Mitigation Measures for the Bandon-Rogue Transmission Line Rebuild Project

Mitigation Measure	Components of Mitigation Measure (Person(s) Responsible for Implementation)	Schedule (Time of Implementation)	Applicable Resource(s)
1 Avoid siting new structures and access roads in active landslide zones during the design process. (Complete)	1.1 Identify active landslide areas and avoid siting new structures or access roads in these areas (DE, RE, GE, ES-KEC).	1.1 Completed during design phase	Geology and Soils
2 Avoid siting new structures and access roads within 200 feet of streams and wetlands during the design process, where possible. (Complete)	2.1 During the design phase, locate and map wetland boundaries and streams relative to proposed structures (ES-KEC). 2.2 Visit proposed structure and road locations; avoid or minimize impacts on water features and buffer areas by locating proposed structures as far away as possible (DE, RE, ES-KEC).	2.1 Completed during design phase 2.2 Completed during design phase	Wetlands, Fish
3 Design culverts that would be installed in fish-bearing streams to meet fish passage criteria, in consultation with Oregon Department of Fish and Wildlife (ODFW) and National Marine Fisheries Service (NMFS). (Complete)	3.1 Consult with ODFW and NMFS regarding streams where fish-bearing culverts are needed for fish passage (ES-KEC). 3.2 Incorporate ODFW and NMFS culvert design criteria where appropriate (ES-KEC, RE).	3.1 Completed during design phase 3.2 Completed during design phase	Fish
4 Retire an existing road over Bethel Creek to avoid a bridge replacement and access road work in coho salmon habitat. (Complete)	4.1 Indicate road as retired on project maps and documents (ES-KEC).	4.1 Completed during design phase	Fish

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5 Conduct off-site riparian plantings along three streams that are temperature-impaired according to DEQ to improve fish habitat.	5.1 Identify suitable areas along temperature-impaired streams where additional vegetative cover is needed and contract for implementation riparian plantings (ES-KEC).	5.1 During and after construction	Fish, Waterways and Water Quality
6 Avoid placement of new structures and new access roads in floodplains. (Complete)	6.1 During the design phase, map floodplain boundaries relative to proposed structures and access roads (ES-KEC). 6.2 Locate proposed structures and roadways outside of floodplains, where possible; (DE, ES-KEC).	6.1 Completed during design phase 6.2 Completed during design phase	Floodplains
7 Minimize the number of access roads used within floodplains by retiring roads from BPA use within floodplains, where possible. (Complete)	7.1 During the design phase, visit roads within floodplains to determine if they are essential or if they could be retired (RE).	7.1 Completed during design phase	Floodplains
8 Relocate an existing access road to ensure it is at least 25 feet away from western lily plants. (Complete)	8.1 During project planning, relocate an existing access road at least 25 feet from western lily plants (DE, RE, PM, ES-KEC).	8.1 Completed during design phase	Vegetation

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9 Develop and distribute a schedule of construction activities to potentially affected landowners along the transmission line corridor to inform residents when they may be affected by construction activities; advertise construction schedule in local newspapers and post in public places customarily used for public notices, such as libraries, post offices, and local government buildings.	9.1 Develop list and schedule of construction activities with the potential to affect landowners (COTR, Contractor). 9.2 Distribute schedule to landowners; advertise construction schedule in local newspapers (CLS, PAS). 9.3 Update schedule and redistribute (Contractor, CLS, PAS).	9.1 Prior to construction 9.2 Prior to construction (2 weeks notice, if possible) 9.3 As needed during construction	Land Use and Recreation, Visual Quality, Socioeconomics and Public Services
10 Develop and distribute a schedule of construction activities to potentially affected farm and timber operators along the transmission line corridor to allow planting, harvesting, or maintenance activities to be scheduled around construction.	10.1 Develop list and schedule of activities with the potential to affect farm and timber operators (COTR, Contractor). 10.2 Distribute schedule to farm and timber operators (CLS, PAS). 10.3 Update schedule and redistribute (Contractor, CLS, PAS).	10.1 Prior to construction 10.2 Prior to construction (2 weeks notice, if possible) 10.3 As needed during construction	Land Use and Recreation, Socioeconomics and Public Services

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11 Provide a schedule of construction activities to the owners/managers of potentially affected recreational facilities to allow them to advise visitors and appropriately schedule any events that could be adversely affected by construction activities.	11.1 Develop list and schedule of activities with the potential to affect recreational activities along the transmission line corridor (COTR, Contractor). 11.2 Distribute schedule to owners/managers of recreational facilities (CLS, PAS). 11.3 Update schedule and redistribute (Contractor, CLS, PAS).	11.1 Prior to construction 11.2 Prior to construction (2 weeks notice, when possible) 11.3 As needed during construction	Land Use and Recreation, Visual Quality
12 Coordinate the routing and scheduling of construction traffic with the Oregon Department of Transportation (ODOT) and Coos County and Curry County road staff to minimize interruptions to local traffic.	12.1 Develop a schedule and notice of construction traffic (COTR, Contractor). 12.2 Deliver notice and coordinate with ODOT and Coos County and Curry County road staff for posting (COTR, CLS). 12.3 Update schedule and redistribute, as needed (Contractor, CLS).	12.1 Prior to use of roads by construction equipment 12.2 Within appropriate time frame for timely posting 12.3 As needed during construction	Land Use and Recreation, Socioeconomics and Public Services
13 Conduct a preconstruction public meeting and invite landowners to meet with the Contractors and BPA staff responsible for project implementation in order to receive information and discuss concerns.	13.1 Contact landowners by mail with meeting information (CLS, PAS, ES-KEP, Contractor).	13.1 Prior to construction	Land Use and Recreation

