



# Upper Kachess River Restoration



## Decision Memo

Upper Kachess River Restoration  
U.S. Forest Service  
Cle Elum Ranger District, Okanogan-Wenatchee National Forest  
Kittitas County, Washington

This decision incorporates all information in the CE Review Form and included in the project file.

### Decision and Rationale

I have decided to authorize the activities described in the [“Proposed Action”](#) section (CE Review Form), including any modifications that resulted from environmental analysis and review of regulatory compliance.

### Applicable Categorical Exclusion and Findings Required by Other Laws

The [“Applicable Categories”](#) section (CE Review Form) provides rationale for categorically excluding this action from documentation in an environmental assessment (EA) or environmental impact statement (EIS) and for using the identified category. The [“Environmental Analysis Review”](#) section (CE Review Form) documents rationale to support my finding that no extraordinary circumstances exist, along with findings required by other applicable laws and regulations to demonstrate compliance with the regulatory framework for the activities authorized by this decision.

### Agencies, Organizations and Persons Contacted

A list of [“Agencies, Organizations and Persons Contacted”](#) regarding this proposal is provided in the CE Review Form, along with a brief overview of comments/feedback received and how they were considered.

### Implementation Date

I intend to implement the decision beginning summer 2022. Implementation would likely be phased over several years, depending on available funding and capacity.

### Administrative Review

Decisions that are categorically excluded from documentation in an environmental assessment or environmental impact statement are not subject to an administrative review process (Agriculture Act of 2014 [Pub. L. No. 113-79], Subtitle A, Sec. 8006).

### Contact

For additional information concerning this decision, contact:

Eric Merten, Fish Biologist. Address: 803 W 2<sup>nd</sup> St, Cle Elum, WA 98922. Phone: 509-852-1100

March 22, 2022

JOSEPH RAUSCH

District Ranger, Cle Elum Ranger District



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## Categorical Exclusion Review

### Project Information

**Project Name:** Upper Kachess River Restoration

**Proposal Date:** 11/4/2019

**Proponent Name:** Kittitas Conservation Trust

**Responsible Official:** Joseph Rausch, District Ranger

**Unit:** Cle Elum Ranger District

**County(ies):** Kittitas

**Anticipated Implementation:** Summer 2022

**Signing Authority:** District Ranger

**PALS Tracking #:** 56630

**Project File:** Box\Cle Elum\_Naches Program of Work\South Zone Planning\South Zone Small Projects\Cle Elum Small Projects\FY2020 Small Projects\Upper Kachess

**GIS Info:** T:\FS\NFS\OkanoganWenatchee\Project\CLE\KachessRestoration2020

**Project Webpage:** <https://www.fs.usda.gov/project/?project=56630>

**General Location:** The project is located along and adjacent to the Upper Kachess River from 0.65 miles upstream of the low water level of Little Kachess Lake to the confluence with Mineral Creek at river mile 1.7. Located within T. 22N, R. 13E, sections 5, 8, and 17.

**Applicable Management Areas:** Snoqualmie Pass Adaptive Management Area

**Watersheds:** Kachess River subwatershed (6<sup>th</sup> level HUC 170300010303) of the Yakima River Basin

**Is cost recovery anticipated?** Yes

Interagency Agreement 19-CO-11061700-022 (Washington Department of Ecology IAA number C2000005) has been executed and a job code established.

### Applicable Category

This project is categorically excluded from documentation in an environmental assessment or environmental impact statement because it fits the following category, pending extraordinary circumstance determinations:

**Applicable Category:**

36 CFR 220.6(e)(25) (DM Required)

Forest and grassland management activities with a primary purpose of meeting restoration objectives or increasing resilience. Activities to improve ecosystem health, resilience, and other watershed and habitat conditions may not exceed 2,800 acres.



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- (i) Activities to meet restoration and resilience objectives may include, but are not limited to:
  - (A) Stream restoration, aquatic organism passage rehabilitation, or erosion control;
  - (B) Invasive species control and reestablishment of native species;
  - (C) Prescribed burning;
  - (D) Reforestation;
  - (E) Road and/or trail decommissioning (system and non-system);
  - (F) Pruning;
  - (G) Vegetation thinning; and
  - (H) Timber harvesting.
- (ii) The following requirements or limitations apply to this category:
  - (A) Projects shall be developed or refined through a collaborative process that includes multiple interested persons representing diverse interests;
  - (B) Vegetation thinning or timber harvesting activities shall be designed to achieve ecological restoration objectives, but shall not include salvage harvesting as defined in Agency policy; and
  - (C) Construction and reconstruction of permanent roads is limited to 0.5 miles. Construction of temporary roads is limited to 2.5 miles, and all temporary roads shall be decommissioned no later than 3 years after the date the project is completed. Projects may include repair and maintenance of NFS roads and trails to prevent or address resource impacts; repair and maintenance of NFS roads and trails is not subject to the above mileage limits.

This category is applicable because the project meets all applicable requirements and limitations for the category. Specifically:

1. The purpose of the proposed action is to restore stream and habitat conditions for bull trout.
2. The project area does not exceed 2,800 acres.
3. The project was developed through a collaborative process that includes multiple interested persons representing diverse interests.
4. Thinning activities have been designed to achieve ecological restoration objectives and do not include salvage harvest.
5. Construction of permanent roads does not exceed 0.5 miles.
6. Construction of temporary roads does not exceed 2.5 miles.
7. All temporary roads will be decommissioned within 3 years of the project's completion.

## Purpose and Need: Why do we need to act?

The project is designed to restore habitat for threatened (under the Endangered Species Act) bull trout within a portion of the Kachess River. The current population is under stress, and modeling shows that without action, future climate change could increase impacts. Project actions are designed to achieve a more resilient system in the Upper Kachess River and increase its ability to support bull trout.

Bull trout population numbers are low and under stress from impaired habitat, including shallow and unstable water levels and the loss of large wood. Until conditions can be improved, partners at Yakama Nation Fisheries are “life boating” bull trout- removing stranded individuals and holding them in a hatchery to be released under better conditions when they are larger and more likely to survive.

Historic logging removed large trees along more than a mile of the river's forest, unnaturally freeing the river to shift and broaden its channel. The wider channel now spreads water thinly, making it shallower and more susceptible to filtering into the streambed below. These large trees would once have fallen into the stream adding nutrients, holding substrate, and creating deep pools filled with cool water. Today, the Upper Kachess River is going dry more frequently and over longer sections of river than would occur under natural conditions. Adults are unable to travel upstream to spawn, and young bull trout are forced into the reservoir downstream or stranded in shrinking pools where they are vulnerable to predators or direct mortality when the pools dry completely.

In addition, unnatural drainage patterns along the Mineral Creek Trailhead access road (Forest Service Road 4600) washes sediment into the river during the same heavy rains that trigger bull trout to migrate



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upstream and spawn. The Forest Service is proposing to remove the cause of erosion while maintaining access to the Mineral Creek Trail.

Climate change modeling shows that in the future less snowfall, flashy rain events and drier summers could cause the Upper Kachess River to be drier for longer. The Upper Kachess River will be a more resilient system which can better support bull trout if conditions are returned to a more natural state including a narrow, deep, and confined channel; enhanced stream habitat; a floodplain reconnected to the river system; and reduced impacts from roads.

## Proposed Action: What are we proposing to do?

Proposed activities would improve aquatic habitat for bull trout, increase stream stability and water available to fish, and decrease erosion and sedimentation within the 155 acre Upper Kachess River Restoration project area. Proposed actions include:

- Install instream structures including engineered log jams (22), large wood structures (16), gravel retention (3) and roughness bars (11), and whole tree placements (15).
- Construct a high-flow side channel (0.2 miles) to provide seasonal refugia habitat and to reconnect to adjacent floodplain and downstream floodplain habitat.
- Recontour past grading and road building actions (0.2 acres) to reconnect two ephemeral drainages (Magic Creek and Watermelon Creek) to the Upper Kachess River.
- Relocate the Mineral Creek trailhead (0.25 acres) to an upland location. The trailhead will include trailer turnaround and an access road (0.27 miles) from National Forest System road 4600.
- Connect the new trailhead to the existing Mineral Creek Trail with approximately 1,320 feet of new trail.
- Prior to reclosing National Forest System road 4600, stabilize an area of active erosion (0.1 acre) where National Forest System (NFS) road 4600 enters the northern edge of the existing parking area.
- Decommission temp roads (2.05 miles) and reclose the portion of National Forest System road 4600 (0.75 miles) opened for use during project activities.

To recruit trees for instream structures, selected trees (18 inches or less in dbh) within 65.3 acres of overstocked plantations in historical clear cuts would be cut or pushed over. Thinning activities will meet Snoqualmie Pass Adaptive Management Area management direction to provide late successional vegetation mosaic. Large diameter trees (24 inches in dbh) would be sourced off-site. These trees may be purchased from a private property owner, brought from other projects that require tree clearing, or other means. These trees may be purchased from a private property owner, brought from other projects that require tree clearing, or other means. A helicopter may be used to deliver wood to staging areas and/or instream structure sites.

Proposed project activities would include the use of 2.05 miles of temporary roads during project activities. Implementation would likely be phased over several years, depending on available funding and capacity. Instream and floodplain work, including tree sourcing, would be completed in early phases followed by trail and trailhead construction, reclosing opened roads, and decommissioning temporary roads. All temporary roads would be decommissioned within 3 years of project completion. Decommissioning actions would include waterbars, decompaction, and seeding with native vegetation.

The Okanogan-Wenatchee National Forest may issue written authorizations, such as road use or special use permits, to Kittitas Conservation Trust or other partners to implement project activities.

Design criteria developed for the project are described in Appendix A. Maps are displayed in Appendix B.



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## Project Screening

### Legal and Regulatory Considerations

Given the nature of the project, the responsible official requested documentation to demonstrate compliance with the following legal and regulatory considerations in addition to NEPA:

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> NFMA/Land Management Plan                 | <u>Special Management Areas:</u>                           |
| <input checked="" type="checkbox"/> Endangered Species Act (ESA)              | <input type="checkbox"/> Wilderness                        |
| <input checked="" type="checkbox"/> Sensitive Species (FSM 2670)              | <input type="checkbox"/> Roadless                          |
| <input checked="" type="checkbox"/> National Historic Preservation Act (NHPA) | <input type="checkbox"/> Wild & Scenic River Corridor      |
| <input checked="" type="checkbox"/> Tribal Consultation                       | <input type="checkbox"/> Recommended Wilderness            |
| <input type="checkbox"/> Clean Air Act (CAA)                                  | <input type="checkbox"/> Research Natural Areas            |
| <input checked="" type="checkbox"/> Clean Water Act (CWA)                     | <input type="checkbox"/> National Scenic & Historic Trails |
| <input checked="" type="checkbox"/> Pertinent Executive Orders (E.O.)         | <input type="checkbox"/> National Recreation Areas         |
| E.O. 11990- Wetlands Protection   |  |
| E.O. 13112- Invasive Species  |  |
| E.O. 13175- Consultation and Coordination<br>with Indian Tribal Governments   |  |
| E.O. 19988- Floodplain Management   |  |

### Agencies, Organizations, and Persons Contacted

Given the nature of the project, the responsible official requested the following agencies, organizations and/or persons be contacted to provide input to, or to be made aware of, the project. A brief overview of feedback or comments received is included.

