is only feasible by passenger vehicle.

Alternative 1: No Build

This alternative would continue to restrict vehicles other than passenger vehicles (logging trucks, typical forestry lowboy and logs trucks, including L90 and U80 trucks as well as recreational trailers and fire servicing equipment) from the inner basin. **This alternative will sustain a major adverse impact on transportation and access from lengthy alternative access routes.**

Alternative 2: Road Relocation

The relocation of the road segment would create a minor, temporary increase in traffic during the construction period. The greatest increase in traffic would be due to hauling excavated materials to the disposal sites and hauling rock along the route to the proposed crushed rock stockpile located approximately 1.1 miles east of the intersection of Cook Creek Road and Clammer Road.

Traffic would also be generated by vehicles hauling timber harvested during clearing and grubbing of the road alignment. Transportation of equipment to and from the site and daily trips by road construction workers would constitute a minor source of traffic on the route between U.S. 101 and the project site.

Although road construction is expected to result in excess cut soil, this debris material will be deposited in nearby debris disposal sites along Cook Creek Road. Existing traffic loads on the proposed travel routes are relatively light and ODF may exclude the public from these roads to facilitate forestry activities if traffic loads noticeably increase. **This alternative will create a minor short-term adverse impact and a long-term major beneficial impact on transportation and access to the area.**

4.13 Environmental Justice (E.O. 12898)

Environmental justice is defined by EO 12898 (59 Federal Register 7629) and CEQ guidance (1997). Under EO 12898, census data is used to determine whether minority populations or low-income populations are present in the areas potentially affected by the range of project alternatives. If so, a determination must be made whether implementation of the program alternatives may cause disproportionately high and adverse human health or environmental impacts on those populations.

The project area is remote It lies in Census Tract 41057960100 with a population of 3,280 individuals and an area of 218.71 square miles or 15 persons per square mile compared to the state average of 40 persons per square mile in 2010. The damaged segment of Cook Creek Road in the Tillamook State Forest is about four (4) miles from the nearest population center of Batterson, Oregon.

Alternative 1: No Build

This alternative has no impact on minority or low income populations.

Alternative 2: Road Relocation

Th nearest population center may experience a small increase in construction traffic off Foss Road but this short-term adverse impact would not be high and would equally affect all demographic groups.

Therefore, the proposed action does not result in any disproportionately high and adverse human health or environmental impacts on minority and low income populations because of its remoteness and sparce population.

4.14 Cumulative Impacts

Cumulative impacts are those that result from the incremental impact of a proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions (40 CFR 1508.7, 1978). A cumulative impact analysis discusses the project's incremental contribution to cumulative impacts, recognizing that cumulative impacts can result from individually minor but collectively significant actions.

As described in Section 2.0, ODF actively manages state forest lands to provide economic, environmental, and social benefits to Oregonians. Cook Creek Road provides access to timber harvesters and recreational opportunities as described in this EA. It also serves an important transportation route for fire suppression equipment within the forest. ODF maintains an active road network in support of these activities.

These past, present, and reasonably foreseeable future actions, constituting timber harvesting, recreation, fire suppression, and maintenance of the ODF road network would continue in the future. These activities would continue to contribute minor incremental adverse impact to cumulative impacts on physical and biological resources. Adverse impacts would be partially offset by ODF's

commitments under the Forest Practices Act, ODF State Forests Program, Forest Roads Manual (ODF 2000), and agreements with state and federal agencies regarding BMPs for road design, construction and maintenance standards, and timber management.

The new road segment would re-introduce an additional, but minor, long-term source of erosion and sediment in the area. However, its adverse impact on water quality and aquatic habitat is expected to decrease slightly given the new location of the road segment.

When considering the scale of the Tillamook Forest, and the on-going timber harvest, recreational, management, and fire suppression activities, and the anticipated climate change effects, **the incremental contribution of both alternatives to adverse cumulative impacts on physical and biological resources will be negligible**.

Under the No Build alternative, **the incremental contribution to adverse cumulative impacts on timber management, recreation, and transportation resources is expected to be moderate.**

Under the Road Relocation Alternative, **the incremental contribution to beneficial cumulative impacts is expected to be moderate** as construction of the new road would make it easier to manage forest lands in the project area, harvest timber, and provide safe access to recreation sites and fire protection.

