

Supplement Analysis
for the
Columbia River Basin Tributary Habitat Restoration
(DOE/EA-2126/SA-19)

Twisp River and Tributary Restoration Projects
BPA project number 2009-003-00
BPA contract number 89361

Bonneville Power Administration
Department of Energy



Introduction

In December 2020, Bonneville Power Administration (Bonneville) and the Bureau of Reclamation completed the *Columbia River Basin Tributary Habitat Restoration Programmatic Environmental Assessment* (DOE/EA 2126) (Programmatic EA). The Programmatic EA analyzed the potential environmental impacts of implementing habitat restoration actions in the Columbia River Basin and its tributaries.

Consistent with the Programmatic EA, this Supplement Analysis (SA) analyzes the effects of the *Twisp River and Tributary Restoration Projects*, which are comprised of three proposed projects that would implement many of the specific restoration actions assessed in the Programmatic EA in the Twisp River valley in Okanogan County, Washington. The project objectives are to increase in-stream habitat diversity for the benefit of Endangered Species Act (ESA)-listed salmonids. This SA analyzes the site-specific impacts of the Twisp River and Tributary Restoration Projects to determine if they are within the scope of the analysis considered in the Programmatic EA, including whether there are substantial changes to the proposal analyzed in the EA. It also evaluates whether the proposed projects present significant new circumstances or information relevant to environmental concerns that were not addressed by the EA. The findings of this SA determine whether additional National Environmental Policy Act (NEPA) analysis is needed pursuant to 40 Code of Federal Regulations (CFR) § 1502.9(d) and 10 CFR 1021 *et seq.*

Proposed Action

Bonneville proposes to fund Yakama Nation Fisheries for the completion of three distinct projects: *Upper Twisp (Mystery Reach and War Creek Reach)*, *Twisp Horseshoe Phase II*, and *Little Bridge Creek* (Figure 1). This SA analyzes the effects of the three projects, each a distinct Proposed Action in this SA, the projects share the same objectives; would be geographically close together; would impact aquatic, riparian, and floodplain environments that are very similar in their existing condition; and would implement many of the same habitat restoration actions. Land use in the project areas is dominated by forestry, rural residential, and agricultural pasturelands. Recreation within the project areas is considered low with occasional fishing occurring in the late spring or early summer. Designated public recreation areas near the project areas includes the Twisp River Trail Trailhead south of the Twisp Horseshoe Phase II project, and the War Creek and Mystery Campgrounds west of the Upper Twisp project.

The Upper Twisp project, which includes the Mystery Reach and War Creek Reach treatment areas, would be located approximately 14 miles northwest of Twisp, WA. The Twisp Horseshoe Phase II project would be located approximately 9 miles northwest of Twisp, and the Little Bridge Creek project would be located approximately 8 miles northwest of Twisp. The Upper Twisp and Little Bridge Creek projects would be located entirely on Okanogan-Wenatchee National Forest (National Forest)-managed land whereas the Twisp Horseshoe Phase II project would be located on both National Forest-managed and private land. All three projects would be located in areas where recent aquatic habitat surveys identified that small- to large-sized wood levels are below desired amounts in areas where adult steelhead and spring Chinook spawning and juvenile rearing occurs. Instream wood is the primary agent to create spawning habitat and to form pools for rearing in streams. Past riparian harvest has limited the potential for natural wood recruitment. Accordingly, there is a need to add wood to increase pool habitat, fish cover, and spawning gravel in the project areas.