This project was developed through a collaborative multi-year process involving Yakama Basin Integrated Plan partners and interested stakeholders. The need for work in the Upper Kachess River was originally identified in the Initial Development Phase of the Yakama Basin Integrated Plan and described in the 2014 Bull Trout Enhancement Plan authored by the Bureau of Reclamation and Washington Department of Ecology.

Kittitas Conservation Trust, a local land trust organization whose mission is to protect and enhance fish and wildlife habitat, open space and recreational assets in the upper Yakima River basin developed the proposed action using a technical work group with specialized knowledge and representing a breadth of interests. Members included representatives from Central Washington University, Franklin Conservation District, Kittitas County, Mid-Columbia Fisheries Enhancement Group, National Marine Fisheries Service, US Bureau of Reclamation, US Geological Survey, US Fish and Wildlife Service, USDA Forest Service, Washington Department of Fish and Wildlife, Washington Department of Ecology, Washington Recreation and Conservation Office, Yakama Nation Fisheries, Yakama Basin Fish and Wildlife Recovery Board, and Yakima County.

The Forest notified the public of the proposed action through the Schedule of Proposed Actions (SOPA) on October 1, 2019. Two scoping periods were conducted for the project: November 4, 2019, and



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November 5, 2021. Washington Department of Fish and Wildlife submitted a letter of support dated November 19, 2021. No other comments were received.

The Forest sent letters to the Confederated Tribes of the Colville Nation and to the Yakama Nation on October 18, 2019 to inform the Tribes about this project and invite them to provide input.

## Supporting Project Documentation

**Table 1. Applicable project file documentation**

Documentation Type	File Name (if applicable/needed)
Bull Trout Enhancement Plan developed as part of the Yakima Basin Integrated Plan efforts	20141200 BOR BullTroutEnhancementPlan
Schedule of Proposed Actions (SOPA) first listing project	20191001 SOPA
Published legal notice for first scoping period	20191104 UpperKachess ScopLegalNotice
Letter for first scoping period	20191105 UpperKachess PALSScopingLetter
Basis of Design Report including summary of technical work group members	20210900 KachessBasisDesignReport DrftFinal100P
Postal mailed project update bulletin describing changes to the proposed action and second scoping period	20211105 Project ScopingUpdate Document
Emailed project update bulletin describing changes to the proposed action and second scoping period	20211105 Update ScopingBulletin

## Resource Participation in Environmental Analysis Review

The line officer or responsible official has requested the following resource areas to review the project to determine compliance with the legal and regulatory considerations:

**Table 2. Documentation of review completion**

Resource	Review Complete
Botany/Invasive Plants	2/16/2022 Helen Lau
Cultural/Heritage	5/19/2021 Pete Cadena
Fisheries	2/16/2021 Eric Merten
Fuels	10/28/2020 Jason Seldal
Hydrology	1/31/2022 Chris Trienes
Recreation	9/2/2020 Kim Larned
Silviculture	2/17/2021 Steven Braun
Soils	2/9/2021 Lynn Khuat
Special Management Areas	1/31/2022 Chris Trinies; 1/14/2022 Aja Woodrow
Transportation	5/5/2020 Cameron Mitchell
Wildlife	2/23/2022 Aja Woodrow



## Environmental Analysis Review: How would our management actions affect the environment?

### National Forest Management Act (NFMA) - Land Management Plan Consistency

The pertinent specialist has reviewed the proposed action including design features and provided supporting analysis and rationale for determinations in the project record. The following are specialist determinations regarding project consistency with applicable land management plan direction, standards, and guidelines:

- |                                      |   |
|--------------------------------------|---|
| <b>Botany:</b> Consistent            | <b>Range:</b> N/A                           |
| <b>Cultural/Heritage:</b> Consistent | <b>Recreation:</b> Consistent               |
| <b>Engineering:</b> Consistent       | <b>Scenic Resources:</b> N/A                |
| <b>Fisheries:</b> Consistent         | <b>Silviculture:</b> Consistent             |
| <b>Fuels:</b> Consistent             | <b>Soils:</b> Consistent                    |
| <b>Hydrology:</b> Consistent         | <b>Special Management Areas:</b> Consistent |
| <b>Lands and Special Uses:</b> N/A   | <b>Transportation:</b> Consistent           |
| <b>Minerals:</b> N/A                 | <b>Wildlife:</b> Consistent                 |

### Supporting Project Documentation

The proposed project is designed to restore ecological criteria outlined in relevant Aquatic Conservation Strategy objectives of the Northwest Forest Plan. Of special note are actions to increase in course woody material to correct its lack, and the restoration of natural channel features, overall morphology, and floodplain connectivity and function. The project will not prevent attainment of any Aquatic Conservation Strategy objectives.

Project design features provided in Appendix A have been developed by the project interdisciplinary team to avoid or minimize impacts from implementation of project activities and ensure consistency with applicable land management plan direction, standards and guidelines.

**Table 3. Applicable project file documentation to support analysis**

Documentation Type	File Name (if applicable/needed)
Consideration of Northwest Forest Plan standards and guidelines, Snoqualmie Pass Adaptive Management Area Implementation Guide, and Survey and Manage Guidance as relates to wood sourcing	20220114 UpperKachess RiparianWoodSourcing.
Consideration of Forest Plan consistency for botanical and invasive plant species	20220216 KachessBotanyReport





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## Other Law, Regulation and Policy Consistency

### Endangered Species Act

#### *Threatened, Endangered, Proposed and Candidate Species and Critical Habitat*

The pertinent specialists reviewed the proposed action and made the following determinations for threatened, endangered and/or proposed species:

**Table 4. Threatened, endangered, proposed, or candidate species and critical habitat effect determinations**

Species/Habitat	Status	Proposed or Designated Critical Habitat Present?	Determination	Brief Rationale
Water howellia	Threatened	No	NE	No habitat present.
Ute's ladies'-tresses	Threatened	No	NE	No habitat present.
Showy tickseed	Endangered	No	NE	No habitat present.
Wenatchee mountains checker-mallow	Endangered	No	NE	Habitat present but species not detected in project area.
Whitebark pine	Proposed Threatened	No	NE	Habitat not present.
Columbia River bull trout	Threatened	Yes	NLAA	Project's purpose and design is to benefit population and designated critical habitat by restoring natural processes and habitat conditions. Meets ARBO II.
Canada lynx	Threatened	No	NE	No present, no habitat.
Gray wolf	Endangered	No	NLAA	Habitat present, but outside known pack home ranges. Meets conditions under ARBO II.
Grizzly bear	Threatened	No	NE	Not present.
Marbled murrelet	Threatened	No	NE	No habitat.
Mount Rainier white-tailed ptarmigan	Proposed Threatened	No	NE	Not present, no habitat.
Northern spotted owl	Threatened	Yes	NLAA	Meets ARBO II, pre-disturbance survey if action during seasonal timing restriction.

**NE** – no effect; **NLAA** – may affect, not likely to adversely affect; **LAA** – may affect, likely to adversely affect; **No Jeopardy** - not likely to jeopardize the continued existence or adversely modify critical habitat



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## Supporting Project Documentation

**Table 5. Applicable project file documentation to support analysis**

Documentation Type	File Name (if applicable/needed)
USFWS Concurrence- ARBO II consistency	20220131 USFWS Email ARBOII Consistency.pdf
Biological Evaluation	20220216 KachessBioEval
Botany Report	20220216 KachessBotanyReport

## Sensitive Species (FSM 2670)

The pertinent specialists reviewed the proposed action and made the following determinations for sensitive species:

**Botany-** Species with potential to occur (suitable plant associations present in the project area) were searched for during field surveys. These species are displayed in Table 6. The proposed project would have “no impact” on these species. Habitat is present, but individuals were not detected in the project area. Project activity may have temporary impacts to suitable habitat, and would have a long-term benefit for native plant populations by returning historical structure to it.

The remaining sensitive species on the Regional Forest’s Sensitive Species list rely on habitat that is not present in the project area. The project would have “no impact” on these species.

**Table 6. Sensitive botanical species with potential to occur in the project area for which a determination of “no impact” has been made**

Species Name	Species Name	Species Name
<i>Agoseris aurantiaca</i> var. <i>carnea</i>	<i>Carex vallicola</i>	<i>Montia diffusa</i>
<i>Anemone patens</i> var. <i>multifida</i>	<i>Chrysosplenium tetrandrum</i>	<i>Pellaea brachyptera</i>
<i>Botrychium ascendens</i>	<i>Cicuta bulbifera</i>	<i>Penstemon eriantherus</i> var. <i>whitedii</i>
<i>Botrychium lineare</i>	<i>Crepis modocensis</i> ssp. <i>glareosa</i>	<i>Pyrrocoma hirta</i> var. <i>sonchifolia</i>
<i>Botrychium paradoxum</i>	<i>Cypripedium parviflorum</i>	<i>Rubus arcticus</i>
<i>Botrychium pedunculosum</i>	<i>Delphinium viridescens</i>	<i>Salix maccalliana</i>
<i>Carex capillaris</i>	<i>Erythranthe patula</i>	<i>Saxifragopsis fragarioides</i>
<i>Carex chordorrhiza</i>	<i>Erythranthe pulsiferae</i>	<i>Scouleria marginata</i>
<i>Carex gynocrates</i>	<i>Erythranthe suksdorfii</i>	<i>Spiranthes porrifolia</i>
<i>Carex media</i>	<i>Gentiana douglasiana</i>	<i>Swertia perennis</i>
<i>Carex pauciflora</i>	<i>Heterotheca oregona</i>	<i>Trifolium thompsonii</i>
<i>Carex sychnocephala</i>	<i>Juncus howellii</i>	<i>Vaccinium myrtilloides</i>
<i>Carex tenuiflora</i>	<i>Lomatium knokei</i>	

**Fish and Wildlife-** Species with potential to occur in the project area and associated determinations of effect are displayed in Table 7.

The proposed project will have “no impact” on the following species because no habitat is present: Astarte fritillary, Bighorn sheep, Blue-gray tail-dropper, Cascade red fox, Eastern tailed blue, Freija fritillary, Frigid bumble bee, Giant palouse earthworm, Grand coulee mountainsnail, Gray flycatcher, Great basin fritillary, Great gray owl, Half-black bumble bee, High country bumble bee, Labrador sulphur, Larch mountain salamander, Lewis’s woodpecker, Little Brown myotis, Long-billed curlew, Lustrous copper, Mardon skipper, Meadow fritillary, Melissa arctic, Mountain goat, Peck’s skipper, Pocked Pouch Fairy



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Shrimp, Puget Oregonian, Sandhill crane, Shiny tightcoil, Subarctic bluet, Subarctic darter, Suckley cuckoo bumble bee, Tawny-edged skipper, Western bumble bee, Western gray squirrel, Western pond turtle, White-headed woodpecker, and Zigzag darter.

The proposed project will have “no impact” on the following species because they are not present: Columbia pebblesnail, Common loon.

**Table 7. Sensitive fish and wildlife species with potential to occur in the project area and associated effect determinations**

Species	Determination*	Rationale (or refer to project documentation)
Inland Columbia Basin redband trout	MIIH	No established population in project area. Proposed activities are expected to have beneficial effects by restoring natural processes and conditions. Adverse effects are expected to be short in duration and reduced by design criteria.
Pygmy whitefish	MIIH	Habitat not present in project area, but is located downstream in Kachess Reservoir. Adverse effects are expected to be minor and reduced by design criteria.
Westslope cutthroat trout	MIIH	Proposed activities are expected to have beneficial effects by restoring natural processes and conditions. Adverse effects are expected to be short in duration and reduced by design criteria.
Bald eagle	MIIH	Minor noise disturbance possible.
Fisher	MIIH	Minor noise disturbance possible.
Harlequin duck	MIIH	May impact one hypothetical nesting pair.
Northern goshawk	MIIH	Minor noise disturbance possible.
Wolverine	MIIH	Minor noise disturbance possible.