The Proposed Action will enable ODF to re-start additional harvest and stand management operations and forest road construction projects in the vicinity of the project site to fulfill its forest management responsibilities. The district has timber harvests, road infrastructure maintenance, and other land management activities planned that will utilize the relocated segment of Cook Creek Road. ODF's responsibility is to balance economic, environmental, and social benefits as part of each forest operation planning process.

5.0 BEST MANAGEMENT PRACTICES, MINIMIZATION, AND MITIGATION MEASURES

This section summarizes any applicable proposed BMPs, mitigation, or conservation measures that ODF shall implement to minimize adverse effects. The details of the effects and measures are discussed in the relevant previous resource sections in Section 4.0.

- Secure any local, state, or federal permits needed to conduct the proposed work.
- Vacate approximately 1,400 feet of road on either side of the damaged section.
    - Provide long term drainage, scarify and outslope the compacted road surface, seed and mulch disturbed soils to reduce erosion.
    - Replant trees on the eastern portion of the road (0.2 acres).
- Project construction season extends from August 6th through October 31st.
    - Between August 6 and September 15 operations will not be allowed from 2 hours before sunset to 2 hours after sunrise.
    - No construction activities will be allowed from April 1 to August 5 annually within 330 feet of the trees on the south side of the creek. Project achieves this timing restriction by not starting project construction until August 6.
- Erosion Control
    - Limiting ground disturbance (clearing, grubbing, grading) to that essential for construction of the project
    - Time construction activities that expose large areas of soil to occur during the dry summer or early fall when the threat of erosion is minimal
    - Complete construction activities prior to the onset of the rainy period, around the middle of October.
    - Incorporate erosion control measures such as (mulching, seeding or planting, silt fences, and temporary waterbars
- Design the new road segment with a crowned road surface to allow for quick drainage to the forest floor; avoid flat grades wherever possible; and use durable crushed rock for the running surface to improve overall road drainage and reduce sediment production.
- Pit run rock for road construction would be delivered to the project site as needed and would not be stockpiled on site.
- At the disposal sites:
    - Spread and compact the materials to reduce erosion and shape for drainage.
    - Disposal to remain within the existing footprint of the Dry Creek disposal site.
    - Maintain minimum outside riparian management buffers at the disposal sites (100 feet for fish bearing streams)
    - Seed disturbed compacted soils with grass and mulch with straw at the end of the project to further reduce erosion.

6.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

This section provides a summary of the agency coordination efforts and public involvement process.

6.1 Tribal and Agency Coordination

As noted above, FEMA has consulted with the Confederated Tribes of the Siletz Indians of Oregon, Confederated Tribes of the Grand Ronde, and the Oregon SHPO. Copies of these documents are provided in Appendix B.

ODF will be responsible for obtaining any local, state, or federal permits that may be needed to conduct the proposed work. ODF has a Memorandum of Agreement (MOU) with Oregon Department of State Lands (ODSL) regarding operation of the source pits. ODF and FEMA have not identified any necessary permits at this time.

6.2 Public Involvement

In accordance with FEMA's NEPA procedures, FEMA is releasing this draft EA to the public and resource agencies for a 30-day public review and comment period. Comments on this draft EA will be incorporated into the Final EA, as appropriate. This draft EA reflects the evaluation and assessment of the federal government, the decision-maker for the federal action; however, FEMA will take into consideration any substantive comments received during the public review period to inform the final decision regarding grant approval and project implementation. If no substantive comments are received from the public and/or agency reviewers, this draft EA will be assumed to be final and a FONSI will be issued by FEMA.

The public information process will include a public notice in the a local newspaper, inviting the public to submit their comments about the Proposed Action, potential impacts, and proposed mitigation measures described in this draft EA so that they may be considered and evaluated.

The draft EA is available for review and download at https://www.fema.gov/emergency-managers/practitioners/environmental-historic/region/10. Comments may be submitted by **June 15, 2022** to fema-r10-ehp-comments@fema.dhs.gov.

Please include "Cook Creek Road" in your subject line. Comments may also be submitted via mail to:

FEMA Region 10
Science Kilner, Regional Environmental Officer
130th 228th Street SW,
Bothell, WA 98021

No further public involvement is planned at this time, including a public meeting.

7.0 LISTS

7.1 List of Preparers

The following individuals contributed to the development of this EA with ODF preparing the draft and FEMA reviewing and editing it.