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14 Require the Contractor to employ a lands liaison, who will be available to provide information, answer questions, and address concerns during project construction.	14.1 Develop and provide contact information for contractor liaisons and BPA staff to local residents (CLS, PAS, COTR, ES-KEP). 14.2 During construction, promptly route all information on landowner concerns to the PM to address (all BPA staff). 14.3 If landowners raise concerns, contact the landowner to discuss concerns (PM, BPALS, and others, as appropriate).	14.1 Prior to construction 14.2 Within 2 business days 14.3 As needed	Visual Quality, Socioeconomics and Public Services, Noise, Public Health and Safety
15 Provide appropriate contact information for contractor liaisons and BPA staff to local residents for any concerns or complaints during construction.	15.1 Develop and provide contact information for Contractor and BPA staff to local residents (CLS, PAS). 15.2 During construction, promptly route all information on any landowner contacts to the PM to address (all BPA staff, Contractor). 15.3 If landowners raise concerns, contact the landowner to discuss concerns (PM, BPALS, other staff as appropriate).	15.1 Prior to construction 15.2 Within 2 business days 15.3 As needed	Land Use and Recreation

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16 Explain resource-related mitigation measures and permit conditions to the Contractors and inspectors during a preconstruction meeting covering environmental requirements (specifically for western lily, noxious weeds, water quality, waterways, wetlands, and fish and wildlife and generally for other resources).	16.1 Explain to Contractors where sensitive areas are located and how they are depicted on maps and in the Mitigation Implementation Table (ES-KEP, COTR, Contractor).	16.1 Prior to construction	Vegetation, Waterways and Water Quality, Wetlands, Fish, Wildlife, Cultural Resources
	16.2 Explain required actions to prevent weed introduction and spread (ES-KEP, COTR, Contractor).	16.2 Prior to construction	
	16.3 Explain water quality, wetlands, and waterways mitigation measures, including required best management practices (BMPs), permit requirements, restrictions while working near waterways and wetlands, field flagging/staking of water features, and protocol to follow if flagging/staking is inadvertently removed or missing (ES-KEP, COTR, RE, Contractor).	16.3 Prior to construction	
	16.4 Explain to Contractors fish-related mitigation measures, including permit and consultation requirements, such as instream work periods and applicable BMPs (ES-KEP, COTR, RE, Contractor).	16.4 Prior to construction	
	16.5 Explain to Contractors wildlife-related mitigation measures, including permit and consultation requirements, such as locations of restricted areas and timing of noise restrictions (ES-KEP, COTR, RE, Contractor).	16.5 Prior to construction	
	16.6 Explain to Contractor work restrictions and special procedures within cultural sites, how to identify conditions under which work should be stopped, the role of cultural monitors, how to coordinate with them for the times they are needed, and safety procedures for their work (ARCH, COTR, Contractor).	16.6 Prior to construction	

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17 Locate staging areas in previously disturbed or graveled areas to minimize soil and vegetation disturbance, where practicable.	17.1 Locate staging areas in previously disturbed or graveled areas to minimize soil and vegetation disturbance, where practicable (ES-KEP, COTR, Contractor).	17.1 Prior to construction	Geology and Soils, Greenhouse Gases
18 Conduct peak construction activities during the dry season (between June 1 and November 1), as much as possible, to minimize erosion, sedimentation, and soil compaction.	18.1 Conduct project construction activities during May through December 2011, with most of the major construction activities occurring during the drier portions of the year, from June though early October (COTR, Contractor).	18.1 May–December 2011	Geology and Soils, Waterways and Water Quality, Wetlands, Floodplains
19 Keep construction activities and equipment clear of residential driveways, to the greatest extent possible.	19.1 Avoid placing equipment or conducting construction activities in a manner that would block residential driveways, where possible (Contractor, COTR).	19.1 During construction	Land Use and Recreation, Visual Quality
20 Schedule all construction work during daylight hours to avoid noise and the use of nighttime illumination of work areas.	20.1 Schedule construction during daylight hours (COTR, Contractor).	20.1 During construction	Visual Quality, Noise
21 Use water trucks or other appropriate methods to control dust during construction, as needed.	21.1 Determine if dust is being generated on the project site and control as needed, in accordance with the SWPP Plan; do not withdraw water for dust control use from any water body in the project area, unless permitted (COTR, Contractor).	21.1 During construction	Visual Quality, Air Quality