NI – no impact; **MIIH**- may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or loss of viability to the population or species; **WIFV** - will impact individuals or habitat with a consequence that the action may contribute to a trend towards federal listing or cause a loss of viability to the population or species

### Supporting Project Documentation

**Table 8. Applicable project file documentation to support analysis**

Documentation Type	File Name (if applicable/needed)
Biological Evaluation	20220216 KachessBioEval
Botany Report	20220216 KachessBotanyReport

### National Historic Preservation Act – Section 106 Review

The pertinent specialist has reviewed the proposed action and made the following determination regarding Section 106 compliance:

Other - See explanation of other determination in comments section.

### Comments

During the cultural resource inventory, two historic archaeological sites and one historic property were identified. The Heritage Program Manager for the Okanogan-Wenatchee National Forest recommended that the newly identified cultural resources are “not eligible” and made a determination of “No Adverse



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Effect”. The Washington Department of Archaeology and Historic Preservation (DAHP) concurred with this determination and proposed site eligibility by letter dated May 19, 2021.

## Supporting Project Documentation

**Table 9. Applicable project file documentation to support analysis**

Documentation Type	File Name (if applicable/needed)
Letter to DAHP requesting concurrence with determination and proposed site eligibility	20210429 Letter to DAHP KachessRestoration
DAHP concurrence	20210519 DAHP Concurrence

## Consultation with Federally Recognized Tribes

Consultation with federally recognized tribes was conducted as follows:

On November 18, 2019 letters of consultation were mailed to the two federally recognized tribes with ties to the area: Confederated Tribes of the Colville Reservation and the Yakama Nation. The Yakama Nation conducted field surveys and completed the cultural resource inventory report for the project. The Confederated Tribes of the Colville Reservation concurred with the area of potential effect, method of identification, and the completed the cultural resources inventory report.

## Supporting Project Documentation

**Table 10. Applicable project file documentation to support analysis**

Documentation Type	File Name (if applicable/needed)
Consultation- Confederated Tribes of the Colville Reservation	20191018 UpperKachess Colville Letter.pdf
Consultation- Yakama Nation	20191018 UpperKachess Yakama Letter.pdf
Response- Confederated Tribes of the Colville Reservation	20191119 CCT Response Upper Kachess Restoration Project.pdf
Review- Confederated Tribes of the Colville Reservation	20210429 CCT Report Review Response.pdf

## Clean Water Act

The pertinent specialist has reviewed the proposed action and made the following determination:

This project is consistent with the Clean Water Act through application of best management practices and project design criteria contained in Appendix A.

The Clean Water Act (CWA), as amended, gives authority to states and other agencies to regulate the discharge of pollutants (including sediment) into waters of the United States and to establish water quality standards. These standards and guidelines are reflected in the Wenatchee Forest Plan, with a focus on meeting the state water quality standards. Permitting authority for work in waters of the United States, including wetlands, resides with the United States Army Corps of Engineers (USACE), with additional oversight from the Washington Department of Ecology (Ecology). Surface water quality standards in the State of Washington are codified in Chapter 173-201A WAC (Water Quality Standards for Surface Waters in the State of Washington), with additional requirements described by Title 222 WAC (Forest Practices Board), specifically Chapter 222-24 WAC. The State of Washington is also required to report on waters that fail to meet Environmental Protection Agency guidelines on water quality; within this project area the Kachess River is not on the list of impaired water bodies, though the Kachess Reservoir does exceed the limits for numerous pollutants. Also pertinent to water quality, the Forest service has committed to



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meeting the standards described in the Aquatic Restoration Biological Opinion II (ARBO II) and these standards shall be applied where they exceed the state standards.

In the long term, this project is expected to improve water quality. The construction and armoring of streambanks and bars should allow for an increase in riparian tree cover and shading. Increased floodplain functionality, instream pool creation, and the associated decrease in stream velocity may allow finer sediments to settle out and decrease overall turbidity. The proposed parking area is not stream-adjacent and should not increase the risk of automotive pollutants entering the stream.

The USACE has issued a regional general permit (RGP-8) that authorizes certain restoration activities within waters of the United States without requiring additional permits. All proposed activities within waters of the United States are covered under RGP-8.

Compliance with the terms of the RGP-8 requires that all work meet the requirements described in Chapter 173-201A WAC, Chapter 222-24 WAC, and ARBO II, with certain additional requirements related to the specific work performed. These requirements are comprehensive of the CWA standards, and compliance with RGP-8 should suffice to meet CWA consistency. However, RGP-8 expires on April 4, 2022. Work contracted by that date can proceed for one year after the expiration date with no further permitting, but additional guidance from USACE may be necessary if RGP-8 is not renewed.

Appendix A includes state water quality and ARBO II requirements as well as USACE conditions and best management practices required for RGP-8 compliance.

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## **Supporting Project Documentation**

**Table 11. Applicable project file documentation to support analysis**

Documentation Type	File Name (if applicable/needed)
USACE RGP-8	20170404 RGP-8 with Appendices

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## **Pertinent Executive Orders**

The responsible official and/or applicable specialist(s) have determined the proposed action is in compliance with the following Executive Orders (EO), which were deemed pertinent based on the nature of the proposal:

### **EO 11988, Floodplain Management**

There are no temporary or permanent structures in the Kachess River floodplain between the project area and the reservoir, and no such structures would be created. This project will modify the floodplain; the floodplain modifications are intended to enhance floodplain functionality, development, and extent in a manner consistent with natural processes thus resulting in a beneficial impact. Hydrologic models predict floodplain area will increase in the project area, and downstream velocities will decrease (modeled at a 100-year flow event, comparison of existing and proposed conditions). This should increase the residence time of water locally, lessening the downstream flood impacts with the dam controlling flow further downstream. Existing best management practices are sufficient to meet EO 11988.

### **EO 11990, Protection of Wetlands**

This project is consistent with EO 11990. Regulatory authority for work in wetlands resides with the United States Army Corps of Engineers and Washington Department of Ecology; best management practices and permitting for these agencies are described in the Clean Water Act section above.



# Upper Kachess River Restoration



## EO 13112, Invasive Species.

Appendix A contains best management practices and standards to prevent the spread and establishment of invasive plants. Best management practices are based on the Okanogan and Wenatchee National Forest Weed Management and Prevention Strategy and Best Management Practices. Standards are taken from the Pacific Northwest Region Invasive Plan Program: Preventing and Managing Invasive Plants Record of Decision.

**EO 13175, Consultation and Coordination with Indian Tribal Governments** - Consultation and coordination with the Confederated Tribes of the Colville Nation and the Yakama Nation are described in the "Consultation with Federally Recognized Tribes" section above.

## Supporting Project Documentation

**Table 12. Applicable project file documentation to support analysis**

Documentation Type	File Name (if applicable/needed)
Hydraulic Modeling and Analysis	20210900 KachessBDRApFHydModResMemo

## NEPA: Extraordinary Circumstance Determinations

Pertinent specialists have reviewed the proposed action and made the following determinations with regards to degree of potential effects for the resource conditions considered:

**Table 13. Resource conditions considered for extraordinary circumstance determinations**

Resource Conditions Considered for Extraordinary Circumstances	Is there a degree of potential effect that raises uncertainty over its significance? Briefly explain.
Federally listed threatened or endangered species, designated critical habitat, and Forest Service sensitive species	<p>Botany: NO, there is no uncertainty</p> <p>Rationale: Four federally listed or proposed species do not have habitat in the project area. One federally endangered species was not detected during surveys of suitable habitat. Thirty-eight sensitive species were not detected during surveys of suitable habitat.</p>
	<p>Fisheries: NO, there is no uncertainty</p> <p>Rationale: One federally listed species (Columbia River bull trout) and its designated critical habitat are present. Project activities are designed to benefit this species and meet effects analysis, design criteria, and endangered species act consultation provided under ARBO II. Proposed activities are expected to have beneficial effects to two sensitive species. The project may have minor disturbance to one sensitive species downstream of the project area, but this will not impact species viability or contribute to a trend toward federal listing.</p>
	<p>Wildlife: NO, there is no uncertainty</p> <p>Rationale for yes/no: Four federally listed species do not have habitat within and/or are not known from the project area. Suitable habitat is present for gray wolf, but the project area is outside known pack home ranges. Northern spotted owl has designated critical habit within the project area. Project activities meet effects analysis, design criteria, and endangered species act consultation provided under ARBO II for both species. Forty sensitive species do not have habitat within and/or are not known from the project area. Five species may experience minor disturbance, but project activities will not impact species viability or contribute to a trend towards federal listing.</p>



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Resource Conditions Considered for Extraordinary Circumstances	Is there a degree of potential effect that raises uncertainty over its significance? Briefly explain.
Floodplains, wetlands, or municipal watersheds	<p>NO, there is no uncertainty</p> <p>Rationale for yes/no: The proposed project is designed to restore ecological criteria outlined in the Aquatic Conservation Strategy objectives of the Northwest Forest Plan.</p> <p>The project is not expected to negatively affect a floodplain or wetland. The project is in compliance with Executive Orders 11988 (floodplains) and 11990 (wetlands).</p> <p>The project is not located within a municipal watershed.</p>
Congressionally designated areas, such as wilderness, wilderness study areas, or national recreation areas	N/A, not present
Inventoried roadless areas	N/A, not present
Research natural areas	N/A, not present
American Indians and Alaska Native religious or cultural sites	N/A, not present
Archaeological sites, or historic properties or areas	<p>NO, there is no uncertainty</p> <p>Rationale: Concurrence with a determination of "No Adverse Effect" was received from the Washington Department of Archaeology and Historic Preservation (DAHP).</p>



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## Project-Specific Design Criteria

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### **General**

If rare species of plants, bryophytes, lichens, or fungi (threatened, endangered, sensitive, strategic, rare or uncommon) are found during implementation of the project, a botanist would establish protection measures so these species are not impacted.

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### **Vegetation Removal and Material Use**

Care must be taken to maintain overall canopy cover within the riparian reserve. This may need to be determined on a site specific-basis by application of the designated prescription.

The prescription is designated as DxP (designation by prescription), therefore marking is not necessary unless the project partners implementing the work feel it is necessary. It will then be upon them to mark trees or contract out the work. The method for thinning will be to meet the needs of the restoration project and to meet the future conditions set forth by the Snoqualmie Pass Adaptive Management Area DxP Guide:

Retain all trees > 20" DBH and between 12" DBH to 15.9" DBH. In order of priority retain: western redcedar, western hemlock, western white pine, dominant Douglas-fir, and grand fir. These trees can be operationally cut if needed.

Thin through diameter class 7" DBH to 11.9" DBH Douglas-fir, grand fir, Pacific silver fir.  
Thin through diameter class 16" DBH to 20" DBH Douglas-fir, grand fir, Pacific silver fir, and other species.

Upon the removal of a tree with its root wad the hole will be filled in and leveled to surrounding ground height. To mitigate horizontal fuel loading remove treetops and bole segments too small for instream structures. In addition, smaller size diameter trees not acceptable for instream structures will be used for mulch throughout the project area. Mulch mats reduce negative effects on soils structure, especially important in riparian areas.

No thinning shall occur within 50' of any stream or wetland, except where channel and streambank reconstruction will occur.