Oregon Department of Forests

Bushnell, Scott, Forest Roads Unit Supervisor

Federal Emergency Management Agency, Region 10

Fisher, Philip, Archeologist
Kachra, Galeeb, Senior Environmental Specialist
Kerschke, William, Deputy Regional Environmental Officer
Kilner, Science, Regional Environmental Officer
Parr, Jeffrey, Biologist

7.2 References

Literature Cited

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APPENDICES

Tribal and Agency Correspondence

- Letter to Chairman, Confederated Tribes of the Siletz Indians of Oregon, January 6, 2021
- Letter to Chairwoman, Confederated Tribes of the Grande Ronde, January 6, 2021
- Letter to the Deputy State Historic Preservation Officer, January 6, 2021
- Letter from the Oregon Department of Land Conservation and Development, May 20, 2021

Flood Insurance Rate Map

- Panel 41057C0275F, 9/28/2018, generated 4/27/2022

U.S. Department of Homeland Security
FEMA Region 10
130 228th Street, SW
Bothell, WA 98021-8627

FEMA

January 6, 2021

Delores Pigsley, Chairman
Confederated Tribes of the Siletz Indians of Oregon
P.O. Box 549
Siletz, Oregon 97801
(*sent via email*)

RE: FEMA Public Assistance, DR-4258-OR PW342, Cook Creek Washout Road Replacement, Oregon Department of Forestry Tillamook District

Dear Chairman Pigsley:

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to fund the Oregon Department of Forestry Tillamook District (Applicant), through the Oregon Office of Emergency Management (OEM) for a road construction project (Undertaking). This funding is available from FEMA's Public Assistance Program (PA) through Presidentially declared disaster 4258-DR-OR from 2015. The Undertaking is being reviewed pursuant to Section 106 of the National Historic Preservation Act (NHPA), as amended. Also, please note FEMA is preparing an Environmental Assessment per the National Environmental Policy Act for this Undertaking.

Proposed Undertaking

The Undertaking will involve the relocation of a segment of Cook Creek Road, a single lane gravel road, in Tillamook County (starting latitude 45.68471, longitude -123.72518; ending latitude 45.68419, longitude -123.71899) as is illustrated on the enclosed maps (Figures 1 to 3). On December 7, 2015 integral ground forming the south side shoulder, side slope, gravel roadway, turn out, and the north side back slope of Cook Creek Road (approximately 500 feet in total length) were eroded due to significant floodwater flows (Figures 4 & 5). Due to the extent of damage caused by the washout and the cost for repair, including in-water work, the Applicant decided not to repair the damaged segment of Cook Creek and instead relocate this segment of road. The proposed road relocation will be approximately 130 feet upslope (north) of the damaged segment of road.

Work entails the construction of a new one lane gravel road upslope that is approximately 0.35 miles in length and will be 16-feet-wide shoulder to shoulder. The road segment will be cut out of the hillside into bedrock. The proposed area of disturbance is approximately 2.8 acres as a result of the steep slope in the area and the need to clear trees and vegetation, mostly on the uphill side. Two existing waste debris stations will be utilized to permanently deposit materials excavated from the road cut and stage equipment. The eastern debris site will require some tree cutting along the eastern and northeastern boundary to make some additional storage room. This Undertaking does not involve the decommissioning of the old, damaged, road segment. This work will be completed in the future without FEMA funds.

Area of Potential Effects

FEMA has determined that the Area of Potential Effects (APE) for the project, as delineated on Figure 2, includes the proposed road relocation and associated disturbance to cut the road into the hillside as well as the two waste debris/staging area sites.

Historic Property Identification and Evaluation

A review of the Oregon Archaeological Records Remote Access (OARRA) indicates there are no archaeological sites or previous archaeological surveys within the APE or within one mile of the APE. The new road is mostly located on a steep hillside above Cook Creek as is illustrated on Figure 6, a Lidar image with contour lines. Due to the steepness of this area there is a low probability of prehistoric and historic resources. In addition, the eastern end of the proposed road relocation is situated on a landslide slope as is evident on Figure 7.

The entire area including the APE was heavily salvaged logged and clear-cut in the early 1950s as is evident on an aerial photograph from 1953 (Figure 8). In addition, the locations of waste debris/staging sites were previously disturbed as is evident in the 1953 and subsequent aerial photographs that show the eastern site crisscrossed by logging roads. As per communication with the Tillamook Forest Roads Supervisor, both sites have been used as locations to deposit soil/rock generated from road work for the last 40 years. Some equipment staging will occur in these areas as well, but the primary use will be to permanently deposit materials excavated from the road cut. A majority of the material will go to the eastern site where the existing debris and staging footprint will be expanded through the cutting of some trees in the eastern and northeastern portion of the boundary as seen on Figure 8. Based on the historic aerial from 1953 the location of the tree cutting comes from an area that was previously disturbed by logging roads that have since been overgrown. There is no plan to cut any trees at the western site and it will remain within the current footprint.