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22 Employ traffic control flaggers and post signs along roads warning of construction activity and merging traffic for temporary interruptions of traffic, where needed.	22.1 Develop a Traffic Safety Plan that will address when signs and flaggers are needed; obtain plan approval from BPA (PM, COTR, Contractor). 22.2 Ensure that the Contractors use signs and flaggers when required (COTR, Contractor).	22.1 Prior to and during construction 22.2 During construction	Land Use and Recreation, Public Health and Safety
23 Instruct Contractors to promptly close all gates after entry to avoid frightening or endangering livestock, and to contact landowners immediately if problems with livestock occur.	23.1 Work with landowners to identify gates needing immediate closure after entry because of livestock concerns (CLS, COTR, Contractor). 23.2 Identify incidents involving livestock so that appropriate BPA team member can contact landowners immediately (Contractor, CLS, PM, PAS).	23.1 Prior to construction 23.2 As soon as possible, no later than 24 hours	Land Use and Recreation

Mitigation Measure	Components of Mitigation Measure (Person(s) Responsible for Implementation)	Schedule (Time of Implementation)	Applicable Resource(s)
24 Install vehicle and equipment wash stations to minimize spread of weeds and Port-Orford-cedar root disease, preferably near where pavement ends and gravel or dirt access roads begin, if feasible[1]; use wash stations to clean vehicles and equipment prior to entering and leaving each work area; and prohibit discharge of vehicle wash water into any stream, waterbody, or wetland.	24.1 Install wash stations in appropriate locations to ensure that vehicles leaving and entering each work area are weed free (COTR, Contractor). 24.2 Prohibit discharge of vehicle wash from entering into any stream, water body, or wetland (COTR, Contractor).	24.1 Prior to construction 24.2 During construction	Land Use and Recreation, Vegetation, Wildlife
25 Conduct standard inspections for work occurring within inactive landslide zones during construction.	25.1 Inspect work occurring within inactive landslide zones at regular intervals to ensure no hazards exist (COTR, Contractor, Inspector).	25.1 During construction, at least once per week	Geology and Soils
26 Contact BPA geotechnical specialists, if geotechnical issues, such as new landslides, arise during construction.	26.1 Report any geotechnical issues, such as new landslides, immediately (COTR, Contractor). 26.2 Develop and implement mitigation response to address potential impacts (PM, GE, ES-KEP, Contractor).	26.1 Within 24 hours 26.2 During construction, within 48 hours of identifying the need for mitigation	Geology and Soils

[1] Finding suitable locations for wash stations in all work areas is not possible due to the presence of wetlands, waterways and steep topography. If wash stations could not be situated along each access road leading to work areas, equipment would be washed prior to entering work areas and as soon as possible after leaving work areas, at the nearest wash station location.

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27 Delineate construction limits within 200 feet of streams, other waterbodies, wetlands, and floodplains; manage sediment as specified in the SWPP Plan, with an approved method that meets the *Stormwater Management Manual for Western Washington* (Washington State Department of Ecology 2005) erosion and stormwater control best management practices, to eliminate sediment discharge into waterways and wetlands, minimize the size of construction disturbance areas, and minimize removal of vegetation, to the greatest extent possible.	27.1 Create a site-specific Erosion and Sediment Control (ESC) Plan (that is reviewed and approved by BPA) as part of the SWPP Plan, where required, to prevent impacts on waterways and wetlands (Contractor, ES-KEP, COTR). 27.2 Place flagging, stacking, or fencing to identify streams, other waterbodies, wetlands, and floodplains within 200 feet of construction areas (Contractor). 27.3 Minimize vegetation removal in riparian areas (Contractor). 27.4 Conduct off-site riparian plantings along four streams that are temperature-impaired according to DEQ to improve fish habitat (ES-KEC).	27.1 Prior to construction 27.2 Prior to construction 26.3 During and after construction 26.4 During and after construction	Geology and Soils, Waterways and Water Quality, Wetlands, Floodplains, Wildlife

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28 Inspect erosion and sediment controls weekly, maintain them as needed to ensure their continued effectiveness, and remove them from the site when vegetation is re-established and the site has been stabilized.	28.1 Inspect all on-site erosion and sediment control measures in accordance with the SWPP Plan (COTR, Contractor, ES-KEP). 28.2 Repair damaged or inadequate erosion and sediment control measures in accordance with the SWPP Plan (COTR, Contractor). 28.3 Once sites are stabilized and BPA has conducted a final inspection, remove and dispose of any materials used as temporary erosion and sediment control devices (ES-KEP, COTR, Contractor).	28.1 During construction 28.2 During and post construction 28.3 Post construction, once the site is stabilized	Geology and Soils, Waterways and Water Quality, Floodplains
29 Design and construct access roads to minimize drainage from the road surface directly into surface waters, size new and replacement culverts large enough to accommodate predicted flows, and size and space cross drains and water bars properly to accommodate flows and direct sediment-laden waters into vegetated areas.	29.1 During road design, follow the guidelines for spacing and sizing of water structures in section 3 of the *Washington Forest Practices Board Manual* (Washington Department of Natural Resources 2000) (RE). 29.2 Prior to constructing water structures, verify in the field that their location and spacing are adequate to minimize drainage from the road surface directly into water features, including wetlands (COTR, RE, Contractor).	29.1 Completed during design phase 29.2 Prior to constructing water features	Geology and Soils, Waterways and Water Quality