Prior to clearing and grading, all adjacent wetlands and their buffers shall be protected from construction impacts. Construction flagging or fencing at no more than 25' intervals along the existing wetland and stream channels to be protected shall be completed prior to clearing.

All removed vegetation shall be incorporated into log jam and floodplain roughness structures. If excess vegetation material needs disposal outside of channel work, it shall be distributed on the floodplain.

Trees removed within clearing limits may be removed whole with roots intact and utilized in the side channel construction or in mainstem work.

Remove soil from roots of salvaged trees before placement in the waterway.

Trees not selected for removal shall be preserved and undisturbed. Construction activity should not debark or damage live trees.

Excavated materials shall be stockpiled neatly in an approved location within the stockpile and staging area. Excess material shall be hauled to designated areas. At completion of work, remaining material



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shall become the property of the contractor and shall be removed from the site. Contractor shall be solely responsible for obtaining any permits and fees required for legal disposal.

Natural materials used for implementation of aquatic restoration, such as large wood, slash, and gravel may be staged within the 100-year floodplain. Topsoil will be staged outside the floodplain.

Any large wood, topsoil, and native channel material displaced by construction shall be stockpiled for use during site restoration at a specifically identified and flagged area. Any material not used in restoration, and not native to the floodplain, shall be removed to a location outside of the 100-year floodplain for disposal.

Consult the District Forester or Forest Entomologist to identify Douglas-fir beetle anti-aggregant placement around stored piles of Douglas-fir and unsubmerged, or partially submerged structures containing Douglas-fir.

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### ***Equipment Use and Work Sites***

Keep heavy equipment disturbance out of drip line of all preserved existing trees.

All equipment, materials and personnel shall remain within the limits of disturbance.

The contractor shall keep the work areas in a neat and clean condition free of debris and litter for the duration of the project.

In areas where some equipment (e.g., lowboys, crew trucks, logging trucks) is not needed beyond locations such as staging areas the temp roads should only be constructed to a standard sufficient to pass the necessary equipment.

Servicing and hazardous material storage shall be on an adjacent, established staging areas in a location and manner that will preclude erosion into or contamination of the stream or floodplain. Equipment when not in use will be located 150 ft or more from any natural water body or wetland, or parked in established staging areas.

Mechanized equipment and vehicles shall be selected, operated, and maintained in a manner that minimizes adverse effects on the environment (e.g., minimally-sized, low pressure tires; minimal hard-turn paths for tracked vehicles; temporary mats or plates within wet areas or on sensitive soils). All vehicles and other mechanized equipment shall be:

- stored, fueled, refueled, and maintained in a vehicle staging area placed 150 ft or more from any natural water body or wetland
- biodegradable lubricants and fluids shall be used in equipment operating in and adjacent to the stream channel and live water
- inspected daily for fluid leaks before leaving the vehicle staging area for operation within 150 ft of any natural water body or wetland
- thoroughly cleaned before operation below ordinary high water, and as often as necessary during operation, to remain grease free

Contractor shall perform construction dewatering in such a manner as to avoid the release of turbid or sediment-laden water in order to prevent contamination or increase turbidity of surface waters. Excavation of dewatering sumps beyond limits shown shall be at no additional cost. Sediment laden water may be pumped to an upland discharge location and allowed to sheet flow through existing vegetation before infiltrating into the ground. If this method is not sufficient to prevent return of turbid



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water to surface waters or sensitive floodplain areas, a 'dirt-bag' or sediment retention structure may be required as necessary to comply with laws and permit requirements at no additional cost.

Contractor shall provide, operate, and maintain number and size of pumps as necessary to achieve dewatering needs. At a minimum, contractor shall provide a 6" dri-prime diesel-powered pump and a portable 2" pump. Additional pumps and of different capacities may be required at contractor's expense.

Contractor shall gain Forest Service approval of discharge location prior to operating pumps.

- A. The esc facilities shown on plans are the minimum requirements for anticipated site conditions. During the construction period, these esc facilities shall be upgraded as needed at no additional cost for unexpected storm events and to ensure that sediment and sediment-laden water do not leave the site.
- B. The esc facilities shall be inspected daily by the contractor and maintained as necessary to ensure their continued functioning.
- C. The esc facilities on inactive sites shall be inspected and maintained a minimum of once a month or within the 24 hours following a storm event.
- D. Stabilized construction entrances and additional measures may be required and shall be maintained for the duration of the project.

Spill prevention, control, and counter measures the use of mechanized machinery increases the risk for accidental spills of fuel, lubricants, hydraulic fluid, or other contaminants into the riparian zone or directly into the water. The contractor shall adhere to the following measures:

A description of hazardous materials that will be used, including inventory, storage, and handling procedures will be available on-site.

Written procedures for notifying environmental response agencies will be posted at the work site.

Spill containment kits (including instructions for cleanup and disposal) adequate for the types and quantity of hazardous materials used at the site will be available at the work site.

Workers will be trained in spill containment procedures and will be informed of the location of spill containment kits.

Any waste liquids generated at the staging areas will be temporarily stored under an impervious cover, such as a tarpaulin, until they can be properly transported to and disposed of at a facility that is approved for receipt of hazardous materials.

Biodegradable hydraulic fluids shall be used in any vehicle that will be operated near the water.

All facilities shall be inspected, maintained, and repaired as needed to assure continued performance of their intended function. All facilities shall be inspected daily and within 24 hours after any storm event greater than 0.5 inches of rain per 24 hour period and after events exceeding 2 hours duration.

Weekly reports summarizing the scope of inspections, the personnel conducting the inspection, the date(s) of the inspection, major observations relating to the implementation of the contractor's erosion and sediment control plan, and actions taken as a result of these inspections shall be prepared and retained on site by the contractor. In addition, a record of the following dates shall be included in the reports:



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1. When major grading activities occur,
2. Dates of rainfall events either exceeding 2 hours duration or more than 0.5 inches/24 hours,
3. When construction activities temporarily or permanently cease on site, or on a portion of the site,
4. When stabilization measures are initiated for portions of the site. Esc records shall be made available to the owner and owner's representative on request and shall be provided for review and approval prior to application for payment.

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## **Access Routes**

Temporary access routes in areas prone to inundation during the in-water work window shall be decommissioned before the end of the in-water work window.

Access routes in reach 2 and 3 (dry river bottom) will be identified by the project manager to minimize impacts to the river bottom and banks and limit crossings.

When vegetation removal is required, vegetation shall be cut to ground level (not grubbed).

The reclosing of ML1 system roads and decommissioning of temporary access roads will be done per USFS specifications in section 211 of the US Dept of Transportation, standard specifications for construction of roads and bridges on federal highway projects, FP-14.

The boundaries of the clearing limits shall be clearly flagged in the field prior to construction. During the construction period, no disturbance beyond the flagged clearing limits shall be permitted. The flagging shall be maintained for the duration of construction.

From May 1 through September 30, all exposed soils shall be protected from erosion by mulching, plastic sheeting, hydroseed covering, or other approved measures within three days of grading. From October 1 through April 30, all exposed soils must be protected within two days of grading. Soils shall be stabilized before a work shutdown, holiday, or weekend if needed based on the weather forecast. Soil stockpiles must be stabilized and protected with sediment trapping measures. Mulch as soon as practical all disturbed areas not receiving other permanent stabilization measures. Hay, straw, and mulch used on site must be 99.9% weed-free.

Design, construct, and phase cut and fill slopes in a manner that will minimize erosion. Reduce slope velocities on disturbed slopes by providing temporary barriers.

All temporary erosion and sedimentation control measures shall be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment shall be removed from the site or incorporated into finished grading. Disturbed soil areas resulting from removal shall be permanently stabilized using mulch and seeding.

Avoid soil-disturbing actions during periods of heavy rain or wet soils. Operate heavy equipment within unit boundaries only when soil moisture is below the plastic limit, soil moisture exceeds the plastic limit if the soil can be rolled into 3mm threads without breaking or crumbling.

The contractor shall control dust with water for the duration of the project. Control measures shall be in accordance with applicable regulations.

All temporary access routes will be decommissioned within 3 years of the project's completion.



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## **Skid Trails**

Skidding activities shall be limited to periods when soil moisture level is normally dry, soils are frozen, or there is sufficient snow cover to protect soils from compaction. Operate heavy equipment within unit boundaries only when soil moisture is below the plastic limit, soil moisture exceeds the plastic limit if the soil can be rolled into 3mm threads without breaking or crumbling.

- i. Designated skid trails within Riparian Reserves will be minimized.
- ii. No skid trail crossings of perennial or fish bearing streams will occur.
- iii. Avoid damage to residual trees during skidding and locate skid trails to reduce basal wound damage to trees.
- iv. Skidding directly down dry wash draws shall be prohibited.
- v. Skid trail widths shall not exceed a width of 15 feet. Skid trail disturbance which results in exposed mineral soil accompanied with visible track or tire rut impressions shall be restored through decompaction, grubbing, or scarifying and re-vegetation with native seed.
- vi. The leading ends of all logs shall be suspended above the ground during skidding inhaul to landings or stream placement work areas.
- vii. Under site specific conditions, forestry staff will consult with fisheries/hydrology staff when proposing to locate skid trail crossings of intermittent streams, if a stream crossing could significantly reduce temporary road construction or side slope disturbance to access vegetation treatment units.
- viii. To treat a harvest unit between stream channel buffers, skid trail crossings of intermittent streams could occur on ground that is  $\leq 3$  percent slope. Within 100 feet of the stream channel, the skid trail will have a slash mat of branches/slash laid down at least 2 feet deep, and logs will be stacked parallel with the stream channel to make a crossing platform.
- ix. No standing trees will be cut/removed for skid trail crossings. Skid trail stream crossings will not be located closer than 0.5 mile of ESA listed fish and/or Critical Habitat. The stream channel and streambanks will be protected by laying trees and logs for the equipment to drive on parallel to the stream channel.
- x. If landing areas outside of those identified in the project designs need to be cleared, the locations of the landings shall be agreed upon prior to their construction. The size of landings shall not exceed that needed for efficient skidding and working operations.
- xi. Landing areas shall avoid perennial and intermittent streams, swales, wetlands, and seeps. Fell trees away from these features where they exist.
- xii. Landing areas that have been cleared of vegetation shall be restored through decompaction, grubbing, or scarifying and re-vegetation with native seed.
- xiii. Place barriers at the Forest Service System Road 4600 where it leaves the current trailhead at the end of each day to prevent off-road use and further disturbance.
- ix. Heavy equipment operating within areas designated as ground based will be confined to operating on designated skid trails, landings, approved roads, or prepared slash mat trails that are at least one foot in depth and result in no significant increase in soil bulk density.



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## ***Invasive Species Control***

The following measures will be followed to avoid introduction of invasive plants and noxious weeds into project areas:

Prior to entering National Forest System lands, all vehicles and equipment will be power washed, allowed to fully dry, and inspected to make sure no plants, soil, or other organic material adheres to the surface.

All equipment would be cleaned prior to leaving the project site, if moving to uninfested areas, or prior to moving from one portion of the project area that is weed infested to another portion that is weed free.

Certified weed free plant materials and mulch will be used for revegetation and site stabilization.

Revegetation, including skid trails, temp roads, and staging areas/landings, will be revegetated with locally adapted native vegetation or covered in weed free woody mulch material if vegetation loss has occurred and bare soil is present.

Seeding and/or planting would occur at appropriate times where needed to reduce erosion, prevent weeds from re-invading, or to hasten recovery of non-weed species.

