

Project Review

Malheur National Forest Aquatic Restoration Project NEPA Compliance and Implementation Checklist Summit Creek Groundwater Monitoring

Project Number: 0402-2020 **Date:** 08/10/2020

Location: T.16S., R.34E., 30, 19, 18, 17, 9 and 10 T.17S., R.34E., 6 and 7

Category: Category 17 – Fisheries, Hydrology, Geomorphology, Wildlife, Botany, and Cultural Surveys in Support of Aquatic Restoration

Project Description: Install shallow groundwater monitoring wells to collect pre- and post-implementation data on groundwater elevations before and after future Stage 0 Restoration.

Heritage: (to be completed by heritage specialist)

Y / N: Initial:

(Y) *RGD* Specific PDC for heritage addressed (heritage surveys; avoidance areas).

Botany: (to be completed by botany specialist)

Y / N: Initial:

(Y) *JB* Specific PDC for botany addressed (sensitive plant surveys).

(Y) *JB* Specific PDC for noxious weeds addressed.

Land Management Consistency (is the proposed project within the management area? Check yes or no. If yes, comments should indicate whether proposed actions are consistent with the standards for the management area.)

Y / N: Initial:

(N) *JTN* 4A big game winter range

(N) *JTN* 6A and 6B wilderness

motorized recreation areas

(N) *JTN* 7 scenic area

(N) *JTN* 8 special interest areas

Y / N: Initial:

(N) *JTN* 9 research natural areas

(N) *JTN* 10 semi-primitive non-

(N) *JTN* 22/22A Wild and Scenic River

(N) *JTN* Inventoried roadless areas

Comments:

I have reviewed this project and have determined it is compliant with the Malheur Forest Plan and Aquatic Restoration environmental assessment project design criteria identified for my resource.

Table 1. Projects design criteria and Malheur Forest Plan compliance checklist

Resource	Signature	Date	Comments (additional PDCs may be noted if necessary)
Heritage	<i>/s/ Robert Dickenson</i>	9/14/2020	Follow Heritage PDCs. Avoidance polygons will be provided for implementation.
Botany	<i>/s/ Jessi Brunson</i>	8/31/2020	Follow botany PDCs. No known sensitive plants from proposed project area.
Invasive Plants	<i>/s/ Jessi Brunson</i>	8/31/2020	Follow invasive PDCs. Avoidance polygons will be provided for implementation.

Resource	Signature	Date	Comments (additional PDCs may be noted if necessary)
<i>Wildlife</i>	<i>/s/ Rachael Vaughn</i>	<i>8/26/2020</i>	<i>There would be no impacts to terrestrial species of concern or their habitats.</i>
<i>Fish*</i>	<i>/s/ Jeff Nelson</i>	<i>9/23/2020</i>	<i>Consistent with Aquatics EA PDCs.</i>
<i>Hydrology*</i>	<i>/s/Jordan Bass</i>	<i>9/4/20</i>	<i>No concerns identified</i>
<i>Range</i>	<i>/s/ Jason Spence</i>	<i>9/10/2020</i>	<i>No issues, but ensure any fence that is cut/opened is repaired and monitored/fixed when livestock are present to keep them out of the enclosures.</i>
<i>Soils</i>	<i>/s/ Robert C. McNeil</i>	<i>8/26/20</i>	<i>No heavy equipment - hydraulic post-pounders or similar, hand tools, UTV or other low-impact ground transport</i>
<i>Recreation</i>	<i>/s/ Jared Bowman</i>	<i>09/08/20</i>	<i>Huddleston Sno-Park is the only developed rec site in the project area; avoid any obvious dispersed campsites. No anticipated impacts to scenic integrity.</i>
<i>Special Uses</i>	<i>/s/ Stacia Kimbell</i>	<i>08/31/2020</i>	<i>No concerns identified.</i>
<i>Lands</i>	<i>/s/ Stacia Kimbell</i>	<i>08/31/2020</i>	<i>No concerns identified.</i>
<i>Mining</i>	<i>/s/ Anne Schneider</i>	<i>9/10/2020</i>	<i>There are no active mine claims in the project area</i>
<i>Engineering</i>	<i>/s/ Matthew Smith</i>	<i>9/15/2020</i>	<i>Follow Malheur Road Rules and Road Maintenance Specifications. No fence construction within 6 feet of road ditch or road cut slope. Do not construct new road barriers, including earth berms, without approval from engineering. No metal tracked equipment on paved road surfaces.</i>
<i>Fuels / Fire</i>	<i>/s/ Ken Boucher</i>	<i>08/24/2020</i>	<i>No fire/fuels concerns or PDC's</i>
<i>Silviculture</i>	<i>/S/ T Corning-Sevey</i>	<i>08Sept2020</i>	<i>Understand the need to monitor – a picture of what exactly is being requested would be nice – no silvi concerns</i>

* Ensure that an experienced fisheries biologist or hydrologist is involved in the design of all projects covered by Aquatic Restoration Biological Opinion II. The experience should be commensurate with technical requirements of a project.

District Environmental Coordinator: */s/ Katherine L. Cueno* Date: *09/11/2020*

Line Officer Signature: */s/ Edward R Guzman.* Date: *09/25/2020*

Implementation Description:

Summit Creek Groundwater Monitoring

0402

0402-2020

Category 17 – Fisheries, Hydrology, Geomorphology, Wildlife, Botany, and Cultural Surveys in Support of Aquatic Restoration	Lead Preparer: Sam Spengler Project Contact: Jeff Nelson
Applicant: Prairie City Aquatics	NEPA Reference: Decision notice for Aquatic Restoration Project
Location: Prairie City Ranger District	Lease/ /Case File/ Serial #: N/A Special Use Permit #: N/A
Begin Date: Implementation anticipated Fall, 2020	Due Date: 09/30/2020

Purpose/Need:

Please refer to the Aquatic Restoration EA¹ for the purpose and need of these actions.

Land Use Plan Conformance:

This project falls under Management Area (MA) 3A “Non-Anadromous Riparian Areas” of the Malheur National Forest Land and Resource Management Plan (USDA Forest Service, 1990). This project is also within the riparian habitat conservation area (RHCA) (RHCA as designated by PACFISH/INFISH). The RHCA for all reaches of Summit Creek is Category 1, with 300-foot slope-distance buffers extending from both sides of the active channel. Summit Creek is listed as designated critical habitat for bull trout by the US Fish and Wildlife Service (USFWS). The groundwater monitoring, as outlined in this implementation plan, will support the MA3A objective to “plan, design, and implement riparian habitat improvement activities to upgrade riparian areas that are not in a condition to meet management objectives or the desired future conditions”. It would also serve to “promote the long-term ecological integrity of ecosystems” and “conserve the genetic integrity of native species” as laid out in PACFISH/INFISH.

Management areas adjacent to the RHCA are Fore-ground Visual Corridor (MA14F), General Forest- Rangeland (MA1_2), and Middle Ground Visual Corridor (MA14M) Land. Our project does not overlap with these management areas and is not expected to over the course of implementation. Resource management goals as they pertain this project (and adjacent areas) are listed below.

Prairie City Aquatics staff has consulted with the Forest Realty Specialist, Stacia Kimbell, and determined that there are no special use impacts relating to this project. Overlapping water rights within the project area are not an issue as they relate to temporary road construction and are no longer relevant.