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30 Inspect and maintain access roads, culverts, and other facilities after construction to ensure proper function and nominal erosion levels.	30.1 Conduct post-construction monitoring of access roads, culverts, and other facilities to identify any areas that are not functioning properly for repair work (COTR, ES-KEP). 30.2 Inspect roads and culverts on an annual basis, and maintain them on an as-needed basis (BPA Eugene District).	30.1 Within 1 month of the end of the construction activities and again in the spring of 2012 30.2 Post construction at least once per year	Geology and Soils, Waterways and Water Quality, Floodplains
31 Minimize disturbance to wetlands and wetland buffers by reducing structure construction work areas in or near wetlands to approximately 50 feet by 50 feet per structure (approximately 0.06 acre), if possible, and install signage, fences, or flagging, where needed, to restrict vehicles and equipment to designated routes.	31.1 Depict wetland boundaries and streams on project maps used by BPA and Contractors (ES-KEP). 31.2 Place flagging, staking, or fencing to identify streams, other waterbodies, wetlands, and floodplains within 200 feet of construction areas (Contractor). 31.3 Minimize construction work areas near wetlands, while ensuring safe work conditions (ES-KEP, COTR, Contractor).	31.1 When maps are developed, prior to construction 31.2 Prior to construction 31.3 Prior to construction	Vegetation, Waterways and Water Quality, Wetlands
32 Identify known western lily populations, including a 25-foot buffer, as sensitive areas in construction documents and maps used by Contractors.	32.1 Depict areas of known western lily populations and 25-foot buffers around these populations as sensitive areas on Contractor maps (ES-KEP, ES-KEC).	32.1 Prior to construction	Vegetation

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33 Install protective fencing around identified western lily sensitive areas before construction activities begin in that area and place "sensitive area" signage on or near fencing around western lily population indicating where construction activities are prohibited.	33.1 Install protective fencing 25 feet from identified western lily sensitive areas (ES-KEP, COTR, Contractor).	33.1 Prior to construction	Vegetation
34 Remove encroaching woody vegetation species and noxious weeds in the two western lily sensitive areas using a variety of manual weed control methods and spread any vegetation removed within the vicinity of western lily sensitive areas, including wood chips, sawdust, branches, and woody debris, outside of the 25-foot buffer surrounding western lily plants.	34.1 Remove weeds and encroaching woody vegetation in the two known western lily areas using manual weed control methods (ES-KEC).	34.1 Late fall or winter 2011 to 2012	Vegetation

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35 Develop a Weed Management Plan for Rebuild Project implementation that includes baseline information on known weed occurrences; specific actions that will be taken to minimize spread and control infestations including construction BMPs, control actions (chemical, cultural, biological, and physical methods) both preconstruction and post-construction; and actions that would be taken to monitor the spread of weeds into the project vicinity for at least 3 years after project implementation. The Weed Management Plan is presented in Appendix D.	35.1 Develop a Weed Management Plan using baseline weed occurrence information and submit to county and state weed specialists for recommendations (ES-KEC, BPA Eugene District, FOR). 35.2 Provide a copy of the baseline weed surveys to the Contractor, which includes maps identifying existing weed occurrences (ES-KEP). 35.3 Implement weed control mitigation measures as described in the Weed Management Plan (COTR, Contractor, FOR, ES-KEP, BPA Eugene District).	35.1 Completed and BPA requested comments from Oregon Department of Agriculture and county weed boards 35.2 Prior to, during, and post construction 35.3 During construction	Vegetation
36 Survey the right-of-way for weed occurrence in fall 2010, mapping locations and estimating density of weed species. (Complete)	36.1 Complete a weed survey, map results, and draft a report (FOR).	36.1 Completed in the fall of 2010	Vegetation

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37 Survey Rebuild Project access roads for weed occurrence in spring 2011 and implement appropriate type and level of weed control for weed species that respond to spring or summer treatment during the survey or shortly thereafter.	37.1 Conduct weed surveys in the spring of 2011 (FOR). 37.2 Implement appropriate weed control to help reduce risk of spreading noxious weeds during construction, as described in the Weed Management Plan (FOR, BPA Eugene District).	37.1 Spring 2011 37.2 Prior to and during construction	Vegetation
38 Control weeds prior to construction, with a focus on species with small, contained infestations to reduce the potential for widespread establishment and the need for long-term management; weed species identified as occurring in discrete occurrences with the ability to radiate from this focal point include Spanish heath, English ivy, and pampas grass.	38.1 Conduct weed surveys in the spring of 2011 (FOR). 38.2 Implement appropriate weed control to help reduce risk of spreading noxious weeds during construction (FOR).	38.1 Spring 2011 38.2 Prior to and during construction	Vegetation
39 Use local sources of rock for road construction and obtain road fill materials from weed-free quarries.	39.1 Only use weed-free road materials for construction (RE, COTR, Contractor). 39.2 Include a requirement in construction specifications for the Contractor to use local sources of rock for road construction (RE, COTR).	39.1 Prior to and during construction 39.2 Prior to construction	Vegetation, Greenhouse Gases