Minimize the time between completion of an activity and rehabilitation of a site by (1) open and timely communication between all involved in creating and restoring disturbed areas, and (2) monitoring disturbed areas for compliance.

Watercraft, waders, boots, and any other gear to be used in or near water will be inspected for aquatic invasive species.

Wading boots with felt soles are not to be used due to their propensity for aiding in the transfer of invasive species.

Early Detection and Rapid Response Approach will be employed by recording and documenting as discovered. Treatment methods would be the same as those described for known infestations in the Okanogan-Wenatchee National Forest Forest-wide Site-Specific Invasive Plant Management Record of Decision (2017).

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## **Design Criteria to be Applied from ARBO II**

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### ***Work Area Isolation & Fish Capture and Release***

Isolate the construction area and remove fish from a project site for projects that include concentrated and major excavation at a single location within the stream channel. This condition will typically apply to the following aquatic restoration categories: Fish Passage Restoration; Dam, Tidegate, and Legacy Structure Removal; Channel Reconstruction/Relocation.

**1. Isolate Capture Area** - Install block nets at up and downstream locations outside of the construction zone and leave in a secured position to exclude fish from entering the project area. Leave nets secured to the stream channel bed and banks until construction activities within the stream channel are complete. If block nets or traps remain in place more than one day, monitor the nets and or traps at least on a daily basis to ensure they are secured to the banks and free of organic accumulation and to minimize fish predation in the trap.



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2. **Capture and Release** - Fish trapped within the isolated work area will be captured and released as prudent to minimize the risk of injury, then released at a safe release site, preferably upstream of the isolated reach in a pool or other area that provides cover and flow refuge. Collect fish by seine or dip nets as the area is slowly dewatered, and minnow traps will be in place overnight. Fish must be handled with extreme care and kept in water the maximum extent possible during transfer procedures. A healthy environment for the stressed fish shall be provided—large buckets (five-gallon minimum to prevent overcrowding) and minimal handling of fish. Place large fish in buckets separate from smaller prey-sized fish. Monitor water temperature in buckets and well-being of captured fish. If buckets are not being immediately transported, use aerators to maintain water quality. As rapidly as possible (especially for temperature-sensitive bull trout), but after fish have recovered, release fish. In cases where the stream is intermittent upstream, release fish in downstream areas and away from the influence of the construction. Capture and release will be supervised by a fishery biologist experienced with work area isolation and safe handling of all fish.

3. **Electrofishing** – Use electrofishing only where other means of fish capture may not be feasible or effective. If electrofishing will be used to capture fish for salvage, NMFS’ electrofishing guidelines will be followed (NMFS 2000 - <http://www.nwr.noaa.gov/ESA-Salmon-Regulations-Permits/4d-Rules/upload/electro2000.pdf>). Those guidelines are available from the NMFS Northwest Region, Protected Resources Division in Portland, Oregon.

- a. Reasonable effort should be made to avoid handling fish in warm water temperatures, such as conducting fish evacuation first thing in the morning, when the water temperature would likely be coolest. No electrofishing should occur when water temperatures are above 18°C or are expected to rise above this temperature prior to concluding the fish capture.
- b. If fish are observed spawning during the in-water work period, electrofishing shall not be conducted in the vicinity of spawning adult fish or active redds.
- c. Only Direct Current (DC) or Pulsed Direct Current (PDC) shall be used.
- d. Conductivity <100, use voltage ranges from 900 to 1100. Conductivity from 100 to 300, use voltage ranges from 500 to 800. Conductivity greater than 300, use voltage to 400.
- e. Begin electrofishing with minimum pulse width and recommended voltage and then gradually increase to the point where fish are immobilized and captured. Turn off current once fish are immobilized.
- f. Do not allow fish to come into contact with anode. Do not electrofish an area for an extended period of time. Remove fish immediately from water and handle as described below. Dark bands on the fish indicate injury, suggesting a reduction in voltage and pulse width and longer recovery time.
- g. If mortality is occurring during salvage, immediately discontinue salvage operations (unless this would result in additional fish mortality), reevaluate the current procedures, and adjust or postpone procedures to reduce mortality.

4. **Dewater Construction Site** – When dewatering is necessary to protect species and/or critical habitat, divert flow around the construction site with a coffer dam (built with non-erosive materials) and an associated pump, a by-pass culvert, or a water-proof lined diversion ditch. Diversion sandbags can be filled with material mined from the floodplain as long as such material is replaced at end of project. Small amounts of instream material can be moved to help seal and secure diversion structures. Pumps must have fish screens and be operated in accordance with NMFS fish screen criteria described in part 5 of this section. Dissipate flow energy at the bypass outflow to prevent damage to riparian vegetation or



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stream channel. If diversion allows for downstream fish passage, place diversion outlet in a location to promote safe reentry of fish into the stream channel, preferably into pool habitat with cover. When necessary, pump seepage water from the de-watered work area to a temporary storage and treatment site or into upland areas and allow water to filter through vegetation prior to reentering the stream channel.

## 5. Fish Screens for Dewatering –

**a. NMFS Hydro Fish Passage Review and Approve** – When using Fish screens for surface water that is diverted by gravity or by pumping at a rate that exceeds 3 cfs, the BLM, FS and BIA will ensure that the action is individually reviewed by the Portland office of the NMFS' Habitat Conservation Division for consistency with criteria in *NOAA Fisheries Anadromous Salmonid Passage Facility Design* (NMFS 2011), located at: <http://www.nwr.noaa.gov/Salmon-Hydropower/FERC/upload/Fish-Passage-Design.pdf> Refer to section "F" of this chapter.

**c.** All other diversions will have a fish screen that meets the following specifications: (a) An automated cleaning device with a minimum effective surface area of 2.5 square feet per cfs, and a nominal maximum approach velocity of 0.4 feet per second (fps), or no automated cleaning device, a minimum effective surface area of 1 square foot per cfs, and a nominal maximum approach rate of 0.2 fps; and (b) a round or square screen mesh that is no larger than 2.38 mm (0.094") in the narrow dimension, or any other shape that is no larger than 1.75 mm (0.069") in the narrow dimension.

**d.** Each fish screen will be installed, operated, and maintained according to NMFS' fish screen criteria (NMFS 2011, or most recent version). NMFS fish screen criteria applies to federally listed salmonid species under their jurisdiction as well as bull trout, Oregon chub, shortnose sucker, Lahontan cutthroat trout, Lost River sucker, Modoc sucker, and Warner sucker under FWS jurisdiction.

**6. Stream Re-watering** – Upon project completion, slowly re-water the construction site to prevent loss of surface water downstream as the construction site streambed absorbs water and to prevent a sudden increase in stream turbidity. Monitor downstream during re-watering to prevent stranding of aquatic organisms below the construction site.

**7. Salvage Notice** – NOTICE: If a sick, injured, or dead specimen of a threatened or endangered species is found in the project area, the finder must notify NMFS through the contact person identified in the transmittal letter for this opinion, or through the NMFS Office of Law Enforcement at 1-800-853-1964, and follow any instructions. If the proposed action may worsen the fish's condition before NMFS can be contacted, the finder should attempt to move the fish to a suitable location near the capture site while keeping the fish in the water and reducing its stress as much as possible. Do not disturb the fish after it has been moved. If the fish is dead, or dies while being captured or moved, report the following information: (a) NMFS consultation number; (b) the date, time, and location of discovery; (c) a brief description of circumstances and any information that may

show the cause of death; and (d) photographs of the fish and where it was found. The NMFS also suggests that the finder coordinate with local biologists to recover any tags or other relevant research information. If the specimen is not needed by local biologists for tag recovery or by NMFS for analysis, the specimen should be returned to the water in which it was found, or otherwise discarded.

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## **Large Wood Placement**

Includes large wood (LW) placement, engineered logjams (ELJs), and tree removal for LW projects. Such activities will occur in areas where channel structure is lacking due to past stream cleaning (LW removal), riparian timber harvest, and in areas where natural gravel supplies are low due to





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anthropogenic disruptions. These projects will occur in stream channels and adjacent floodplains to increase channel stability, rearing habitat, pool formation, spawning gravel deposition, channel complexity, hiding cover, low velocity areas, and floodplain function. Equipment such as helicopters, excavators, dump trucks, front-end loaders, full-suspension yarders, and similar equipment may be used to implement projects.

## 1. Large Wood Projects –

- i. Place LW in areas where they would naturally occur and in a manner that closely mimic natural accumulations for that particular stream type.
- ii. Structure types shall simulate disturbance events to the greatest degree possible and include, but are not limited to, log jams, debris flows, wind-throw, and tree breakage.
- iii. No limits are to be placed on the size or shape of structures as long as such structures are within the range of natural variability of a given location and do not block fish passage.
- iv. Projects can include grade control and bank stabilization structures, while size and configuration of such structures will be commensurate with scale of project site and hydraulic forces.
- v. The partial burial of LW is permitted and may constitute the dominant means of placement. This applies to all stream systems but more so for larger stream systems where use of adjacent riparian trees or channel features is not feasible or does not provide the full stability desired.
- vi. LW includes whole conifer and hardwood trees, logs, and rootwads. LW size (diameter and length) should account for bankfull width and stream discharge rates. When available, trees with rootwads should be a minimum of 1.5x bankfull channel width, while logs without rootwads should be a minimum of 2.0 x bankfull width.
- vii. Structures may partially or completely span stream channels or be positioned along stream banks.
- viii. Stabilizing or key pieces of LW must be intact, hard, with little decay, and if possible have root wads (untrimmed) to provide functional refugia habitat for fish. Consider orienting key pieces such that the hydraulic forces upon the large wood increases stability
- ix. Anchoring Large Wood – Anchoring alternatives may be used in preferential order:
  - a. use of adequate sized wood sufficient for stability
  - b. orient and place wood in such a way that movement is limited
  - c. ballast (gravel and/or rock) to increase the mass of the structure to resist movement
  - d. use of large boulders as anchor points for the LW

2. **Engineered Logjams (ELJs)** - are structures designed to redirect flow and change scour and deposition patterns. To the extent practical, they are patterned after stable natural log jams and can be either unanchored or anchored in place using rebar, rock, or piles. Engineered log jams create a hydraulic shadow, a low-velocity zone downstream that allows sediment to settle out. Scour holes develop adjacent to the log jam. While providing valuable fish and wildlife habitat they also redirect flow and can provide stability to a streambank or downstream gravel bar.

- i. ELJs will be patterned, to the greatest degree possible, after stable natural log jams.



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- ii. Stabilizing or key pieces of LW that will be relied on to provide streambank stability or redirect flows must be intact, solid (little decay). If possible, acquire LW with untrimmed rootwads to provide functional refugia habitat for fish.
- iii. When available, trees with rootwads attached should be a minimum length of 1.5 times the bankfull channel width, while logs without rootwads should be a minimum of 2.0 times the bankfull width.
- iv. The partial burial of LW may constitute the dominant means of placement, and key LW can be buried into the stream bank or channel
- vi. Angle and Offset – The LW portions of engineered log jam structures should be oriented such that the forces upon the large wood increases stability. If a rootwad is left exposed to the flow, the bole placed into the streambank should be oriented downstream parallel to the flow direction so the pressure on the rootwad pushes the bole into the streambank and bed. Wood members that are oriented parallel to flow are more stable than members oriented at 45 or 90 degrees to the flow.
- vii. If LW anchoring is required, a variety of methods may be used. These include buttressing the wood between riparian trees, the use of manila, sisal or other biodegradable ropes for lashing connections. If hydraulic conditions warrant use of structural connections, such as rebar pinning or bolted connections, may be used. Rock may be used for ballast but is limited to that needed to anchor the LW.