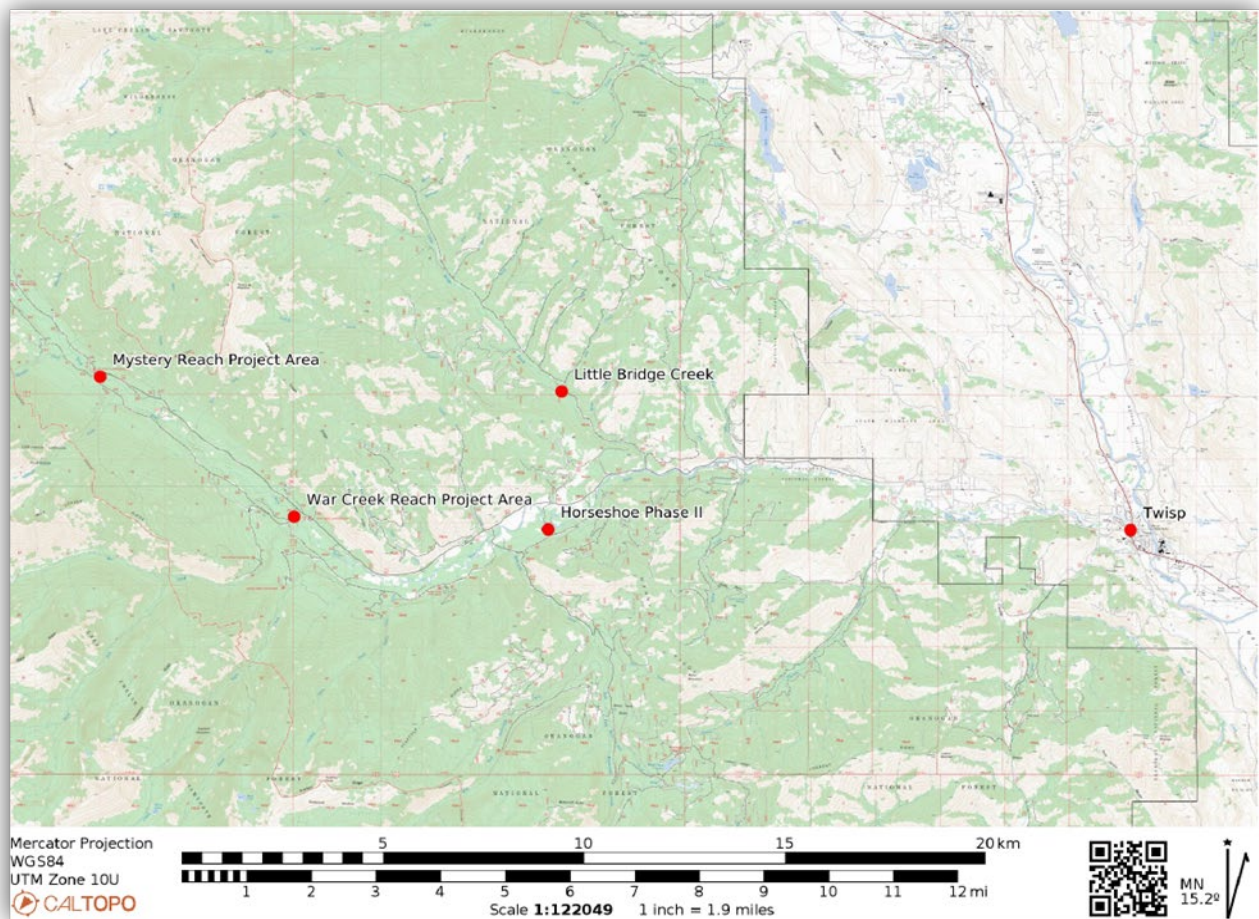


Figure 1. Twisp River and Tributary Restoration Projects' Area Map

The proposed treatments would fell dead and live trees from along the stream banks and adjacent floodplains, fly in wood, and construct small to large wood habitat structures (as loose placement, log jams, and anchored in habitat structures) in key locations in the streams. All onsite wood would be individually identified for use and directionally felled by hand and chainsaw or moved and placed by helicopter, or excavator in key locations to interact with the channels. Access and staging areas would occur via existing roads and previously-disturbed areas, and short temporary access routes to reach

accessible structure sites. Helicopter landing fly yards would be located adjacent to existing access routes in upland areas that are relatively free of vegetation. All areas disturbed during construction would be planted with native vegetation after construction. The table below identifies the project locations by river mile (RM) where the wood treatments would occur, describes the proposed treatments, and identifies the length of each project area. The environmental effects of these types of restoration actions were evaluated in the Programmatic EA.