¹ The Aquatic Restoration EA is available online at <http://www.fs.usda.gov/detailfull/malheur/landmanagement/?cid=STELPRD3817723&width=full>

Land and Resources Management Plan Goals (USDA 1990):

MA1- General Forest

Emphasize timber production on a sustained yield basis while providing for other resources and values. Develop equal distribution of age classes to optimize sustained timber production. Manage at levels and intensities consistent with the schedules described in this Plan to provide for other multiple uses and resources.

MA2- Rangeland

Emphasize forage production on nonforested areas on a sustained yield basis while providing for other resources and values.

MA3A- Non-Anadromous Riparian Areas (RHCA)

Manage riparian areas to protect and enhance their value for wildlife, anadromous fish habitat and water quality. Design and conduct management in all riparian areas to maintain or improve water quality and beneficial uses. Manage timber, grazing, and recreation to give preferential consideration to non-anadromous fish on that portion of the management area “suitable” for timber management, grazing, or recreation.

MA14- Visual Corridors

Manage viewshed corridors with primary consideration given to their scenic quality and the growth of large diameter trees. Visual quality objectives of retention, partial retention, and modification will be applied while providing for other uses and resource.

Location:

This project is located in the Summit Creek subwatershed (HUC 170501160104) within the Headwaters Malheur River watershed (1705011601). See Table 2 for subwatershed location within the Malheur National Forest. See maps and tables below for location information specific to the project.

Table 2. Project location information

TR Locations	T.16S., R.34E., 30, 19, 18, 17, 9 and 10 T.17S., R.34E., 6 and 7
USGS quads	Logan Valley East (B544118) and Dollar Basin (A544118)
Lat/Long	See Table 1
Subwatershed	170501160104 – Summit Creek
Watershed	1705011601 – Headwaters Malheur River

T: Pathway

Geospatial information for this project is located here:

T:\FS\NFS\Malheur\Project\AquaticRestoration2014\GIS\Implementation\PCRD\FY20\Summit_Monitoring

Figure 1. Summit Creek subwatershed location within the Malheur National Forest

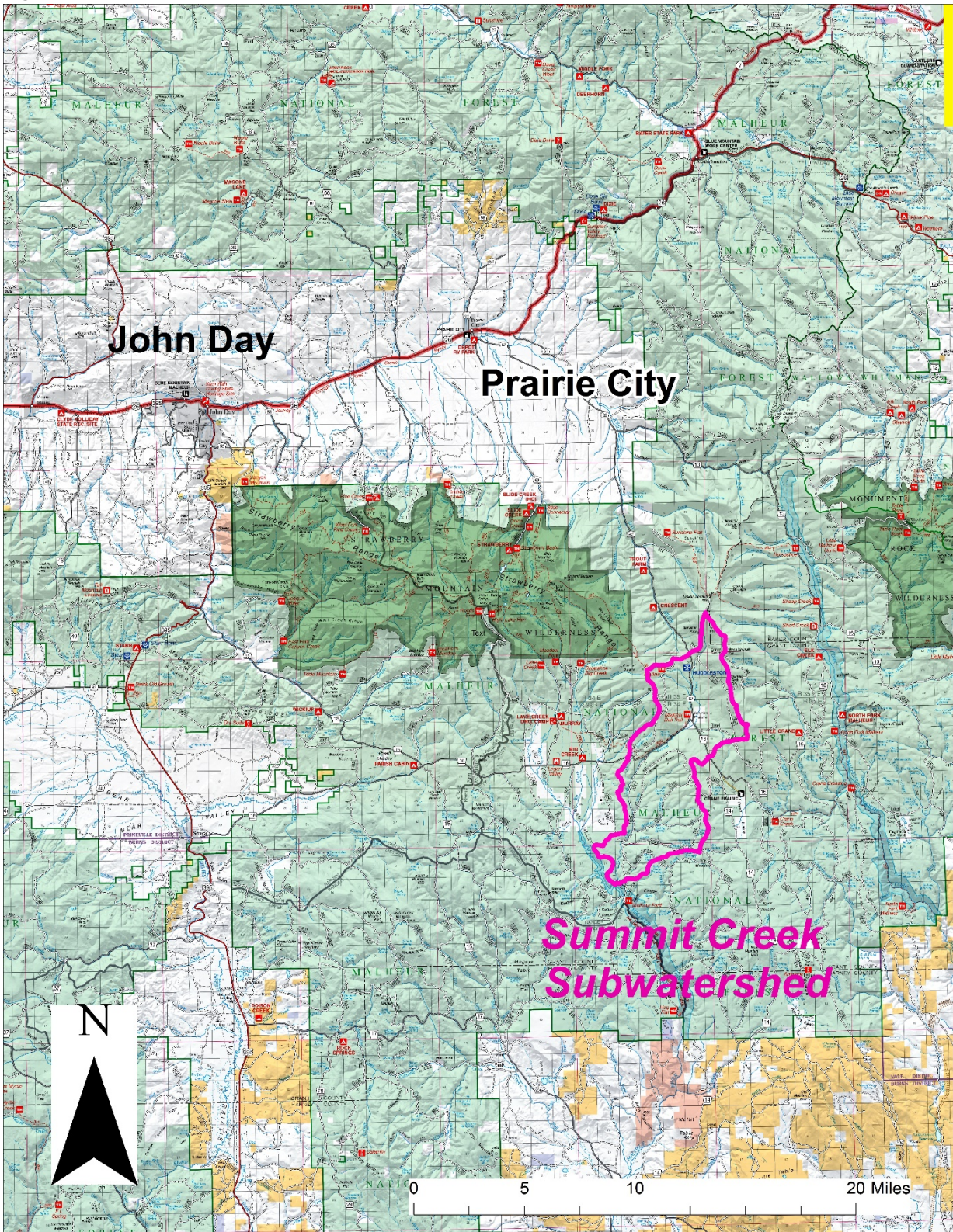


Figure 2. Project reach locations within the Summit Creek subwatershed.