Based on the nature and location of the Undertaking in previously logged steep terrain and disturbed debris storage areas, we have determined the likely presence of cultural resources is low. Thus, no further identification and evaluation efforts are warranted. Consultation has also been initiated with the Oregon SHPO.

Determination of Effects

Barring additional information from the Tribe, FEMA has determined the Undertaking will result in No Historic Properties Affected. Additionally, we condition our construction related project approvals to protect any unexpected discoveries of historic or archaeological remains during site work. We respectfully request your concurrence with these findings, approach, or additional comment. To assist with your review, please find enclosed a project area map and aerial. Should you have any questions, please contact Philip Fisher (425) 471-9018 or philip.fisher@fema.dhs.gov. Thank you.

Sincerely,

Science Kilner
Regional Environmental Officer

Cc: Robert Kentta, Cultural Resource Director (via email)
Peter Hatch (via email)
Alfred Lane III, Vice Chairman (via email)
Bev Youngman, Programs II Manager (via email)

U.S. Department of Homeland Security
FEMA Region 10
130 228th Street, SW
Bothell, WA 98021-8627

FEMA

January 6, 2021

Cheryle Kennedy, Chairwoman
Confederated Tribes of the Grand Ronde
9615 Grand Ronde Road
Grand Ronde, Oregon 97347
(*sent via email*)

RE: FEMA Public Assistance, DR-4258-OR PW342, Cook Creek Washout Road Replacement, Oregon Department of Forestry Tillamook District

Dear Chairwoman Kennedy:

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to fund the Oregon Department of Forestry Tillamook District (Applicant), through the Oregon Office of Emergency Management (OEM) for a road construction project (Undertaking). This funding is available from FEMA's Public Assistance Program (PA) through Presidentially declared disaster 4258-DR-OR from 2015. The Undertaking is being reviewed pursuant to Section 106 of the National Historic Preservation Act (NHPA), as amended. Also note FEMA is preparing an Environmental Assessment per the National Environmental Policy Act for this Undertaking.

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Work entails the construction of a new one lane gravel road upslope that is approximately 0.35 miles in length and will be 16-feet-wide shoulder to shoulder. The road segment will be cut out of the hillside into bedrock. The proposed area of disturbance is approximately 2.8 acres as a result of the steep slope in the area and the need to clear trees and vegetation, mostly on the uphill side. Two existing waste debris stations will be utilized to permanently deposit materials excavated from the road cut and stage equipment. The eastern debris site will require some tree cutting along the eastern and northeastern boundary to make some additional storage room. This Undertaking does not involve the decommissioning of the old, damaged, road segment. This work will be completed in the future without FEMA funds.

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Sincerely,

Science Kilner
Regional Environmental Officer

Cc: David Harrelson, Tribal Historic Preservation Officer (via email)

U.S. Department of Homeland Security
FEMA Region 10
130 228th Street, SW
Bothell, WA 98021-8627

FEMA

January 6, 2021

Ms. Christine Curran
Deputy State Historic Preservation Officer
Oregon Parks and Recreation Department
725 Summer St. NE
Salem, Oregon 97301
(*sent via email*)

RE: FEMA Public Assistance, DR-4258-OR PW342, Cook Creek Washout Road Replacement, Oregon Department of Forestry Tillamook District

Dear Ms. Curran:

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) proposes to fund the Oregon Department of Forestry Tillamook District (Applicant), through the Oregon Office of Emergency Management (OEM) for a road construction project (Undertaking). This funding is available from FEMA's Public Assistance Program (PA) through Presidentially declared disaster 4258-DR-OR from 2015. The Undertaking is being reviewed pursuant to Section 106 of the National Historic Preservation Act (NHPA), as amended and the Programmatic Agreement in effect with your office and OEM. Also, note FEMA is preparing an Environmental Assessment per the National Environmental Policy Act for this Undertaking.