Project	Site	Proposed Treatment	Length (mi)
Upper Twisp (Mystery Reach & War Creek Reach)	Between RM 20 to 22 (Mystery Reach) and RM 16 to 18 (War Creek Reach)	Place small to large diameter wood into the Twisp River and side channel habitat. Placement would occur with hand felling riverside trees, helicopter, or excavator. Habitat features would include loose placement, log jams, and wood-pile anchored log structures. Trees would come from stream banks, designated National Forest harvest units, and equipment access routes, as well as off National Forest.	4
Twisp Horseshoe Phase II	Between RM 11 to 12	Place small to large diameter wood into the Twisp River. A helicopter would deliver wood to work areas and placement would occur with an excavator. Habitat features would include wood-pile or cobble anchored log structures (or a combination), and partially bank-buried structures. Trees would come from stream banks, designated National Forest harvest units, and equipment access routes, as well as off National Forest.	1
Little Bridge Creek	Between RM 0.5 to 2	Place small to large diameter wood into Little Bridge Creek and floodplain habitat with a helicopter. Habitat features would include loose placement and log jams. Trees would come from off National Forest.	1.5

The Upper Twisp project is located along two reaches, both approximately 2 miles in length. The first reach is along the upper Twisp River between RM 20 and 22; this reach is referred to as the Mystery Reach. The second reach is along the upper Twisp River between RM 16 and 18; referred to as the War Creek Reach. The proposed treatment consists of placing small to large diameter wood into the river and side channel habitat. Placement would occur with hand felling riverside trees, helicopter, excavator or excavator and crane mounted pile driver. Treatments would occur as loose placement, log jams, or wood-piling ballasted wood-structures. Trees would come from stream banks, designated National Forest harvest units, and equipment access routes, as well as off National Forest. Approximately 28 wood structures would be installed into the Twisp River at Mystery Reach, and approximately 16 wood structures would be installed into the Twisp River and side channel at War Creek Reach. The site-specific work areas for each treatment would typically be less than 1,000 square feet, the duration of each restoration action would be just a few hours, and work areas would be separated from each other, typically by about 50 to 150 feet.

The Twisp Horseshoe Phase II project is along a 1-mile-long stretch of the river between RM 11 and 12. The project would install approximately 12 anchored wood structures into the Twisp River. A helicopter would deliver wood to each treatment area and placement would occur with an excavator. Five structures would be installed in the dry, without cofferdams, and anchored with wood pilings. Seven structures would be coffered to isolate the in-water work, using bulk-bag cofferdams, and anchored with wood pilings and partially buried in the banks. Installation of these 7 structures would also include excavation of scour pools in the river to facilitate placement of the wood structures at the designed elevation. Excavated river gravels and bank topsoil would be stockpiled on site for use as ballast and partial burial of the structures. The site-specific work areas for each treatment would typically be less than 1,000 square feet, the duration of each restoration action would be just a few hours, and work areas would be separated from each other, typically by about 50 to 150 feet.

The Little Bridge Creek project is along a 1.5-mile-long stretch of Little Bridge Creek between RM 0.5 and 2. Little Bridge Creek is a tributary to the Twisp River near RM 9.5, entering from the north. The project would install up to 63 small to large diameter loose-wood structures or log jams (or both) into Little Bridge Creek by placing imported wood into the creek and adjacent floodplain using a heavy lift helicopter. The wood structures would be constructed by directing the helicopter pilot to the placement and orientation of each large wood piece. The site-specific treatment work areas would typically be less than 1,000 square feet, the duration of each restoration action would be just a few hours, and work areas would be separated from each other, typically by about 50 to 150 feet.