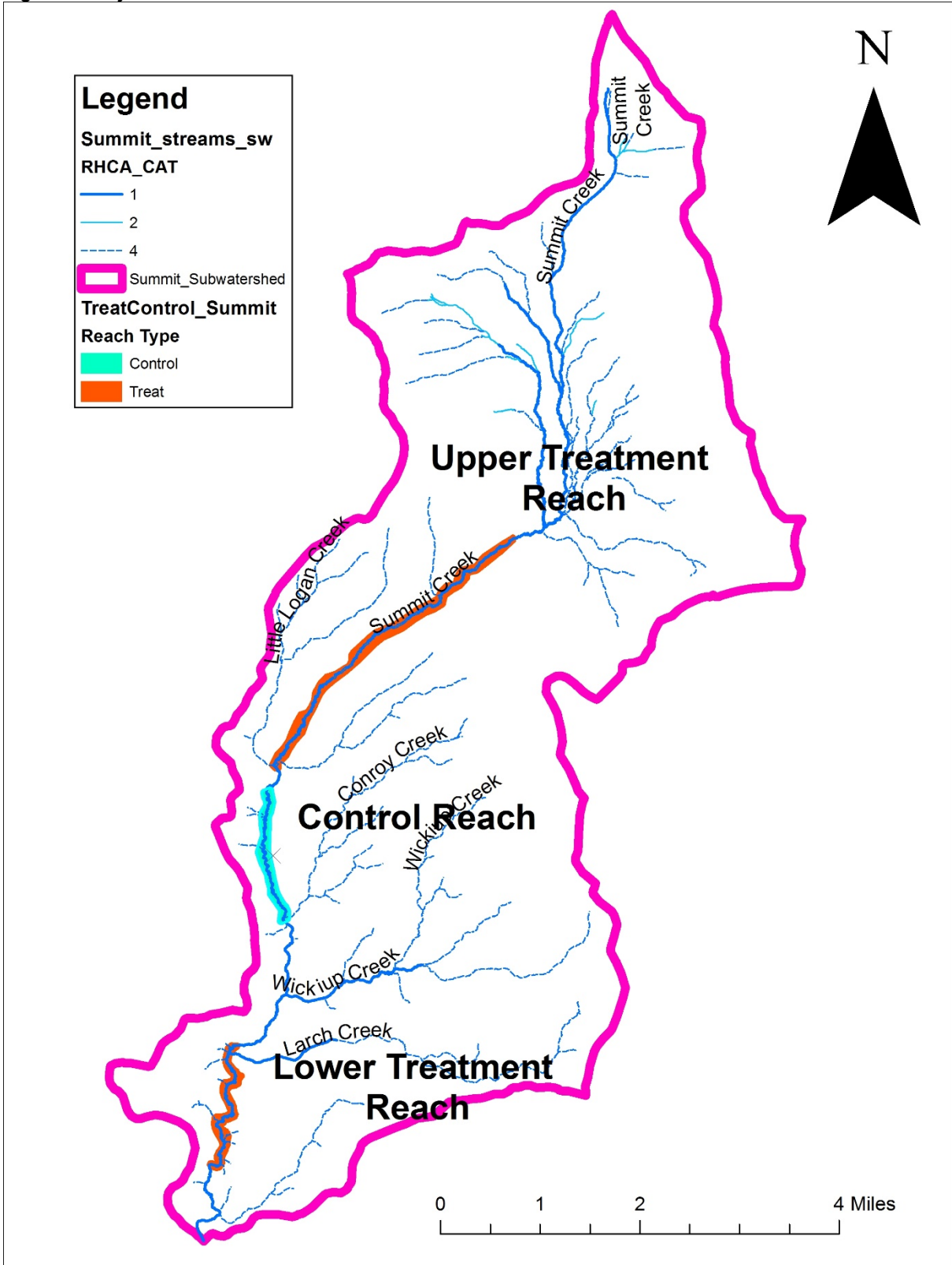


Figure 3. The upper treatment reach of Summit Creek where Stage Zero restoration is planned for 2022 or later

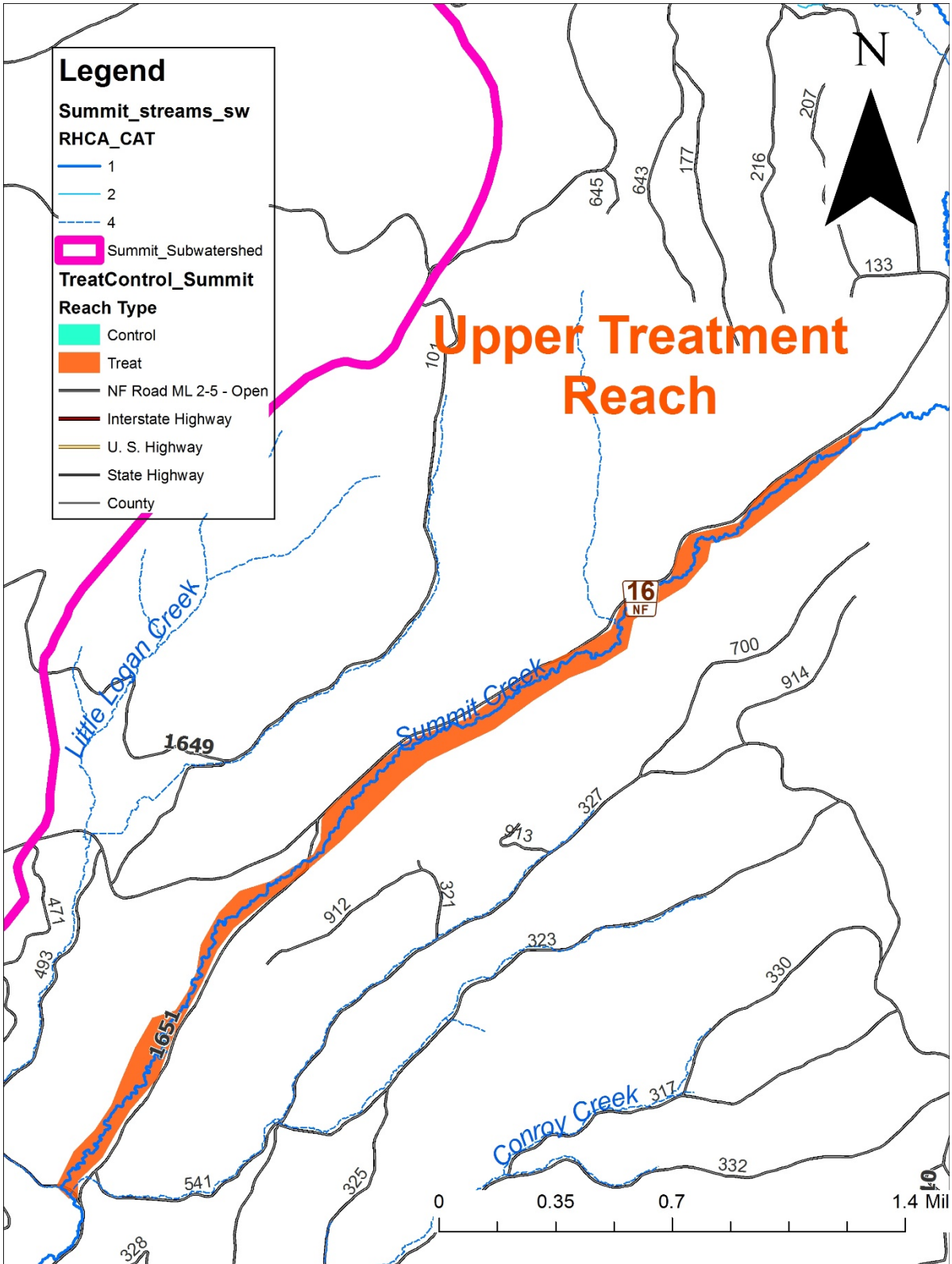


Figure 4. The control reach of Summit Creek where monitoring will be conducted but no restoration actions are being considered.