### 3. Tree Removal for LW Projects –

- i. Live conifers and other trees can be felled or pulled/pushed over in the RR, RHCA, and upland areas (e.g., LSR, AMA, NSO/MaMu CH) for in-channel large wood placement only when conifers and trees are fully stocked. Tree felling shall not create excessive stream bank erosion or increase the likelihood of channel avulsion during high flows.
- ii. Danger trees and trees killed through fire, insects, disease, blow-down and other means can be felled and used for in-channel placement regardless of live-tree stocking levels.
- iii. Trees may be removed by cable, ground-based equipment, horses or helicopters.
- iv. Trees may be felled or pushed/pulled directly into a stream and/or floodplain.
- v. Trees may be stock piled for future instream restoration projects.
- vi. The project manager for an aquatic restoration action under ARBA II will coordinate with an action-agency wildlife biologist in tree-removal planning efforts.
- vii. In Northern Spotted Owl (NSO) and Marbled Murrelet (MAMU) habitat, meet the following requirements:
  - (a) PDC listed in II. H. 2. b. and c.
  - (b) The following Project Design Criteria applies to tree removal within the range of the northern spotted owl (NSO) in Douglas-fir dominated stands less than 80 years old that are not functioning as foraging habitat within a spotted owl home range, nor do they contain murrelet nesting structure. It does not apply to tree selection in older stands or hardwood-dominated stands unless stated otherwise. The purpose of these criteria is to ensure that there would be no removal or adverse modification of suitable habitat for NSO.
- (i) A wildlife biologist must be fully involved in all tree-removal planning efforts and be involved in making decisions on whether individual trees are suitable for nesting or have other important listed bird habitat value.



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- (ii) Trees can be removed to a level not less than a Relative Density (RD) of approximately 35, which is considered as fully occupying a site. This equates to approximately 60 trees per acre in the overstory and a tree spacing averaging 26 feet. Additionally, 40% canopy cover would be maintained when in NSO CH, when within 300 feet of occupied or unsurveyed murrelet nesting structure, and when dispersal habitat is limited in the area.
- (iii) Trees to be removed can be live, hazard trees, or killed through fire, insects, disease, blow down and other means. Down trees and snags should only be removed if the stand will retain NWFP standards post removal.
- (iv) Trees may be removed by cable, ground-based equipment, horses or helicopters, felled or pushed/pulled directly into a stream. Trees may be stock piled for future instream restoration projects.
- (v) Tree species removed should be relatively common in the stand (i.e., not “minor” tree species).
- (vi) Snags and trees with broad, deep crowns (“wolf” trees), damaged tops or other abnormalities that may provide a valuable wildlife habitat component should be reserved.
- (vii) No gaps (openings) greater than 0.50 acre will be created in spotted owl CH. No gaps shall be created in Riparian Reserves that contain ESA-listed fish habitat.

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### ***Off- and Side-Channel Habitat Restoration***

Projects will be implemented to reconnect historic side-channels with floodplains by removing off-channel fill and plugs. Furthermore, new side-channels and alcoves can be constructed in geomorphic settings that will accommodate such features. This activity category typically applies to areas where side channels, alcoves, and other backwater habitats have been filled or blocked from the main channel, disconnecting them from most if not all flow events. These project types will increase habitat diversity and complexity, improve flow heterogeneity, provide long-term nutrient storage and substrate for aquatic macroinvertebrates, moderate flow disturbances, increase retention of leaf litter, and provide refuge for fish during high flows. Equipment such as excavators, bull dozers, dump trucks, front-end loaders, and similar equipment may be used to implement projects.

**1. Data Requirements** – Data requirements and analysis for off- and side-channel habitat restoration include evidence of historical channel location, such as land use surveys, historical photographs, topographic maps, remote sensing information, or personal observation.

**2. Allowable Excavation** – Off- and side-channel improvements can include minor excavation (< 10% of volume) of naturally accumulated sediment within historical channels. There is no limit as to the amount of excavation of anthropogenic fill within historic side channels as long as such channels can be clearly identified through field and/or aerial photographs. Excavation depth will not exceed the maximum thalweg depth in the main channel. Excavated material removed from off- or side-channels shall be hauled to an upland site or spread across the adjacent floodplain in a manner that does not restrict floodplain capacity.

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### ***Set-back or Removal of Existing Berms, Dikes, and Levees***

Will be conducted to reconnect historic fresh-water deltas to inundation, stream channels with floodplains, and historic estuaries to tidal influence as a means to increase habitat diversity and complexity, moderate flow disturbances, and provide refuge for fish during high flows. Other restored ecological functions include overland flow during flood events, dissipation of flood energy, increased water storage to augment low flows, sediment and debris deposition, growth of riparian vegetation, nutrient cycling, and development of side channels and alcoves. Such projects will take place where



# Upper Kachess River Restoration



estuaries and floodplains have been disconnected from adjacent rivers through drain pipes and anthropogenic fill. Equipment such as excavators, bull dozers, dump trucks, front-end loaders, and similar equipment may be used to implement projects.

## Floodplains and Freshwater Deltas –

- i. Design actions to restore floodplain characteristics—elevation, width, gradient, length, and roughness—in a manner that closely mimics, to the extent possible, those that would naturally occur at that stream and valley type.
- iii. To the extent possible, remove nonnative fill material from the floodplain to an upland site.
- iv. Where it is not possible to remove or set-back all portions of dikes and berms, or in areas where existing berms, dikes, and levees support abundant riparian vegetation, openings will be created with breaches. Breaches shall be equal to or greater than the active channel width to reduce the potential for channel avulsion during flood events. In addition to other breaches, the berm, dike, or levee shall always be breached at the downstream end of the project and/or at the lowest elevation of the floodplain to ensure the flows will naturally recede back into the main channel thus minimizing fish entrapment.
- v. Elevations of dike/levee setbacks shall not exceed the elevation of removed structures
- vi. When necessary, loosen compacted soils once overburden material is removed. Overburden or fill comprised of native materials, which originated from the project area, may be used within the floodplain to create set-back dikes and fill anthropogenic holes provided that floodplain function is not impeded.

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## ***Reduction/Relocation of Recreation Impacts***

Intended to close, better control, or relocate recreation infrastructure and use along streams and within riparian areas. This includes removal, improvement, or relocation of infrastructure associated with designated campgrounds, dispersed camp sites, day-use sites, foot trails, and off-road vehicle (ORV) roads/trails in riparian areas. The primary purpose is to eliminate or reduce recreational impacts to restore riparian areas and vegetation, improve bank stability, and reduce sedimentation into adjacent streams. Equipment such as excavators, bull dozers, dump trucks, front-end loaders, and similar equipment may be used to implement projects.

- a. Design remedial actions to restore floodplain characteristics—elevation, width, gradient, length, and roughness—in a manner that closely mimics, to the extent possible, those that would naturally occur at that stream and valley type.
- b. To the extent possible, non-native fill material shall be removed from the floodplain to an upland site.
- c. Overburden or fill comprised of native materials, which originated from the project area, can be used to reshape the floodplain, placed in small mounds on the floodplain, used to fill anthropogenic holes, buried on site, and/or disposed into upland areas.
- d. For recreation relocation projects—such as campgrounds, horse corrals, ORV trails—move current facilities out of the riparian area or as far away from the stream as possible.
- e. Consider de-compaction of soils and vegetation planting once overburden material is removed.
- f. Place barriers—boulders, fences, gates, etc.—outside of the bankfull width and across traffic routes to prevent ORV access into and across streams.

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## ***Road and Trail Erosion Control and Decommissioning***

Includes hydrologically closing or decommissioning roads and trails, including culvert removal in perennial and intermittent streams; removing, installing or upgrading cross-drainage culverts; upgrading culverts on non fish-bearing streams; constructing water bars and dips; reshaping road prisms; vegetating fill and cut slopes; removing and stabilizing of side-cast materials; grading or resurfacing roads that have been improved for aquatic restoration with gravel, bark chips, or other permeable materials; contour shaping of the road or trail base; removing road fill to native soils; soil stabilization and tilling compacted surfaces to reestablish native vegetation. This category also includes programmatic/public notice road closures under FS and BLM/BIA equivalent Travel and Access Management Plans. Such actions will target priority roads that contribute sediment to streams, block fish passage, and/or disrupt floodplain and riparian functions. Equipment such as excavators, bull dozers, dump trucks, front-end loaders, and similar equipment may be used to implement projects.

### **1. Road Decommissioning and Stormproofing –**

- i. For road decommissioning and hydrologic closure projects within riparian areas, recontour the affected area to mimic natural floodplain contours and gradient to the extent possible.
- ii. When obliterating or removing segments immediately adjacent to a stream, consider using sediment control barriers between the project and stream.
- iii. Dispose of slide and waste material in stable sites out of the flood-prone area. Native material may be used to restore natural or near-natural contours.
- iv. Drainage features used for stormproofing and treatment projects should be spaced as to hydrologically disconnect road surface runoff from stream channels. If grading and resurfacing is required, use gravel, bark, or other permeable materials for resurfacing.
- v. Minimize disturbance of existing vegetation in ditches and at stream crossings.
- vi. Conduct activities during dry-field conditions (generally May 15 to October 15) when the soil is more resistant to compaction and soil moisture is low.
- vii. When removing a culvert from a first or second order, non-fishing bearing stream, project specialists shall determine if culvert removal should include stream isolation and rerouting in project design. Culvert removal on fish bearing streams shall adhere to the measures described in the Fish Passage Restoration activity category.
- viii. For culvert removal projects, restore natural drainage patterns and channel morphology. Evaluate channel incision risk and construct in-channel grade control structures when necessary.

### **2. Road Relocation –**

- i. When a road is decommissioned in a floodplain and future vehicle access through the area is still required, relocate the road as far as practical away from the stream.
- ii. The relocation will not increase the drainage network and will be constructed to hydrologically disconnect it from the stream network to the extent practical. New cross drains shall discharge to stable areas where the outflow will quickly infiltrate the soil and not develop a channel to a stream.



# Upper Kachess River Restoration



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## **General Conservation Measures for Gray Wolf and Northern Spotted Owl**

### Gray Wolf

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This project meets Recovery Plan direction for den and rendezvous sites (i.e., no projects/activities within 1 mile of den or rendezvous sites are scheduled to occur between April 15 and June 30). If an active den, rendezvous site is within 1 mile, the project would fall outside the scope of ARBO II, and a separate consultation would be required to address potential effects.

### Northern Spotted Owl

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- i. The unit wildlife biologist may increase or decrease disturbance distances according to the best available scientific information and site-specific conditions.
- ii. To reduce adverse effects to spotted owl, projects will not generally occur during the critical breeding period, generally between March 1 – July 15, but may vary by location if there is an active known owl site, predicted owl site (as determined through an approved modeling process), RPO (Reference Point Owl) and/or occupied habitat within the disruption distance of the project area. Projects should (a) be delayed until after the critical breeding season (unless action involves Type I helicopters, which extend critical nesting window to September 30); (b) delayed until it is determined that young are not present.
- iii. The unit wildlife biologist may extend the restricted season based on site-specific information (such as a late or recycle nesting attempt).
- iv. No hovering or lifting within 500 feet of the ground within occupied spotted owl habitat during the critical breeding season by ICS Type I or II helicopters would occur as part of any proposed action.