The wood habitat structures and areas of revegetation would be adaptively managed in the following years, adding additional wood to the structures and plantings to disturbed areas as needed to achieve desired in-stream and riparian habitat values.

These actions would support conservation of ESA-listed species considered in the 2020 ESA consultations with both the National Marine Fisheries Service and US Fish and Wildlife Service on the operations and maintenance of the Columbia River System. This project also supports ongoing efforts to mitigate for effects of the FCRPS on fish and wildlife in the mainstem Columbia River and its tributaries pursuant to the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act) (16 U.S.C. (USC) 839 *et seq.*).

Environmental Effects

The implementation of these projects would require the use of heavy equipment and a helicopter for placing wood. The felling of trees, planting, and seeding would all be conducted by hand. To protect aquatic species and provide fish passage during in-stream construction activities, temporary cofferdams would be installed in some work locations. Fish and aquatic species would be salvaged from the isolated work areas and translocated downstream of the in-stream work areas. All of these restoration actions would disturb and displace soil in and along the streams; damage vegetation; create noise and vehicle emissions; stress handled fish; and temporarily increase vehicle traffic and human activities in the project areas. The typical effects associated with the environmental disturbances created by the actions are described in Chapter 3 of the Programmatic EA, and are incorporated by reference and summarized in this document.

Below is a description of the potential site-specific effects of the *Twisp River and Tributary Restoration Projects*, and an assessment of whether these effects are consistent with those described in the Programmatic EA. These projects are designed to improve both aquatic and riparian habitat conditions

for the long term, so the adverse effects from soil and vegetation disturbance, and from human and mechanical activity, as detailed below, would be short-term only.

1. Fish and Aquatic Species

The effects of using heavy equipment and manually working in and along the Twisp River and Little Bridge Creek are consistent with the analysis in the Programmatic EA, "*Fish and Aquatic Species*", Section 3.3.1. The Programmatic EA, Section 3.3.1.3, describes overall low impacts to fish and aquatic species after balancing moderate short-term adverse effects against highly beneficial long-term effects.

Three species listed under the ESA are present in the project areas: Upper Columbia River (UCR) spring Chinook salmon, UCR steelhead, and Columbia River bull trout. Consultation on the effects of the projects on these species was completed under the US Forest Service's programmatic Aquatic Restoration Activities in the States of Oregon, Washington and portions of California, Idaho and Nevada (ARBO II) consultation with the conclusion that the projects would likely adversely affect these species and their critical habitat in the short term, but would not likely result in jeopardy to these species or result in destruction or adverse modification of their critical habitat.

The short-term adverse effects of the projects would expose, displace, reconfigure, or compact earth through the use of mechanized equipment within and along the Twisp River and Little Bridge Creek, and likely create conditions where sediment would be released for short periods of time following construction activities. The amount of sediment anticipated from the projects would be moderate because there would be instream excavation associated with installation of anchored and partially bank-buried large-wood structures. However, the use of helicopters to deliver wood is designed to minimize ground disturbance by heavy equipment, and mitigation measures as detailed in the Programmatic EA would be applied. The sediment inputs would be typical of the amounts that fish and other aquatic species naturally encounter in their environment during high flow events, but well below the high amounts evaluated in the Programmatic EA at Section 3.3.1.2.1.

The work area isolation, fish salvage, and instream construction activities would displace fish from work areas until the work activities are completed. Small aquatic organisms that could not be salvaged would likely be destroyed. The newly constructed in-stream areas would be re-colonized by fish and other aquatic organisms with near-full recovery likely in a matter of weeks, and full recovery likely following the first seasonal flushing flows. The anticipated amount of activity and the level of aquatic species disturbance, however, is consistent with the analysis in the Programmatic EA at Section 3.1.3.1 and 3.3.1.2.1, where direct, harmful, and sometimes fatal impacts to aquatic species are disclosed; and that movement, sounds, and vibrations of human and mechanical activities are discussed as likely to disturb fish and displace them from their preferred habitat for as long as that movement, sound, and vibration are present.