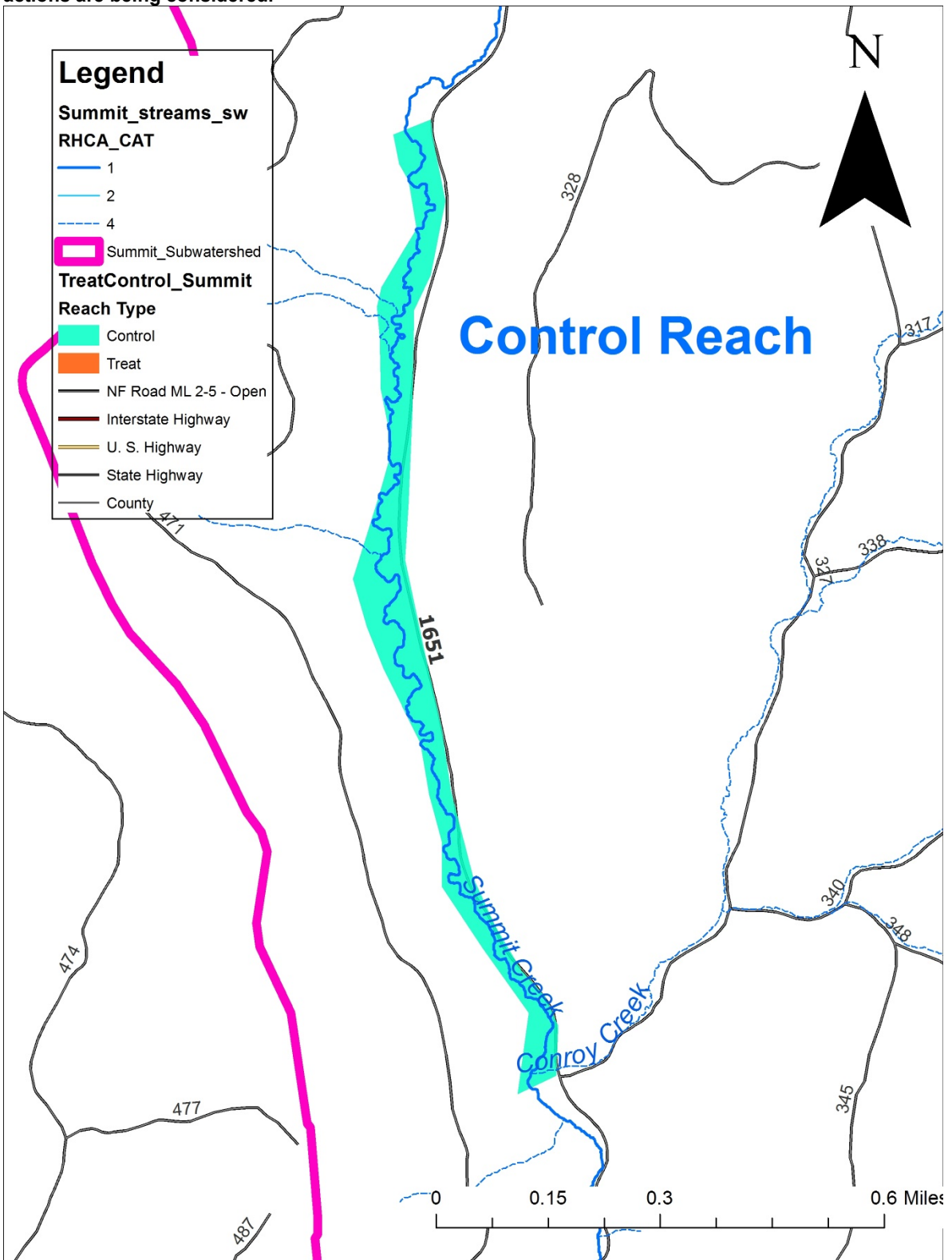
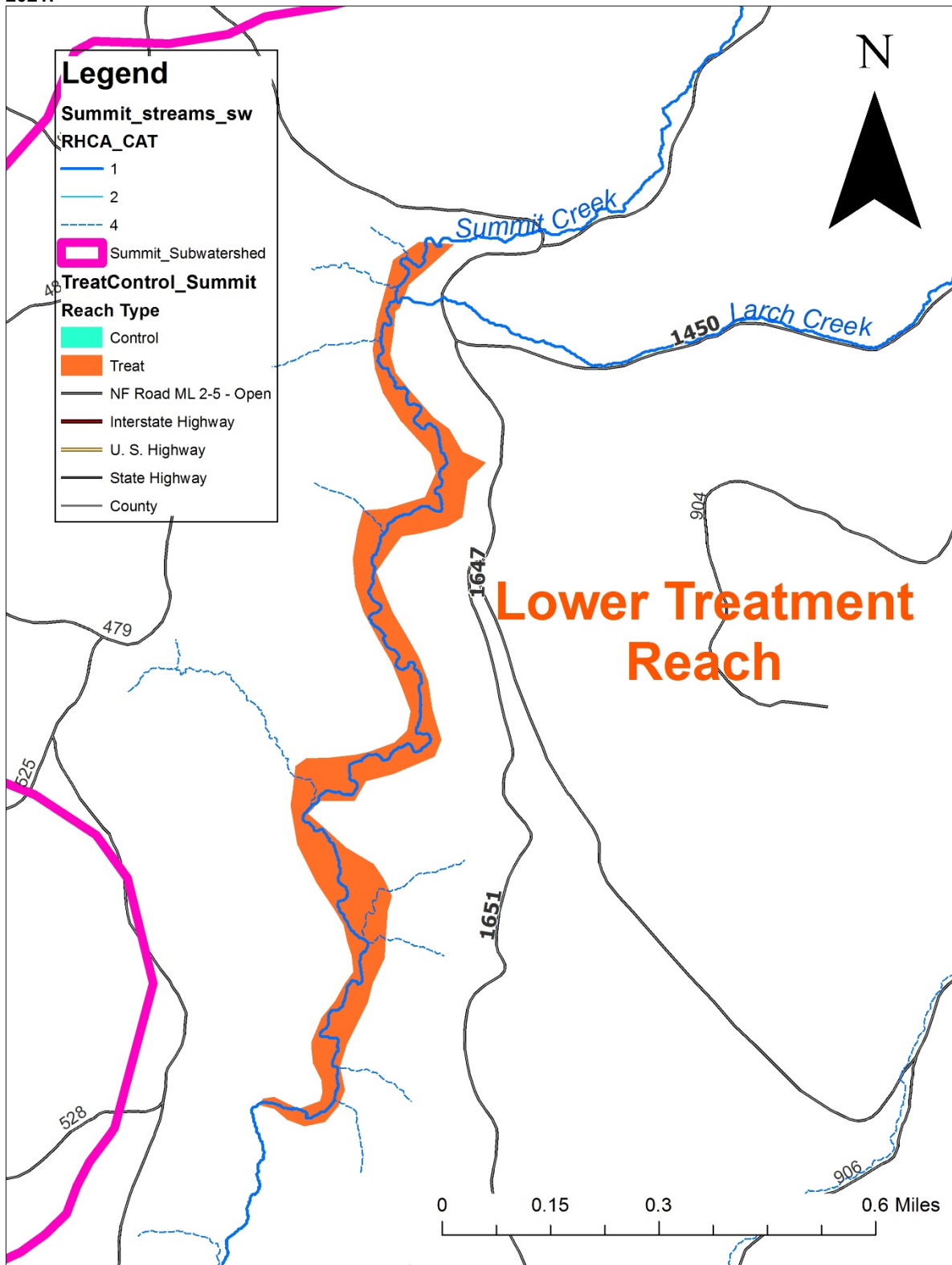


Figure 5. The lower treatment reach of Summit Creek where Stage Zero restoration is planned for 2021.