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## **Requirements for Clean Water Act Compliance**

- i. A copy of RGP-8 and all BMPs shall be kept at the project site.
- ii. The USFS shall notify Washington Department of Ecology if more than 0.5 acres of wetlands will be impacted.
- iii. Prior to clearing and grading, all adjacent wetlands and their buffers shall be protected from construction impacts. Construction flagging or fencing at no more than 25' intervals along the existing wetland and stream channels to be protected shall be completed prior to clearing.
- iv. Work that disturbs the substrate, bank, or shore of a water of the United States that contains fish life shall be conducted only during the work period for that waterbody as indicated in the Washington Department Fish and Wildlife (WDFW) Allowable Freshwater Work Periods for rivers and streams (see the MOU between USFS and WDFW, 2012).
- v. Work that disturbs the substrate, bank, or shore of a water of the United States shall occur in the dry whenever practicable.
- vi. Equipment shall be operated from the top of the bank, dry gravel bar, work platform, or similar out-of-water location whenever possible. Equipment shall be operated in a manner that minimizes the suspension of particulates. All equipment used in or around waters shall be clean and inspected daily



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prior to use to ensure that the equipment has no fluid leaks. Should a leak develop during use, the leaking equipment shall be removed from the site immediately and not used again until it has been adequately repaired. No equipment may be stored or fueled so close to a surface water that the activity could adversely affect the waterbody.

vii. In-water work areas shall be isolated from the surrounding waterbody by a properly installed silt screen or a similar sediment containment device whenever practicable. The permittee shall remove the silt screen or other temporary sediment containment devices as soon as they are no longer necessary to protect the surrounding waterbody.

viii. Installation of sediment/erosion control devices including sediment fencing, hay bales, etc. prior to construction. (Plans for this are included in the 100% design but are not mentioned in this document (DM))

## ix. Turbidity and Temperature Monitoring:

- While construction activities are occurring in the stream, along the streambanks, and all ground-disturbing stream-adjacent activities, turbidity and temperature monitoring shall occur every 4 hours.
- Sample locations and results shall be recorded and available for inspection.
- Baseline measurements shall be taken upstream of the work zone, in a well-mixed stream section. Downstream measurements shall be taken at the edge of the mixing zone boundary.
- The baseline section is defined as the following:
  - 50' upstream of the disturbance area for streams smaller than 30' in width.
  - 100' upstream of the disturbance area for streams 30'-100' in width.
  - 200' upstream of the disturbance area for streams greater than 100' in width.
- The mixing zone boundary is defined as the lesser of the following:
  - 50' downstream of the disturbance area for streams smaller than 30' in width.
  - 100' downstream of the disturbance area for flows of up to 10 cfs at the time of construction, or stream width of 30'-100'.
  - 200' downstream of the disturbance area for flows between 10 cfs and 100 cfs at the time of construction, or stream width greater than 100'.
- Incremental temperature increases must not exceed  $28/(T+7)$  degrees, where T is the background (upstream) temperature in Celsius. If the background temperature is greater than 12°C, the 7-day average daily maximum temperature must not increase more than 0.3°C.
- Turbidity must not increase more than 10% of the baseline measurement, or more than 5 NTU if the baseline is 50 NTU or less.
- If the stated thresholds are exceeded, the activity must be modified to reduce pollution. If, after a second monitoring interval, the exceedance persists than activities must cease until the background levels are reestablished.

## Appendix B. Project Maps

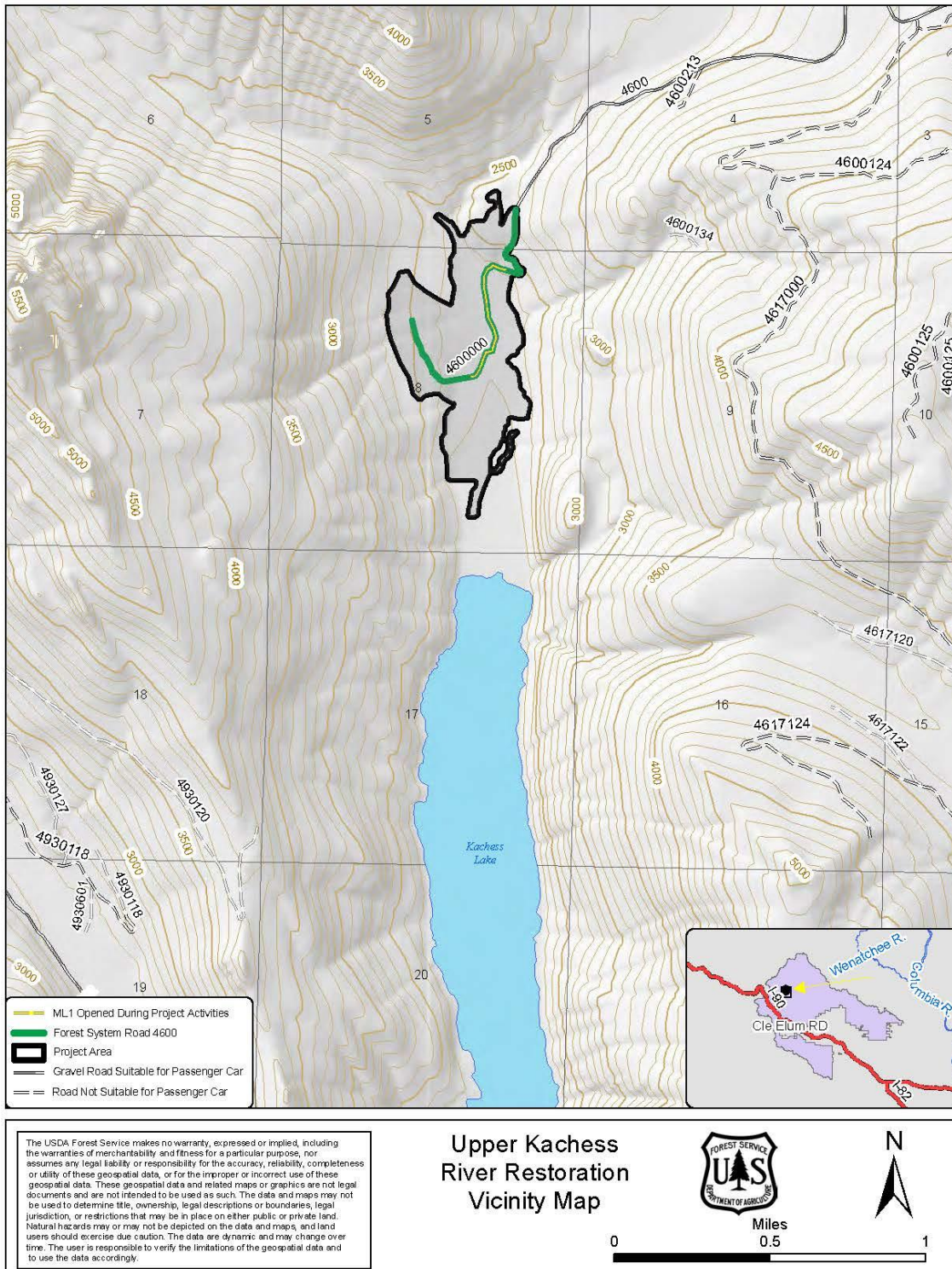


Figure 1. Vicinity map of the Upper Kachess River Restoration project area.



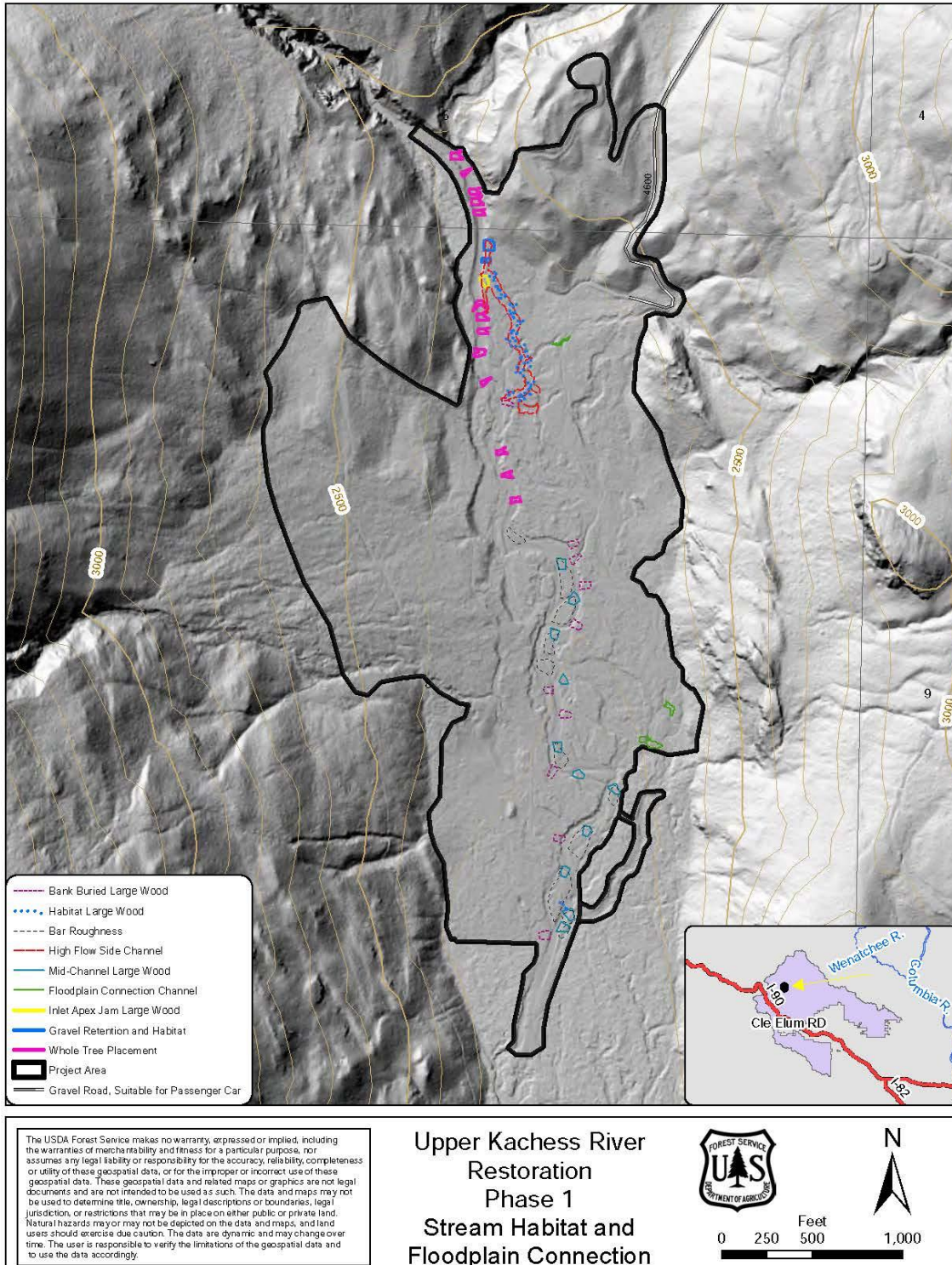


Figure 2. Upper Kachess River Restoration project phase 1 stream habitat and floodplain connection activity locations.