The projects' long-term beneficial effects include creation of more complex instream habitats through the addition of wood structures (where low levels and limited potential for natural wood recruitment exist), thereby creating or restoring pool habitat, fish cover, spawning gravel, and rearing habitat (where little currently exist) for adult and juvenile steelhead and spring Chinook salmon. These beneficial effects are consistent with the analysis in the Programmatic EA found at Section 3.3.1.2.2.

2. Water Resources

The effects of using heavy equipment and manually working in and along the Twisp River and Little Bridge Creek as described are consistent with the analysis in the Programmatic EA in Section 3.3.2, "*Water Resources.*" The Programmatic EA, Section 3.3.2.3, describes overall low impacts to water quality after balancing moderate short-term adverse effects against highly beneficial long-term effects. There would be no effect to water quantity, as these projects make no water withdrawals.

Overall, the restoration projects would create short-term, localized, sediment inputs from the impacts of heavy equipment working in and along the streams in the process of installing large wood structures. Each restoration action would likely disturb up to 30 feet of stream or river bank in each treatment work area (the Programmatic EA evaluated actions that would disturb hundreds of feet of river bank), and the sediment produced from these restoration actions is not anticipated to be greater than what occurs naturally during annual, natural, high flow events. As in the Programmatic EA, these are short-term effects which would be lessened by the application of mitigation measures such as protection of existing vegetation, minimization of areas to be impacted, and revegetation when projects are complete. The long-term effects of these projects, however, would be a decreased potential for unnatural sediment inputs, an increased potential of the floodplains to effectively manage their sediment loads, and a reduction of stream temperatures from improved stream form, instream habitat structure, and increased riparian vegetative cover. These long-term beneficial effects are consistent with those described in the Programmatic EA.

3. Vegetation

The effects of using heavy equipment and manually working in and along the Twisp River and Little Bridge Creek are consistent with the analysis in the Programmatic EA Section 3.3.3, "*Vegetation.*" The Programmatic EA, Section 3.3.3.3, describes overall moderate impacts to vegetation after balancing moderate short-term adverse effects against highly beneficial long-term effects. No plant species listed under the ESA or other sensitive plant species have been documented within these project areas.

These projects are anticipated to have less impact than that described in the Programmatic EA. There would be no large-scale earthmoving, with its associated vegetative loss. Each constructed feature in these projects would impact less than 1,000 square feet (0.02 acre) and would be separated from other similar features by 50 to 150 feet, whereas the Programmatic EA in Section 3.3.3.2, "*Environmental Consequences for Vegetation,*" evaluated constructed features that could disturb up to 50 acres. Impacts to vegetation would occur from heavy equipment turning soil, and plants being uprooted, buried, crushed, or torn apart. However, disturbance to plants would only occur when absolutely necessary either to reach a site or during excavation activities. The projects have been designed to minimize impacts to native vegetation. Vegetation would be restored through seeding and planting native species in disturbed areas following project implementation. Trees removed during construction would be saved to be used during placement of large wood structures. This level of effect would be moderate in the short term. The long-term beneficial effects of restored or improved vegetative conditions would be high, thus when the short- and long-term effects are considered together, the overall effects of the projects would be moderate and would be consistent with those evaluated in the Programmatic EA.