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40 Conduct weed control in riparian areas using procedures that prevent the introduction of toxic herbicides into aquatic areas, and use herbicides approved for use near aquatic areas.	40.1 Conduct weed control in riparian areas using procedures to prevent introduction of herbicides into aquatic areas and using herbicides approved for use near aquatic areas (COTR). 40.2 Follow the Weed Management Plan protocol for weed control in and near riparian areas to ensure herbicides do not enter aquatic areas (COTR).	40.1 During construction 40.2 During construction	Vegetation, Fish
41 Restrict construction activities to the area needed to work effectively in order to limit disturbance of native plant communities to the minimum amount necessary to prevent spread of weed species.	41.1 Minimize disturbance to existing vegetation to prevent the colonization of weed species in disturbed areas (COTR, Contractor).	41.1 During construction	Vegetation, Wildlife

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42 Reseed disturbed areas after construction and regrading are complete, at the appropriate time period for germination, with a native seed mix, a seed mix recommended by ODFW, or a seed mix identified in the *Stormwater Management Manual for Western Washington* (Washington State Department of Ecology 2005), or as agreed upon with landowners for use on their property.	42.1 Identify appropriate seed mix to be used in each area and ensure appropriate seed mix is used for revegetation (ES-KEP, COTR, Eugene District, CLS). 42.2 Seed disturbed areas during the appropriate time period (Contractor).	42.1 Prior to construction 42.2 When adequate moisture for germination is available	Land Use and Recreation, Visual Quality, Geology and Soils, Waterways and Water Quality, Vegetation, Floodplains, Wildlife
43 Monitor seed germination of seeded areas with at least three field visits per year until site stabilization (defined as at least 70% cover by native or acceptable nonnative species) is achieved; if vegetative cover is inadequate, implement contingency measures and reseed to ensure adequate revegetation of disturbed soils.	43.1 Monitor seed germination at least three times until the site has stabilized (ES-KEP, COTR, Contractor). 43.2 Inspect revegetated sites to determine if stabilization has occurred in accordance with the SWPP Plan (ES-KEP, COTR, Contractor). 43.3 If vegetative cover is inadequate, implement contingency measures (ES-KEP, COTR).	43.1 During and post construction, as needed 43.2 Per the inspection schedule in the SWPP Plan, which mandates inspection on a regular basis until final stabilization is achieved 43.3 Post construction, as needed	Land Use and Recreation, Geology and Soils, Vegetation, Waterways and Water Quality, Floodplains, Wildlife

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44 Conduct a post-construction weed survey, 1 year after construction, of all areas disturbed by construction activities to determine if there are new weed infestations; implement appropriate control measures of weed infestations.	44.1 Conduct post-construction weed surveys of all areas disturbed during construction to determine if new areas of weed infestations have occurred (FOR). 44.2 Determine what weed control measures are needed and implement control measures (ES, BPA Eugene District). 44.3 Continue to monitor the right-of-way for new invasions or expansion of the existing weed populations, solicit information from Weed Control Boards, and develop and implement control measures, if needed (BPA Eugene District).	44.1 1 year after construction is complete 44.2 Post construction 44.3 Post construction for at least 3 years	Vegetation

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45 Implement a Spill Prevention and Treatment Plan (Spill Plan) that requires storage of fuel and other potential pollutants in a secure location at least 150 feet from streams, waterbodies, and wetlands; that ensures that spill containment and cleanup materials are readily available on site and restocked within 24 hours, if used, and that ensures that, in the event of a spill, Contractors are trained to immediately contain the spill, eliminate the source, and deploy appropriate measures to clean and dispose of spilled materials in accordance with federal, state, and local regulations.	45.1 As part of the SWPP Plan, prepare a Spill Plan to address petroleum and hazardous materials handling and management procedures; the Spill Plan will specify the spill response, cleanup, and disposal requirements of oil (ES-KEP, Contractor). 45.2 Ensure clean up materials are stocked and replenished after use (COTR, Contractor). 45.3 Ensure that the provisions within the Spill Plan are followed during construction, including that Contractors are trained to immediately contain spills, and deploy appropriate measures to clean up and dispose of spilled materials in accordance with all applicable regulations (COTR).	45.1 Prior to construction 45.2 During construction and within 24 hours of any spill incident 45.3 During construction	Waterways and Water Quality, Wetlands

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46 Restrict refueling and servicing operations to locations where any spilled material cannot enter natural or human-made drainage conveyances (e.g., ditches, catch basins, ponds, wetlands, streams, and pipes), at least 150 feet from streams, waterbodies, and wetlands; use pumps, funnels, absorbent pads, and drip pans when fueling or servicing vehicles.	46.1 Restrict refueling to areas at least 150 feet from streams, waterbodies, and wetlands (COTR, Contractor). 46.2 Use pumps, funnels, absorbent pads, and drip pans when fueling or servicing vehicles at least 150 feet from streams, waterbodies, and wetlands (COTR, Contractor).	46.1 During construction 46.2 During construction	Waterways and Water Quality, Wetlands
47 Store, fuel, and maintain vehicles and equipment in designated vehicle staging areas located a minimum of 150 feet away from stream, waterbodies, and wetlands.	47.1 Restrict refueling to areas at least 150 feet from streams, waterbodies, and wetlands (COTR, Contractor). 47.2 Use pumps, funnels, absorbent pads, and drip pans when fueling or servicing vehicles (COTR, Contractor).	47.1 During construction 47.2 During construction	Waterways and Water Quality, Wetlands