Implementation Plan:

Existing Conditions: The three reaches of Summit Creek listed in this implementation plan are critical habitat for bull trout (*Salvelinus confluentus*). They are also home to redband trout (*Oncorhynchus mykiss*), a management indicator species for the Malheur National Forest. These reaches have been deemed impaired by Prairie City Ranger District Aquatics specialists on the ground due to large sections of incised, single-thread channel, inadequate riparian vegetation and cover, and limited groundwater storage. Two sections have been targeted for Stage Zero restoration due to their relatively low gradients, unconfined floodplains, and historic wet meadow features.

There are currently no monitoring sites on Summit Creek that could provide data on groundwater levels prior to Stage Zero implementation. By comparing data collected within both treated and untreated sections of Summit Creek to determine the impact of Stage Zero restoration on groundwater storage and recharge.

Desired Conditions: The desired effect of this project is to amass crucial before-and-after data within all three reaches of Summit Creek to demonstrate the impacts of Stage Zero restoration on groundwater storage. Data collected within the two treatment reaches is expected to show significant increases in groundwater elevations throughout the floodplains following restoration actions. Data collected at the control reach sites would likely show far less change in groundwater levels, with possible indirect benefits resulting from improved storage upstream.

Coupled with existing, long term stream temperature data gathered on Summit Creek above and below the project areas, these groundwater-monitoring sites would provide empirical evidence to support future Stage Zero projects on the forest.

Implementation Plan: Within each of the reaches (two treatments and one control), two to four shallow groundwater-monitoring wells will be installed at various points along the Summit Creek floodplain, including relic flow paths and areas currently above bankfull. Exact locations of the wells within the identified reaches are not yet determined. The likely configuration for well sites is described below:

- Wells would be installed along transect lines that span the valley bottom (from toe-slope to toe-slope)
- Along a transect line, 1-2 wells would be installed on each side of the primary stream channel
- There would be 1-2 transect lines per reach

Note- transect lines would be selected by aquatics specialists, using areas to protect (ATP) and other information provided by the IDT to ensure no resource damage occurs.

All avoidance areas identified by Botany, Heritage, etc. would be avoided. Well installation would not occur within one-quarter mile of the Forest Service boundary, though the adjacent landowner will be contacted to discuss future project work (Stage Zero restoration) expected to occur within this area. Prairie City Aquatics staff will work with the Forest Land Surveyor to ensure that the property boundary is properly delineated and complies with current FS policy.

Wells will be installed by driving 2-inch sand point well heads to a depth of approximately 3 meters. Equipment including, or similar to, hydraulic post-pounders may be used along with hand

tools (e.g. sharpshooter shovels) to install the wells. A UTV or other means of relatively low-impact ground transport may also be used to shuttle supplies to the well sites. Site of disturbance at each well is very small (less than one square foot per site). Impacts would be isolated to the well locations.

Project Objectives: Data collected prior to Stage Zero work will provide an understanding of existing groundwater level conditions within the two treatment reaches and one control reach on Summit Creek. Following implementation on the two treatment reaches, data collected from these sites will be used to demonstrate the immediate and lasting impacts of Stage Zero restoration on local groundwater storage. Data from the control reach sites will be used to compare groundwater storage within untreated areas, as well as to show the indirect impacts of restoration on areas downstream.

This project will move streams and riparian areas towards desired conditions in the following ways:

- Wells will provide existing-condition groundwater data within three reaches of Summit Creek
- Data collected after restoration will be used to determine the scale and extent of Stage Zero implementation on groundwater storage within treated reaches
- Data associated with this project will be used to justify future Stage Zero projects on the forest and provide empirical evidence of how Prairie City Ranger District Aquatics projects are meeting management objectives

Table 3. Description of Summit Creek reaches in which wells will be installed

Reach Name	Reach Location Description	2020 Work	Future Work
Upper Treatment Reach	South end of Summit Prairie private/Forest Service property boundary TO Confluence with Little Logan Creek	Installation of 2-4 shallow groundwater-monitoring test wells within floodplain of reach.	Stage Zero restoration. Monitoring of wells to determine restoration impact.
Control Reach	Downstream of Little Logan confluence TO Conroy Creek confluence	Installation of 2-4 shallow groundwater-monitoring test wells within floodplain of reach.	No restoration. Monitoring of wells to compare with groundwater data collected in treated reaches.
Lower Treatment Reach	1651 Bridge TO Canyon reach above Malheur River Confluence	Installation of 2-4 shallow groundwater-monitoring test wells within floodplain of reach.	Stage Zero restoration. Monitoring of wells to determine restoration impact.

Appendices to the Aquatic Restoration EA Implementation Description

Project Title: Summit Creek Groundwater Monitoring

Project Number: 0402-2020

Category 17 – Fisheries, Hydrology, Geomorphology, Wildlife, Botany, and Cultural Surveys in Support of Aquatic Restoration

The following information will guide actions for this project that is taking place within the bounds of the Decision Notice for the 2014 Malheur National Forest Aquatic Restoration Environmental Analysis to maintain that all conservation measures, guidelines and project design criteria (PDCs) are met under this guiding document.

Program Administration:

1. Integration of project design criteria and conservation measures and terms and conditions into project design and contract language
 - a. This document is to outline the conservation measures and PDCs that will be used during project implementation to remain compliant with the aquatic restoration Biological Assessment, as well as ARBO II.
2. Project notification: The following information will be provided to the National Marine Fisheries Services (NMFS) Level 1 Aquatics members 30 days prior to implementation as a Project Notification Form 7.
 - a. Action identifier- 0402-2020
 - b. Project name- Summit Creek Groundwater Monitoring
 - c. Location-

Project	Summit Creek Groundwater Monitoring
Stream Name	Summit Creek
Subwatersheds	170501160104 – Summit Creek
TR Locations	T.16S., R.34E., 30, 19, 18, 17, 9 and 10 T.17S., R.34E., 6 and 7
USGS Quads	Logan Valley East (B544118) and Dollar Basin (A544118)

- d. Agency contact- *Jeff Nelson - jeffrey.nelson@usda.gov*
- e. Timing- *Implementation will take place in Fall 2020. No in-stream work window timing restrictions are applicable.*
- f. Activity category-
Category 17 -- Fisheries, Hydrology, Geomorphology, Wildlife, Botany, and Cultural Surveys in Support of Aquatic Restoration
- g. Project description- *installation of shallow groundwater-monitoring wells within 3 reaches (2 treated, 1 control) of Summit Creek*
- h. Extent- *2-4 wells will be installed per treatment area (See Table 1)*
- i. Species affected-
 - i. Listed species: *bull trout (Salvelinus confluentus)*
 - ii. Critical Habitat: *bull trout*
 - iii. MIS Species: *redband trout (Oncorhynchus mykiss)*
- j. Date of submittal- *To be completed in 2020, at least 30 days prior to implementation*

- k. Site assessments- *Assessment for contaminants will not be required on this project*
 - l. Review- NMFS fish passage review and Restoration Review Team review *are not required.*
 - m. Verification-
 - n. SOD project notification-
3. Minor Variance: No variances from the criteria specified in the aquatic restoration document are being considered.
 4. NMFS Fish Passage Review and Approval: This will occur on a project by project basis as required.
 5. Restoration Review Team: This work does not require review by the restoration review team.
 6. Project Completion Report: To be completed after implementation. This project will be completed within three years of implementation initiation.
 7. Annual Program Report: annual reporting will occur in the winter of the fiscal year after work was done before February 15th and occur annually until project completion.