4. Wetlands and Floodplains

The effects of using heavy equipment and manually working in and along the Twisp River and Little Bridge Creek are consistent with the analysis in the Programmatic EA, "*Wetlands and Floodplains,*"

Section 3.3.4. The Programmatic EA, Section 3.3.4.3, describes overall low impacts to wetlands and floodplains after balancing high short-term adverse effects against highly beneficial long-term effects. These projects, however, are anticipated to have less impact than that described in the Programmatic EA. With these projects, there would be less short-term adverse effects to floodplains and wetlands: there would be less extensive earth-moving; no heavy equipment operations would be used in wetlands; and no temporary dewatering of stream channels, whereas the Programmatic EA evaluated more extensive impacts to wetlands from the actions of more construction equipment and complete dewatering and rerouting of rivers and streams. Consistent with the Programmatic EA, there would be long-term beneficial effects from implementation of these projects. There would be increased connectivity between the existing channels and the floodplains from the newly installed wood structures. There would also be some flow redirection as wood structures would facilitate more natural lateral movement and sinuosity of channels, and this would slow water velocities, facilitate more effective connection between the channel and the floodplain, and provide for more efficient sediment movement and retention in the floodplain. This level of effect would be low, as is stated in the Programmatic EA.

5. Wildlife

The effects of using heavy equipment and helicopters, and manually working in and along the Twisp River and Little Bridge Creek are consistent with the analysis in the Programmatic EA Section 3.3.5, "*Wildlife*." The Programmatic EA, Section 3.3.5.3, describes overall low impacts to wildlife after balancing high short-term adverse effects against highly beneficial long-term effects.

Two species listed under the ESA are present in the project areas: Canada lynx and gray wolf. Consultation on the effects of the projects on these species was completed under the Forest Service's programmatic Aquatic Restoration Activities in the States of Oregon, Washington and portions of California, Idaho and Nevada (ARBO II) consultation with the conclusion that the projects "*may affect, but are not likely to adversely affect*" these species. No additional sensitive wildlife species have been documented within these project areas.

The disturbance of wildlife by the movement, sounds, and vibrations of human and mechanical activity during construction would disturb wildlife and likely displace them temporarily from their preferred habitat for as long as that movement, sound and vibration are present. The project areas are essentially forested and have some potential for screening human activity that would be conducted within and along the streams. The anticipated amount of activity and the level of wildlife disturbance would be low, as is stated in the Programmatic EA.

Vegetation removal could cause temporary or permanent displacement as it may take one or more growing seasons for desired habitat conditions to be restored. Riparian vegetation removal could also affect non-mobile species such as invertebrates and amphibians that could not escape for the duration of the activity, as there would be unavoidable disturbance and changes in habitat structure. Additional impacts to non-mobile species could include stress (disrupted feeding, breeding, hiding, etc.) and mortality from crushing by heavy equipment. These adverse effects would be short-term (one or more years); however, the resulting condition of the restoration action would be habitat conditions that would be restored over what had been there previously, with the intended vegetative conditions having a higher carrying capacity for both dependent and generalist wildlife than current conditions. Long-term benefits include increased plant species richness and diversity, increased habitat structural diversity, increased habitat heterogeneity, and increased extent of riparian habitat.

The short-term effects on small wildlife species may be moderate to high for individuals that are harmed or killed by construction activities, but effects would be comparatively minor for larger animals that may only be displaced from habitats rendered unsuitable for occupancy for a period of time. The long-term effects on wildlife populations, however, would be beneficial from the increased habitat quality and carrying capacity resulting from the projects. The overall effects of the projects would be low and consistent with those evaluated in the Programmatic EA.

6. Geology and Soils

The effects of using heavy equipment and manually working in and along the Twisp River and Little Bridge Creek are consistent with the analysis in the Programmatic EA, *"Geology and Soils,"* Section 3.3.6. The Programmatic EA, Section 3.3.6.3, describes moderate impacts to geology and soils.

The short-term effects from these projects would be less than those analyzed in the Programmatic EA because the planned restoration actions here would have far less impact to soils. There would be no large-scale earthmoving, and thus, no widespread mixing of soil horizons or severe compacting of soils. There would be heavy equipment used, so there would be some localized soil compaction and disturbance as the equipment travels across the project areas and maneuvers at each construction site; but the limited use heavy equipment is much less of an impact than was considered in the Programmatic EA, and mitigation measures designed to minimize adverse effects, such as minimizing the area of impact through the use of a helicopter, and applying erosion control measures, would also be applied. The level of effect from heavy equipment as they install large wood structures would be moderate.