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48 Power wash all vehicles and equipment at an approved cleaning facility prior to entering construction work areas to remove any residual sediment, petroleum, or other contaminants; inspect equipment and tanks on a weekly basis for drips or leaks and promptly make necessary repairs.	48.1 Ensure appropriate location of wash stations for vehicles and equipment entering work areas; discharge from the vehicle wash stations may not enter any stream, waterbody, or wetland (COTR, Contractor). 48.2 Check tanks and equipment containing oil, fuel, or chemicals regularly for drips or leaks and maintain them to prevent spills onto the ground or into state waters (Contractor, COTR).	48.1 During construction 48.2 During construction	Waterways and Water Quality
49 Check all equipment used for instream work for leaks and, prior to entering waterways, completely clean off any external petroleum products, hydraulic fluid, coolants, and other pollutants.	49.1 Check all equipment used for instream work to ensure no contaminants enter waterbodies (Contractor, COTR). 49.2 Wash all equipment used for instream work prior to starting work (Contractor, COTR).	49.1 Prior to construction 49.2 During construction	Waterways and Water Quality
50 Prohibit sidecasting of road grading materials along roads within 300 feet of perennial streams.	50.1 Depict waterways on project maps for Contractor use (ES-KEP). 50.2 Ensure material is not sidecast during road grading within 300 feet of waterways (COTR, RE, Contractor).	50.1 When contractor maps are developed, prior to construction 50.2 During construction	Waterways and Water Quality

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51 Locate tensioning sites at least 200 feet away from surface waters, including wetlands, and outside of 100-year floodplains, if possible.	51.1 Depict waterways, wetlands, and the boundaries of the 100-year floodplains on project maps for Contractor use (ES-KEP). 51.2 Contractor will obtain BPA approval for each tensioning site location (COTR, Contractor).	51.1 When contractor maps are developed, prior to construction 51.2 During construction	Waterways and Water Quality, Wetlands, Floodplains
52 Conduct construction work within wetlands in accordance with applicable permits.	52.1 During preconstruction meeting, review wetland permit requirements with Contractor (ES-KEP, COTR, Contractor). 52.2 Ensure that vehicles or construction equipment do not enter into wetland and streams, except as authorized by permits (COTR)	52.1 Prior to construction 52.2 During construction	Wetlands
53 Avoid deposit of excavated material into wetlands during structure construction, or remove all excavated material from the wetland, except as allowed by permit, and stabilize the removed fill in an upland area.	53.1 Follow mitigation measures included in the Section 404 Joint Permit Application submitted to the U.S. Army Corps of Engineers, including removing any material excavated, minimizing work areas, and revegetation of disturbed wetland areas (ES). 53.2 Ensure that all Section 404 permit requirements are followed by the Contractor and that removed fill is stabilized in upland areas (COTR, Contractor).	53.1 Completed in submitted permit application 53.2 During construction	Wetlands

Mitigation Measure	Components of Mitigation Measure (Person(s) Responsible for Implementation)	Schedule (Time of Implementation)	Applicable Resource(s)
54 Revegetate disturbed areas in wetlands and wetland buffers following specific revegetation guidelines in permits; use native species for revegetation in wetlands that are not in agricultural areas, and reseed pastures with an appropriate seed mix.	54.1 Revegetate disturbed areas in wetlands and wetland buffers in compliance with permits using the appropriate seed mix (COTR, Contractor).	54.1 During and post construction	Wetlands
55 Implement mitigation measures for all work conducted in or near coho salmon and Chinook salmon habitat, as agreed upon in consultation with NMFS.	55.1 Ensure the conservation measures in the EFH Assessment and Biological Opinion are followed (EP-KEP, COTR, Contractor).	55.1 During construction	Fish
56 Install spiral bird diverters on conductors spanning areas identified as bird flyways, including wide floodplains and some waterways that intersect the transmission line corridor, to decrease the potential for avian (bird) collisions.	56.1 Identify locations along the transmission line where spiral bird diverters should be installed (ES-KEC). 56.2 Install spiral bird diverters on conductors as needed (COTR, ES-KEP, Contractor).	56.1 Completed during design phase 56.2 During construction	Wildlife

Mitigation Measure	Components of Mitigation Measure (Person(s) Responsible for Implementation)	Schedule (Time of Implementation)	Applicable Resource(s)
57 Cut danger trees in the Johnson Creek floodplain without disturbing tree roots.	57.1 Leave roots of the danger trees intact to minimize erosion (COTR, FOR, Contractor).	57.1 During construction	Floodplains, Waterways and Water Quality
58 Implement timing restrictions on construction work and danger tree removal conducted near and within suitable marbled murrelet and northern spotted owl habitat, as agreed upon in consultation with the U.S. Fish and Wildlife Service (USFWS).	58.1 Provide Contractors with a list of areas where construction timing restrictions apply as agreed upon in consultation with USFWS (ES-KEP, FOR). 58.2 During a preconstruction meeting, review locations of restricted area and timing of noise restrictions with Contractor (ES-KEP, COTR, Contractor). 58.3 Ensure that the Contractor follows timing restrictions (COTR).	58.1 Prior to construction 58.2 Prior to construction 58.3 During construction	Wildlife
59 Conduct removal of danger trees after August 15, except in or near suitable marbled murrelet and northern spotted owl habitat, where tree removal would not be conducted until after September 15.	59.1 Identify timing instructions in contract with tree removal contractor (FOR). 59.2 Ensure that the tree removal contractor follows timing restrictions (FOR).	59.1 Prior to construction 59.2 During construction	Wildlife