General Aquatic Conservation Measures

1. Technical Skill and Planning Requirements:
 - a. An appropriately qualified fisheries biologist or hydrologist will be involved in the design of this project.
 - b. The scope of this project is limited in both space and context. Field evaluations and site-specific surveys will require little work. Appropriate time will be allotted for these actions, prior to implementation. Planning and design will involve appropriate expertise.
 - c. The assigned fisheries biologist or hydrologist will make sure that any applicable conservation measures and project design criteria are met through the contracting process.
2. Climate Change: Although individual activities only affect small areas of the watershed, the impacts of this work will improve resistance and resilience of the system and biota to climate change through cold-water storage, enhanced biodiversity and improved habitat.
3. In-Water Work Period: In-stream activities will occur between July 15th and August 15th, and work occurring outside the high flow elevation can occur outside of this window.
4. Fish passage: Fish passage will be addressed on a case-by-case basis depending on the actions within a specific checklist.
5. Site Assessment for Contaminants: In developed or previously developed sites, such as areas with past dredge mines, or sites with known or suspected contamination, a site assessment for contaminants will be conducted on projects that involve excavation of greater than 20 cubic yards of material. The action agencies will complete a site assessment to identify the type, quantity, and extent of any potential contamination. The level of detail and resources committed to such an assessment will be commensurate with the level and type of past or current development at the site. The assessment may include the following:
 - a. Review of readily available records, such as former site use, building plans, records of any prior contamination events.
 - b. Site visit to observe the areas used for various industrial processes and the condition of the property.
 - c. Interviews with knowledgeable people, such as site owners, operators, occupants, neighbors, local government officials, etc.

- d. Report that
- 6. Pollution and Erosion Control Measures: Implement the following pollution and erosion control measures:
 - a. Project Contact: Identify a project contact (name, phone number, an address) that will be responsible for implementing pollution and erosion control measures.
 - b. List and describe any hazardous material that would be used at the project site, including procedures for inventory, storage, handling, and monitoring; notification procedures; specific clean-up and disposal instructions for different products available on the site; proposed methods for disposal of spilled material; and employee training for spill containment.
 - c. Temporarily store any waste liquids generated at the staging areas under cover on an impervious surface, such as tarpaulins, until such time they can be properly transported to and treated at an approved facility for treatment of hazardous materials.
 - d. Procedures based on best management practices to confine, remove, and dispose of construction waste, including every type of debris, discharge water, concrete, cement, grout, washout facility, welding slag, petroleum product, or other hazardous materials generated, used, or stored on-site.
 - e. Procedures to contain and control a spill of any hazardous material generated, used or stored on-site, including notification of proper authorities. Ensure that materials for emergency erosion and hazardous materials control are onsite (e.g., silt fence, straw bales, oil-absorbing floating boom whenever surface water is present).
 - f. Best management practices to confine vegetation and soil disturbance to the minimum area, and minimum length of time, as necessary to complete the action, and otherwise prevent or minimize erosion associated with the action area.
 - g. No uncured concrete or form materials will be allowed to enter the active stream channel.
 - h. Steps to cease work under high flows, except for efforts to avoid or minimize resource damage.
- 7. Site Preparation
 - a. Flagging sensitive areas –Prior to construction, clearly mark critical riparian vegetation areas, wetlands, and other sensitive sites to minimize ground disturbance.
 - b. Staging area –Establish staging areas for storage of vehicles, equipment, and fuels to minimize erosion into or contamination of streams and floodplains.
 - i. No Topographical Restrictions –place staging area 150 feet or more from any natural water body or wetland in areas where topography does not restrict such a distance.
 - ii. Topographical Restrictions –place staging area away from any natural water body or wetland to the greatest extent possible in areas with high topographical restriction, such as constricted valley types.
 - c. Temporary erosion controls –Place sediment barriers prior to construction around sites where significant levels of erosion may enter the stream directly or through road ditches. Temporary erosion controls will be in place before any significant alteration of the action site and will be removed once the site has been stabilized following construction activities.
 - d. Stockpile materials –Minimize clearing and grubbing activities when preparing staging, project, and or stockpile areas. Any large wood, topsoil, and native channel material displaced by construction will be stockpiled for use during site restoration. Materials used for implementation of aquatic restoration categories

(e.g., large wood, boulders, fencing material) may be staged within the 100-year floodplain.

- e. Hazard trees –Where appropriate, include hazard tree removal (amount and type) in project design. Fell hazard trees when they pose a safety risk. If possible, fell hazard trees within riparian areas towards a stream. Keep felled trees on site when needed to meet coarse large wood objectives.

8. Heavy Equipment Use

- a. Choice of equipment – Heavy equipment will be commensurate with the project and operated in a manner that minimizes adverse effects to the environment (e.g., minimally-sized, low pressure tires, minimal hard turn paths for tracked vehicles, temporary mats or plates within wet areas or sensitive soils).
- b. Fueling and cleaning and inspection for petroleum products and invasive weeds
 - i. All equipment used for instream work will be cleaned for petroleum accumulations, dirt, plant material (to prevent the spread of noxious weeds), and leaks repaired prior to entering the project area. Such equipment includes large machinery, stationary power equipment (e.g., generators, canes), and gas-powered equipment with tanks larger than five gallons.
 - ii. Store and fuel equipment in staging areas after daily use.
 - iii. Inspect daily for fluid leaks before leaving the vehicle staging area for operation.
 - iv. Thoroughly clean equipment before operation below ordinary high water or within 50 feet of any natural water body or areas that drain directly to streams or wetlands and as often as necessary during operation to remain grease free.
- c. Temporary access roads – Existing roadways will be used whenever possible. Minimize the number of temporary access roads and travel paths to lessen soil disturbance and compaction and impacts to vegetation. Temporary access roads will not be built on slopes where grade, soil, or other features suggest a likelihood of excessive erosion or failure. When necessary, temporary access roads will be obliterated or revegetated. Temporary roads in wet or flooded areas will be restored by the end of the applicable in-water work period. Construction of new permanent roads is not permitted.
- d. Stream crossings – Minimize number and length of stream crossings. Such crossings will be at right angles and avoid potential spawning areas to the greatest extent possible. Stream crossings shall not increase the risk of channel re-routing at low and high-water conditions. After project completion, temporary stream.
- e. Work from top of bank – To the extent feasible, heavy equipment will work from the top of the bank, unless work instream would result in less damage to the aquatic ecosystem.
- f. Timely completion – Minimize time in which heavy equipment is in stream channels, riparian areas, and wetlands. Complete earthwork (including drilling, excavation, dredging, filling and compacting) as quickly as possible. During excavation, stockpile native streambed materials above the bankfull elevation, where it cannot reenter the stream, for later use.