7. Transportation

The effects of these projects in and along the Twisp River and Little Bridge Creek are consistent with the analysis in the Programmatic EA Section 3.3.7, *"Transportation."* The Programmatic EA, Section 3.3.7.3, describes low impacts to transportation.

These projects along the Twisp River and Little Bridge Creek would not impact any roads, either open or closed, public or private. No roads would be closed; none would be temporarily blocked; none would be relocated. The main effect the proposed restoration actions would have on transportation would be that vehicles transporting workers and equipment to project sites would be sharing local roads with other traffic. This level of impact would be low, as is stated in the Programmatic EA.

8. Land Use and Recreation

The effects of this project in and along the Twisp River and Little Bridge Creek are consistent with the analysis in the Programmatic EA Section 3.3.8, *"Land Use and Recreation."* The Programmatic EA, Section 3.3.8.3, states that overall effects on land uses and recreation would be low to moderate.

There would be no effect on land use, and minimal effect on recreation from the proposed projects. Land uses would not change, and public recreational opportunities on the river and creek at these locations would result in short-term displacement of recreational users from the immediate project areas. Temporary displacement of recreational users would occur at the War Creek Reach and Little Bridge Creek proposed project areas for about one day, and for 4 to 6 weeks at the Twisp Horseshoe Phase II project area. There are other recreational opportunities in the areas to serve as alternatives during the displacement. No permanent change in land use or recreation would occur from the

proposed projects. This level of effect is consistent with that described in the Programmatic EA at Section 3.3.8.2, which describes low to moderate impacts to land uses and recreational opportunities.

9. Visual Resources

The effects of the proposed projects in and along the Twisp River and Little Bridge Creek are consistent with the analysis in the Programmatic EA Section 3.3.9, "*Visual Resources*." The Programmatic EA, Section 3.3.9.3, describes low impacts to visual resources.

The proposed restoration actions are far from any major highway or other potential viewpoint and thus, would not be visible to anyone other than the private land owners and recreationists visiting the river and creek reaches. As discussed above under "*Vegetation*," there would be no large-scale soil or vegetation disturbance (as was assessed for some projects in the Programmatic EA), and changes to the visual landscape would thus be minor, and nearly undetectable to most viewers. This level of impact would be low, as is stated in the Programmatic EA.

10. Air Quality, Noise, and Public Health and Safety

The effects of the proposed projects in and along the Twisp River and Little Bridge Creek are consistent with the analysis in the Programmatic EA, "*Air Quality, Noise, and Public Health and Safety*," Section 3.3.10. The Programmatic EA, Section 3.3.10.3, describes low impacts to air quality, noise, and public health and safety.

The proposed restoration actions are far from any major population center or public use area, thus, they would not have any potential to directly impact the public, other than when sharing the roads when workers travel to and from work sites. Air quality and noise would be affected by operations and emissions from the construction machinery, including the helicopter, and equipment to be used during placement of wood structures. But this is very short-term, and likely too far from any population area to be heard or seen; no long-term source of emissions or noise would be created. No restoration action proposed has potential to impact public safety infrastructure (e.g. roads, telecommunications) or place a burden on emergency services (police, fire, ambulance). This level of impact would be low, as is stated in the Programmatic EA.

11. Cultural Resources

The effects of these restoration actions in the Twisp River and Little Bridge Creek are consistent with the analysis in the Programmatic EA Section 3.3.11, "*Cultural Resources*." The Programmatic EA, Section 3.3.11.3, describes low impacts to cultural resources and potential effects would be appropriately resolved through the Section 106 consultation process under the National Historic Preservation Act.

Cultural resources surveys were conducted, and consultations with Washington State Historic Preservation Office (SHPO), the Confederated Tribes and Bands of the Yakama Nation (YN), and the Confederated Tribes of the Colville Reservation (CCT) were completed for each of the areas potentially affected by the three proposed projects. The results of those surveys and consultations were that no cultural resources were identified and no historic properties would be affected with stipulations.