Mitigation Measure	Components of Mitigation Measure (Person(s) Responsible for Implementation)	Schedule (Time of Implementation)	Applicable Resource(s)
60 Prepare a mitigation plan for unavoidable adverse impacts on resources eligible for listing under the National Register of Historic Places (NRHP) in consultation with the State Historic Preservation Officer (SHPO) and affected tribes.	60.1 Work with the SHPO and affected tribes during consultation under Section 106 to develop a mitigation plan for the treatment of unavoidable adverse impacts on resources eligible for listing under the NRHP (ES-KEC, ARCH, RE, PM). 60.2 Ensure mitigation is implemented during construction as appropriate (COTR, ARCH, ES-KEP, Contractor).	60.1 Prior to construction 60.2 Prior to, during, and possibly post construction	Cultural Resources
61 Limit access road work within cultural resource sites to the existing roadbed, and confine the work to applying new material on top of existing material, where possible.	61.1 Identify cultural resource sites as sensitive areas on contractor maps (ARCH, ES-KEP). 61.2 Ensure mitigation is implemented during construction as appropriate (COTR, ARCH, ES-KEP, Contractor).	61.1 Prior to construction 61.2 During construction	Cultural Resources

Mitigation Measure	Components of Mitigation Measure (Person(s) Responsible for Implementation)	Schedule (Time of Implementation)	Applicable Resource(s)
62 Implement an Inadvertent Discovery Plan that details crew member responsibilities for reporting in the event of a discovery during construction; require work to stop immediately and notification of local law enforcement officials (as required), appropriate BPA personnel, the SHPO, and affected tribes if cultural resources, either archaeological or historical materials, or human remains are discovered during construction activities.	62.1 Develop an Inadvertent Discovery Plan to satisfy requirements as agreed upon during consultation with the SHPO, including notification protocol (ARCH).	62.1 Prior to construction	Cultural Resources
63 Ensure that cultural resource monitors are present during construction work near known prehistoric sites.	63.1 During preconstruction meeting, review the role of cultural monitors and how coordination with them will occur (ES-KEP, ARCH, COTR, Contractor). 63.2 Ensure cultural resource monitors are present during construction, where required (COTR, ARCH, Contractor).	63.1 Prior to construction 63.2 During construction	Cultural Resources
64 Locate construction equipment as far away from noise-sensitive uses as possible.	64.1 Locate construction equipment as far as possible from residences, where possible (COTR, Contractor).	64.1 Prior to construction	Noise

Mitigation Measure	Components of Mitigation Measure (Person(s) Responsible for Implementation)	Schedule (Time of Implementation)	Applicable Resource(s)
65 Require sound control devices on all construction equipment powered by gasoline or diesel engines that are at least as effective as those originally provided by the manufacturer.	65.1 Require that sound control devices on all construction equipment be at least as effective as the manufacture's in construction specifications (CSW). 65.2 Periodically check equipment to ensure sound control devices are installed and working properly and that all equipment is operated and maintained to minimize noise (COTR).	65.1 Prior to construction 65.2 During construction	Noise
66 Operate and maintain all construction equipment to minimize noise generation.	66.1 Require that sound control devices on all construction equipment be at least as effective as the manufacture's in construction specifications (COTR). 66.2 Periodically check equipment to ensure sound control devices are installed and working properly and that all equipment is operated and maintained to minimize noise (COTR).	66.1 During construction 66.2 During construction	Noise
67 Design, construct, and operate the new transmission line to meet the National Electrical Safety Code (NESC).	67.1 Design the transmission line to meet or exceed NESC standards (DE, PM). 67.2 Operate and maintain the transmission line to meet NESC standards (BPA Eugene District).	67.1 Completed during design phase 67.2 Post construction, during operation	Public Health and Safety

Mitigation Measure	Components of Mitigation Measure (Person(s) Responsible for Implementation)	Schedule (Time of Implementation)	Applicable Resource(s)
68 Prepare a site-specific Safety Plan (Safety Plan) in compliance with state requirements before starting construction; specify how to manage hazardous materials, such as fuel and any toxic materials found in work sites; include a Fire Prevention and Suppression Plan, and detail how to respond to emergency situations; keep the Safety Plan on site during construction and maintain and update, as needed.	68.1 Prepare a Safety Plan in compliance with BPA requirements that includes how to manage hazardous materials and how to respond in emergency situations, including a Fire Prevention and Suppression Plan (Contractor). 68.2 Review the Safety Plan prepared by the Contractor and provide feedback and request changes if needed (ES, COTR). 68.3 Keep the Safety Plan on site and make sure it is easily accessible (COTR, Contractors). 68.4 Ensure that Contractor maintains the Safety Plan on a regular basis and as needed (COTR).	68.1 Prior to construction 68.2 Prior to construction 68.3 Prior to construction 68.4 At a minimum, at each monthly meeting and after any incident requiring plan upgrades	Public Health and Safety
69 Require the Contractor to hold safety meetings with workers at the start of each work week to review potential safety issues and concerns.	69.1 Conduct weekly safety meetings in accordance with construction specifications (Contractor, COTR). 69.2 Obtain schedule of where and when crew safety meetings occur and attend as needed (Contractor, COTR).	69.1 Prior to and during construction 69.2 During construction; BPA personnel will attend a minimum of one meeting per month	Public Health and Safety
70 Require monthly meetings, attended by the Contractor and BPA staff, to discuss safety issues.	70.1 Schedule and attend monthly meetings with BPA and Contractor (COTR, Contractor).	70.1 During construction on a monthly basis, at a minimum	Public Health and Safety