9. Site Restoration

- a. Initiate rehabilitation – Upon project completion, rehabilitate all disturbed areas in a manner that results in similar or better than pre-work conditions through removal of project related waste, spreading of stockpiled materials (soil, large wood, trees, etc.) seeding, or planting with local native seed mixes or plants.

- b. Short-term stabilization – Measures may include the use of non-native sterile seed mix (when native seeds are not available), weed-free certified straw, jute matting, and other similar techniques. Short-term stabilization measures will be maintained until permanent erosion control measures are effective. Stabilization measures will be instigated within three days of construction completion.
- c. Revegetation – Replant each area requiring revegetation prior to or at the beginning of the first growing season following construction. Achieve reestablishment of vegetation in disturbed areas to at least 70 percent of pre-project levels within three years. Use an appropriate mix of species that will achieve establishment and erosion control objectives, preferably forb, grass, shrub, or tree species native to the project area or region and appropriate to the site. Barriers will be installed as necessary to prevent access to revegetated sites by livestock or unauthorized persons.
- d. Planting manuals – All riparian plantings shall follow Forest Service direction described in the Regional letter to Units, Use of Native and Nonnative Plants on National Forests and Grasslands May 2006 (Final Draft), and or BLM Instruction Memorandum No. OR-2001-014, Policy on the Use of Native Species Plant Material.
- e. Decompact soils – Decompact soil by scarifying the soil surface of roads and paths, stream crossings, staging, and stockpile areas so that seeds and plantings can root.

10. Monitoring

Monitoring will be conducted by Action Agency staff, as appropriate for that project, during and after a project to track effects and compliance with this opinion.

- a. Implementation
 - i. Visually monitor during project implementation to ensure effects are not greater (amount, extent) than anticipated and to contact Level 1 representatives if problems arise.
 - ii. Fix any problems that arise during project implementation.
 - iii. Regular biologist/hydrologist coordination if biologist/hydrologist is not always on site to ensure contractor is following all stipulations.
- b. 401 Certification – To minimize short-term degradation to water quality during project implementation, follow current 401 Certification provisions of the Federal Clean Water Act for maintenance or water quality standards described by the following: Oregon Department of Environmental Quality (Oregon BLM, Forest Service, and BIA); Washington Department of Ecology (Washington BLM); and the Memorandum of Understanding between the Washington Department of Fish and Wildlife and Forest Service regarding Hydraulic Projects Conducted by Forest Service, Pacific Northwest Region (WDFW and USDA-Forest Service 2012); California, Idaho, or Nevada 401 Certification protocols (BLM and Forest Service).
- c. Post project – A post-project review shall be conducted after winter and spring high flows.
 - i. For each project, conduct a walk through/visual observation to determine if there are post-project affects that were not considered during consultation. For fish passage and revegetation projects, monitor in the following manner:
 - ii. Fish Passage Projects – Note any problems with channel scour or bedload deposition, substrate, discontinuous flow, vegetation establishment, or invasive plant infestation.

- iii. Revegetation – For all plant treatment projects, including site restoration, monitor for and remove invasive plants until native plants become established.
 - iv. In cases where remedial action is required, such actions are permitted without additional consultation if they use relevant PDC and aquatic conservation measures and the effects of the action categories are not exceeded.
- 11. Work Area Isolation, Surface Water Withdrawals, and 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.
 - a. Isolate capture area – Install block nets at up and downstream locations outside of the construction zone 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 daily to ensure they are secured to the banks and free of organic accumulation and to minimize fish predation in the trap.
 - b. 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 in the best manner to minimize potential stranding and stress by seine or dip nets as the area is slowly dewatered, baited minnow traps placed overnight, or electrofishing (if other options are ineffective). 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, 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.
 - c. 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’s electrofishing guidelines will be followed (NMFS 2000).
 - i. 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.
 - ii. If fish are observed spawning during the in-water work period, electrofishing shall not be conducted in the vicinity of spawning fish or active redds.
 - iii. Only Direct Current (DC) or Pulsed Direct Current shall be used.

- iv. Conductivity less than 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.
 - v. 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.
 - vi. 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 above (PDC 20b). Dark bands on the fish indicate injury, suggesting a reduction in voltage and pulse width and longer recovery time.
 - vi. 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.
- d. Dewater construction site –When dewatering is necessary to protect species or critical habitat, divert flow around the construction site with a coffer dam (built with non-erosive materials), taking care to not dewater downstream channels during dewatering. Pass flow and fish downstream with 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. If ESA listed-fish may be present and pumps are required to dewater, the intake must have a fish screen(s) and be operated in accordance with NMFS fish screen criteria described below (in part e.iv) of this section. Dissipate flow energy at the bypass outflow to prevent damage to riparian vegetation or 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. 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.
- e. Surface water withdrawals
- i. Surface water may be diverted to meet construction needs, but only if developed sources are unavailable or inadequate. Where ESA-listed fish may be present, diversions may not exceed 10 percent of the available flow and fish screen(s) will be installed, operated, and maintained according to NMFS's fish screen criteria (NMFS 2011e).
 - ii. For the dewatering of a work site to remove or install culverts, bridge abutments etc., if ESA-listed fish may be present, a fish screen that meets criteria specified by NMFS (2011e) must be used on the intake to avoid juvenile fish entrainment. If ESA-listed salmon, steelhead, eulachon, or green sturgeon may be present, the Action Agencies will ensure that the fish screen design is reviewed and approved by NMFS for consistency with NMFS (2011e) criteria if the diversion (gravity or pump) is at a rate greater than 3 cubic feet per second (cfs). NMFS approved fish screens have 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

inches) in the narrow dimension, or any other shape that is no larger than 1.75 mm (0.069 inches) in the narrow dimension.

- f. 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 release of suspended sediment. Monitor downstream during re-watering to prevent stranding of aquatic organisms below the construction site.

Project Design Criteria by Resource

Fisheries and Hydrology

Fisheries and Hydrology resources will follow all mitigation measures and project design criteria for aquatic restoration activities as shown in the ‘Aquatic Restoration Project Categories, Program Administration, General Aquatic Conservation Measures, and Project Design Criteria for Aquatic Restoration Activity Categories on the Malheur National Forest.’

Additional Aquatic project design criteria were developed for the following elements: Tree Tipping and Felling, Juniper Treatments, Tree Hauling, and Prescribed Burning.

General for Inside Riparian Habitat Conservation Areas

All snags will be maintained within the riparian habitat conservation area unless deemed a hazard to the restoration activity.

Tree Tipping and Tree Felling for Large Wood Projects

Source trees being extracted (either by tipping and or falling) as part of this project for instream restoration will not be harvested from within the primary shade zone.

Table 4. Primary shade zone width slope distance (feet), based on adjacent hill slope (percent)

Hill Slope less than 30%	Hill Slope 30% to 60%	Hill Slope greater than 30%
50 feet	55 feet	60 feet

The Temperature Implementation Strategies allow the distances in the above table to be less (but not less than 25 feet) if any of the following conditions applies:

- The trees are located on a south facing slope (175-185-degree azimuth) and therefore do not provide stream shade;
- An appropriate level of analysis is completed and documented, such as shade modeling, using site-specific characteristics to determine the primary shade tree width; and or
- Field monitoring or measurements are completed to determine the width where optimum Angular Canopy Density (65 percent or greater) is achieved (see Total Maximum Daily Load Implementation Strategies if applicable).
- If trees are being felled for safety reasons they can be felled towards the stream.
- Source trees should come from but are not limited to: over or fully stocked upland and riparian stands, hazard trees, trees generated from administrative sites (maintenance, expansion, or new construction), and hardwood restoration.