For the Upper Twisp project, the CCT concurred on March 2, 2022, and the SHPO on March 7, 2022 with the recommendation of No Historic Properties Affected, with the stipulation that implementation be monitored under the guidance of an Inadvertent Discovery Protocol. It was additionally requested that

the construction crews be given a cultural resource orientation because there are several 'named places' in close proximity to the Area of Potential Effect. No comments were received from the YN.

For the Twips Horseshoe Phase II project, the CCT and SHPO concurred on November 16, 2021 and November 19, 2021, respectively, that the project would have no effect on historic properties pending implementation monitoring by the YN archaeologist, which conducted the field survey. No comments were received from the YN on the no effect determination. It is expected upon completion of implementation that a cultural resource monitoring report will be shared with the consulting parties for record.

For the Little Bridge Creek project, the CCT concurred on November 16, 2021, and the SHPO on November 18, 2021. Both the CCT and SHPO concurred with the determination this project will have no effect on historic properties. No comments were received from the YN.

12. Socioeconomics and Environmental Justice

The effects of these restoration projects in and along the Twisp River and Little Bridge Creek are consistent with the analysis in the Programmatic EA, "*Socioeconomics and Environmental Justice*," Section 3.3.13. The Programmatic EA, Section 3.3.13.3, describes low impacts to socioeconomics and environmental justice.

As described in the Programmatic EA, none of the restoration actions would generate a requirement for additional permanent employees and they would not require individuals to leave the local area, or relocate within it. There would be no effect on housing available for local populations. These projects would not displace people or eliminate residential suitability from lands being restored, or from lands near restoration project sites. The projects would generate short-term employment for those directly implementing the restoration actions and would provide small short-term cash inputs to local businesses for fuel, equipment, and meals. This degree of effect would be low. There are no environmental justice populations present that could be affected, as these projects and their impacts are limited to the National Forest and private lands on which they are located, and no offsite effects are anticipated that could impact environmental justice populations.

13. Climate Change

The effects of these projects in and along the Twisp River and Little Bridge Creek are consistent with the analysis in the Programmatic EA Section 3.3.14, "*Climate Change*." The Programmatic EA, Section 3.3.14.3, describes low impacts to climate change.

Due to the short duration of construction and the relatively small number of construction vehicles and helicopters, temporary emissions associated with project construction activities are anticipated to be well below the Environmental Protection Agency's reporting threshold of 25,000 metric tons of carbon. Therefore, the project would have a low level of greenhouse gas production and would have a low contribution to climate change from short-term emissions from motorized equipment operations during implementation of the restoration actions. Further, these greenhouse gas emissions would be offset to some degree by the ameliorating effects of restored floodplain function such as increased carbon sequestration in expanded wetlands. The projects would also provide for an increase of long-term water table inputs through restored floodplain function and increased connectivity of streams and rivers to their floodplains. It would also increase riparian shading of streams and rivers. Both of these results from the projects would help lower water temperatures, thereby ameliorating the effects of climate

change on aquatic species. The overall effects on climate change and green house gas production would be low.

Findings

The types of actions and the potential impacts related to the proposed *Twisp River and Tributary Restoration Projects* were examined, reviewed, and consulted upon and are similar to those analyzed in the *Columbia River Basin Tributary Habitat Restoration Programmatic Environmental Assessment* (DOE/EA-2126) and Finding of No Significant Impact. There are no substantial changes in the Programmatic EA's Proposed Action and no significant new circumstances or information relevant to environmental concerns bearing on the Programmatic EA's Proposed Action or their impacts within the meaning of 10 CFR § 1021.314(c)(1) and 40 CFR §1502.9(d). Therefore, no further NEPA analysis or documentation is required.

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Concur:

/s/ Katey Grange

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Date: May 24, 2022