Mitigation Measure	Components of Mitigation Measure (Person(s) Responsible for Implementation)	Schedule (Time of Implementation)	Applicable Resource(s)
71 Secure the work area at the end of each workday, as much as possible, to protect the general public and to safeguard equipment.	71.1 Require that steps are taken to identify and correct safety hazards on work sites each day (COTR).	71.1 During construction	Public Health and Safety
72 Install temporary guard structures (wood-pole structures) over local utility lines and county roads, where needed, to ensure continued service and safe passage when the conductor line is replaced, or, if guard structures are not used along some county roadways, employ flaggers to ensure safe passage.	72.1 Identify locations where temporary guard structures are needed during conductor stringing (ES-KEP, COTR, Contractor). 72.2 Ensure guard structures are installed where needed or that flaggers are in place at locations where guard structures are not used (COTR).	72.1 During construction 72.2 During construction	Public Health and Safety
73 Ground fences and other metal structures on and near the right-of-way during construction to limit the potential for nuisance shocks.	73.1 Require that fences and other metal structures are grounded during construction on and near the right-of-way, as appropriate (COTR).	73.1 During construction	Public Health and Safety
74 Set a speed limit for construction vehicles on unpaved access roads of no greater than 15 miles per hour to minimize dust.	74.1 Perform work in a manner that minimizes the production of dust in accordance with the SWPP Plan, which includes limiting vehicle speeds along dirt roads to 15 miles per hour (COTR, Contractor).	74.1 During construction	Air Quality

Mitigation Measure	Components of Mitigation Measure (Person(s) Responsible for Implementation)	Schedule (Time of Implementation)	Applicable Resource(s)
75 Ensure that all vehicle engines are maintained in good operating condition to minimize exhaust emissions.	75.1 Visually check the operation of exhaust systems on construction equipment to ensure they are in good operating condition and do not have obviously excessive exhaust emissions (COTR).	75.1 During construction, on a regular basis	Air Quality
76 Implement vehicle idling and equipment emissions measures.	76.1 Require that Contractor observe vehicle idling and equipment emissions measures in construction specifications (COTR).	76.1 During construction	Greenhouse Gases
77 Encourage carpooling and the use of shuttle vans among construction workers to minimize construction-related traffic and associated emissions.	77.1 Encourage Contractor use of carpooling and shuttle vans to transport workers when possible (COTR).	77.1 Prior to construction	Greenhouse Gases
78 Locate staging areas as close to construction sites as practicable to minimize driving distances between staging areas and construction sites.	78.1 Locate staging areas as close to construction areas as possible (Contractor, COTR).	78.1 Prior to construction	Greenhouse Gases
79 Encourage the use of the proper size of equipment for each job.	79.1 Request that the proper size of equipment is used for each job (COTR).	79.1 Prior to and during construction	Greenhouse Gases
80 Use alternative fuels for generators at construction sites, such as propane or solar, or use electrical power, where practicable.	80.1 Request that Contractors consider the use of alternative fuels where practicable (COTR).	80.1 Prior to and during construction	Greenhouse Gases

Mitigation Measure	Components of Mitigation Measure (Person(s) Responsible for Implementation)	Schedule (Time of Implementation)	Applicable Resource(s)
81 Reduce electricity use in the construction office by using compact fluorescent bulbs and turning off computers and other electronic equipment every night, where possible.	81.1 Encourage electricity reduction practices on the construction site, such as the use of compact fluorescent bulbs and turning off computers and other electronic equipment each night (COTR).	81.1 During construction	Greenhouse Gases
82 Recycle or salvage nonhazardous construction and demolition debris, where practicable.	82.1 Encourage the Contractor to recycle and salvage hazardous construction and demolition debris, where feasible (COTR).	82.1 Prior to and during construction	Greenhouse Gases
83 Dispose of wood poles in the local area, where practicable.	83.1 Ensure wood poles are disposed of in an appropriate location or facility (COTR, Contractor).	83.1 During construction	Greenhouse Gases

References

Washington State Department of Ecology. 2005. *Stormwater Management Manual for Western Washington*. Publication #05-10-029 to #05-10-033. February.

Washington Department of Natural Resources. 2000. *Washington Forest Practices Board Manual*. Available: <http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesRules/Pages/fp_board_manual.aspx>.