Proposed Undertaking

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Work entails the construction of a new one lane gravel road upslope that is approximately 0.35 miles in length and will be 16-feet-wide shoulder to shoulder. The road segment will be cut out of the hillside into bedrock. The proposed area of disturbance is approximately 2.8 acres as a result of the steep slope in the area and the need to clear trees and vegetation, mostly on the uphill side. Two existing waste debris stations will be utilized to permanently deposit materials excavated from the road cut and stage equipment. The eastern debris site will require some tree cutting along the eastern and northeastern boundary to make some additional storage room. This

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Based on the nature and location of the Undertaking in previously logged steep terrain and disturbed debris storage areas, we have determined the likely presence of cultural resources is low. Thus, no further identification and evaluation efforts are warranted.

Consultation has also been initiated with Tribes to determine if the Undertaking may affect historic properties of religious and or cultural significance to them. The Tribes include the: Confederated Tribes of the Grand Ronde and the Confederated Tribes of the Siletz Indians.

Determination of Effects

Barring additional information from your office or the Tribes, FEMA has determined the Undertaking will result in No Historic Properties Affected. Additionally, we condition our construction related project approvals to protect any unexpected discoveries of historic or archaeological remains during site work. We respectfully request your concurrence with these findings, approach, or additional comment. To assist with your review, please find enclosed a

project area map and aerial. Should you have any questions, please contact Philip Fisher (425) 471-9018 or philip.fisher@fema.dhs.gov. Thank you.

Sincerely,

Science Kilner
Regional Environmental Officer

Oregon
Kate Brown, Governor

Department of Land Conservation and Development
Oregon Coastal Management Program
635 Capitol Street NE, Suite 150
Salem, Oregon 97301-2540
Phone: 503-373-0050
Fax: 503-378-6033
www.oregon.gov/LCD

May 20, 2021

Science Kilner
Federal Emergency Management Agency
Regional Environmental Officer
130 228th Street SW
Bothell, Washington 98021

Greetings,

The Oregon Coastal Management Program (OCMP) is currently undergoing a strategic planning effort to update and enhance programmatic efforts and responsibilities. Pursuant to the Coastal Zone Management Act (CZMA) and implementing regulations (15 CFR §930 and §923) federal agencies actions with reasonably foreseeable impacts to state coastal resources are subject to federal consistency review.

The Oregon Department of Land Conservation and Development (DLCD) is the state's designated coastal zone management agency, and coordinates federal consistency reviews to ensure that federal activities affecting any coastal use or resource are consistent with the enforceable policies of the OCMP. Federal activities include but are not limited to:

- Federal Permits & Licenses (15 CFR §930, Subpart D): Projects that require one or multiple federal licenses or permits.
- Direct Federal Actions (15 CFR §930, Subpart C): Federal agency led activities including development activities.
- Federal Financial Assistance (15 CFR §930, Subpart F): Federal funding allocated to local governments and related public entities

To be consistent with the enforceable policies of the OCMP, federal activities must be consistent with Oregon's statewide planning goals; the applicable acknowledged city or county comprehensive plans; and selected state authorities (e.g. those governing removal-fill, water quality, fish & wildlife protections, etc.).

Through the ongoing strategic planning efforts, the OCMP has determined that it is currently unnecessary for FEMA to submit project information and federal consistency review requests to DLCD for the funding phase of projects that are consistent with the policies of the OCMP. Therefore FEMA no longer needs to require applicants contact DLCD requesting federal consistency review and concurrence on projects for which FEMA plans to release federal funding to under 15 CFR §930, Subpart F.

Any future activities that require a federal license or permit, or constitutes a direct federal action under 15 CFR §930 Subpart D or C respectively, DLCD will continue to require a full federal consistency review as outlined in the federal regulations and will be subject to all enforceable policies of the OCMP. OCMP reserves the right to re-initiate federal funding requirements outlined in 15 CFR §930, Subpart F in the future following appropriate authorization from NOAA's Office for Coastal Management. FEMA will be notified regarding any future changes.

If you have any further questions about the coastal management program or federal consistency, please contact me at 503-956-8163 or by e-mail at: deanna.caracciolo@state.or.us.

Sincerely,

Deanna Caracciolo
Coastal State-Federal Relations Coordinator

Electronic CC:
William Kerschke (FEMA)
Jessica Stewart (FEMA)
Patty Snow (DLCD-OCMP)
Heather Wade (DLCD-OCMP)

National Flood Hazard Layer FIRMette

FEMA

123°43'33"W 45°41'19"N

123°42'55"W 45°40'54"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

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

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

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

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

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/27/2022 at 3:17 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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