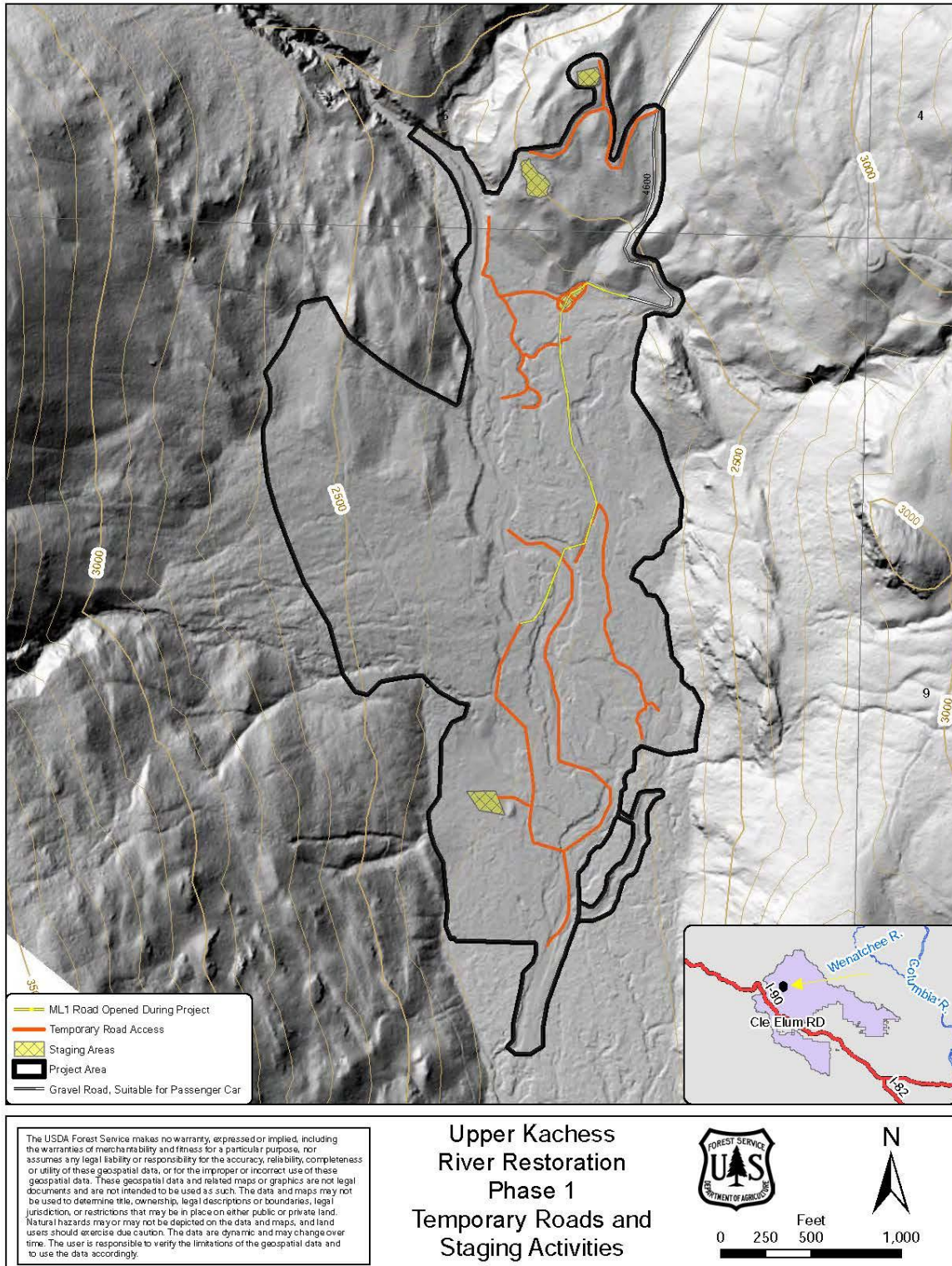


Figure 3. Upper Kachess River Restoration project phase 1 temporary road and staging activity locations.

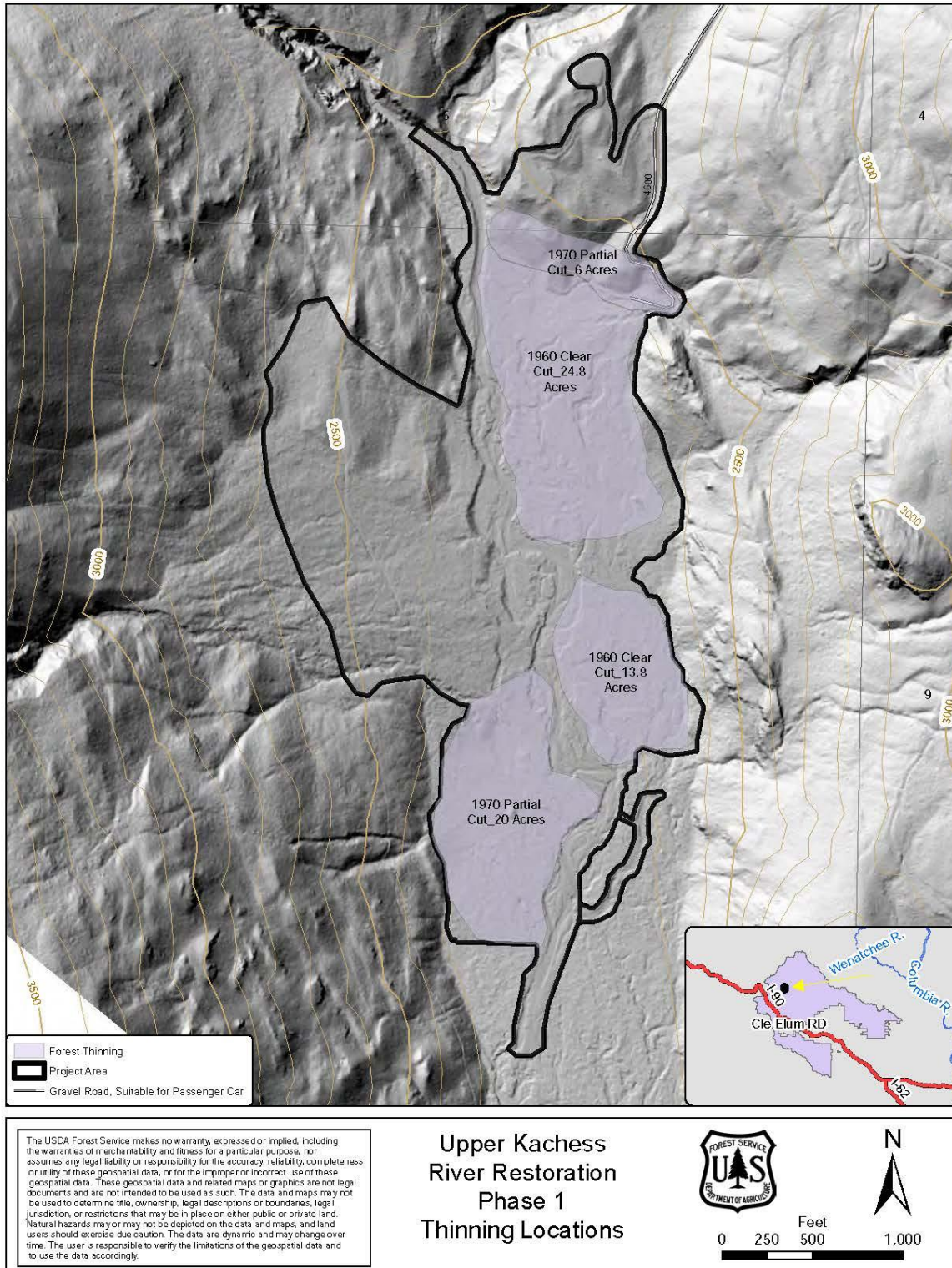


Figure 4. Upper Kachess River Restoration project phase 1 thinning locations.

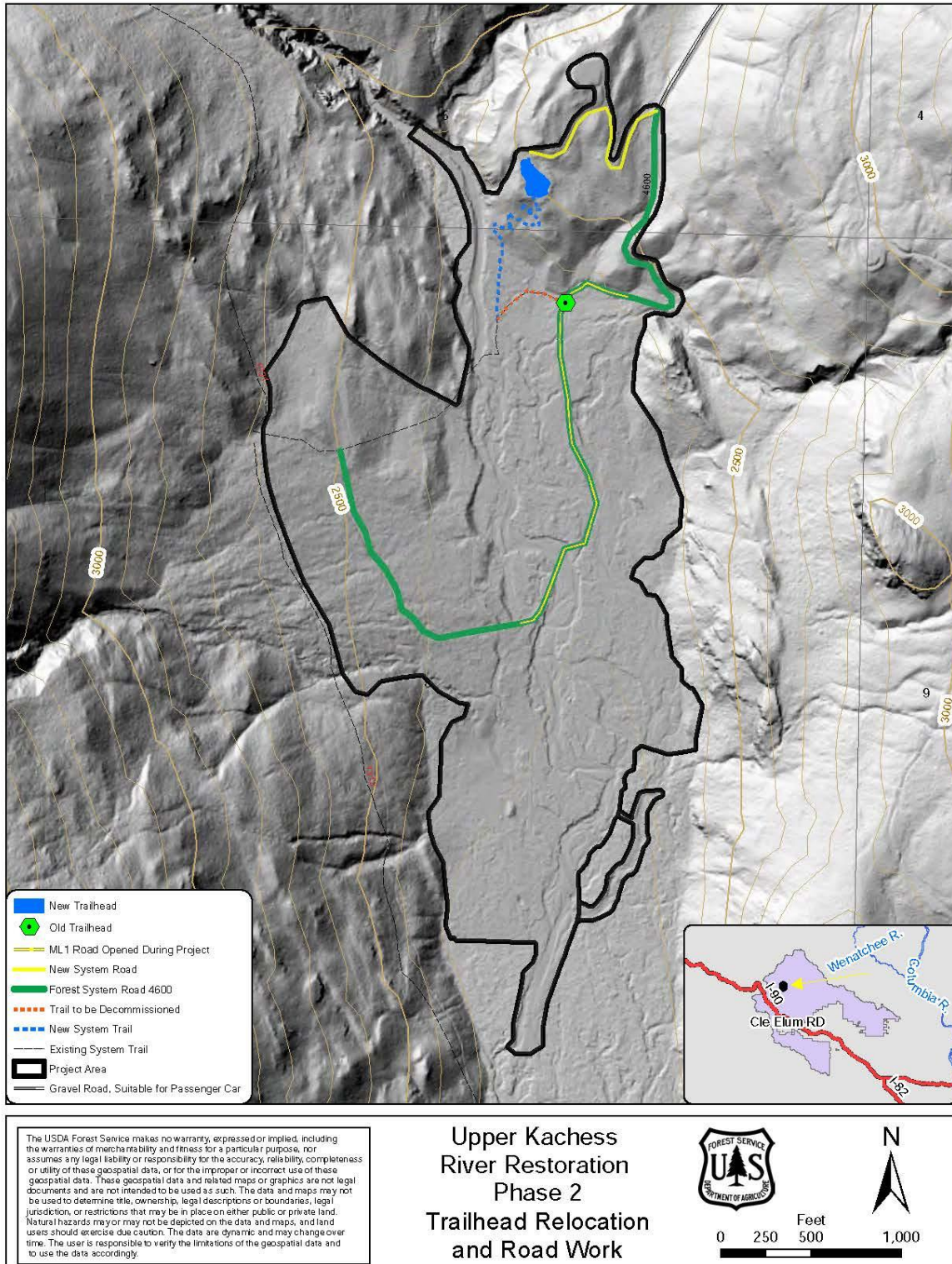


Figure 5. Upper Kachess River Restoration project phase 2 trailhead relocation and road work locations.