There is no diameter at breast height restriction for large wood, but consider the following before removing and placing trees:

Diameter

The key to establishing a logjam is utilizing larger diameter wood that resists decay. These pieces of wood are often called “key pieces,” and serve as the anchors for the logjam structure. Wood can improve fish habitat only if the wood is large enough to stay, influence flow patterns, and sediment sorting. Larger diameter wood retains its size longer as abrasion and decay occurs over the years. Larger diameter wood is more effective in creating pools and complex channels that improve fish populations. The minimum diameter required for a key piece of wood depends on the bankfull width of the stream is found in the following table.

Table 5. Bankfull widths and minimum diameter of logs to be considered key pieces

Bankfull Width* - Feet	Minimum Diameter* - Inches
0 to 10	10
10 to 20	16
20 to 30	18
Over 30	22

*This table was taken from '1995 A Guide to Placement of Large Wood in Streams.

Length

- The length of the wood is also important to stability. To be considered a key piece a log with a rootwad still attached should be at least one and one-half times (1.5X) the bankfull or a log without a rootwad should be twice (2X) the length of the stream’s bankfull width. As the best fish habitat is formed around jams composed of three to seven logs, at least two key pieces should be used at each structure.
- Mimic natural accumulations of large woody debris based on stream type, valley setting, and community type and ensure future large woody debris recruitment.
- Tailholds as part of tree tipping operations are permitted across perennial, intermittent and ephemeral streams but the use of protective straps will be required to prevent tree damage.

Juniper Treatments

The majority of the juniper treatment areas would be within the riparian habitat conservation areas and adjoining uplands. For each area evaluated for juniper treatments, interdisciplinary teams would discuss the following questions in order to identify the attributes of an area and select the appropriate treatments:

- What kind of site (potential natural vegetation, soils)?
- Successional state of site?
- Components that need to be restored?
- How units may fit into the overall landscape mosaic?
- Long-term goals and objectives?

Utilize the “Western Juniper Field Guide: Asking the Right Questions to Select the Appropriate Management Actions. (Bates et al. 2007, Circular 1321) (<http://pubs.usgs.gov/circ/1321/pdf/circ1321.pdf>)

Tree and Boulder Hauling

- Apply mitigation and best management practices for dust abatement (water, lignosulfonate, Calcium and Magnesium Chlorides) dry conditions, and erosion control as directed by physical scientist or road engineer (See Road Maintenance project design criteria #6 for application).
 - Haul on gravel and native-surface roads will be limited to dry conditions.

Haul Restrictions to Prevent Fine Sediment Delivery to Streams:

Haul or maintenance is permitted on roads under the following conditions:

- During haul, weather conditions are monitored daily for the chance of precipitation by the Hydrologist or Fish Biologist.
- No rutting of the road surface is occurring, indicating the subsurface is wet.
- Frozen ground conditions.
- Haul will cease at any time when the travelway of the road is wet and turbid water or fines are observed moving off the road surface to ditchlines that deliver to stream channels regardless of time of year.

Roads Exempt from Haul Restrictions include (Do to no mechanism for sediment delivery):

- Paved roads
- Surfaced Ridge top roads
- Surfaced outsloped roads with no ditch or stream crossings

Prescribed Burning and Related Activities:

- Mechanical piling and burning of large piles will be restricted to existing roads and landings.
- Include all relevant project design criteria in Silviculture prescriptions and burn plan objectives for all fuel treatment activities within riparian habitat conservation areas.
- Use all available fuel treatments and preparation activities as necessary (e.g. multiple entries, slash pull-back; modified ignition methods, locations, timing, and sequence; thinning of small green trees; pruning of green trees and snags, prescribed fire, fire suppression, jack pot burning, etc.) to achieve the specific PDC. Suppression should be used only as a last resort to achieve other PDC.

For perennial and fish-bearing stream channels:

- Avoid removing trees along stream banks (e.g. don't cause bank instability or increase erosion)
- Within 100 feet of the stream channel backing fire is preferred.
- Within primary shade zone retain 100 percent of the over-story canopy closure with the exception of hardwood treatment.
- For intermittent, non-fish-bearing stream channels:

- Within 50 feet of the stream channel backing fire is preferred.
- For the maintenance and use of water sources and draft sites:
 - Minimize disturbance of existing riparian vegetation to the greatest extent practical; in particular, maintain shade, bank stability, and large woody material recruitment potential.
 - Use sediment control measures such as straw bales, filter cloth, or sediment fences when conditions warrant.
 - Maximize maintenance activities during late summer and early fall to best avoid wet conditions.
 - Do not pump from streams that do not have continuous surface flow. When pumping water in all situations from streams, ensure that at least one-half of the original streamflow remains below the pump site.
 - Refuel power equipment, or use absorbent pads for immobile equipment, and prepare concrete at least 150 feet (or as far as possible from the water body where local site conditions do not allow a 150-foot setback) from water bodies to prevent direct delivery of contaminants into associated water bodies.
 - Fisheries, hydrology or other qualified personnel must work with engineering/fire personnel to review proposed activities to minimize potential effects to fish, stream channel conditions, and water quality.
 - Use and develop off-channel ponds outside of stream channels where feasible and appropriate. Work with fire folks to prioritize and decommission unnecessary in-stream drafting sites.
 - Water withdrawal equipment must have a fish screen installed, operated and maintained in accordance to NOAA Fisheries guidelines.

Wildlife

Threatened, Endangered or Sensitive Species

- If wolves become established (denning) while project implementation is occurring, measures will be taken to avoid activity in that vicinity
- If any evidence of wolverines is discovered during project implementation, measures will be taken to provide protection. If a den is found we would protect it from human disturbance.

Raptors

- No activities will occur within currently known goshawk or other raptor nest stands. To conserve nesting habitat and to minimize disturbance to nesting individuals, restrictions would be executed according to the requirements of the species involved.
- With all newly discovered raptor nests, a buffer zone would be established by the wildlife biologist to restrict activities near the nest area during occupancy.
- Where possible, retain trees with inactive nests that may be important to secondary nesters (e.g. Great Gray Owl).

- Any snags in riparian areas or uplands will be protected from disturbance, removal, or use in stream restoration activities unless deemed a safety hazard at a specific work site.

Big Game

- Within big game winter range, a wildlife biologist will be consulted between December 1 and April 1 to determine if activities should be restricted for big game needs.

Botany

Note: Pre-implementation planning project design criteria are identified.

Rare and Sensitive Plants and Habitats

- ***Pre-Implementation:*** Proposed restoration projects shall be completely surveyed early in the implementation planning process by a qualified botanist or rare plant technician, to identify and assess any sensitive or rare plant populations or habitats.
- ***Pre-Implementation:*** Proposed restoration projects shall develop restoration plans for degraded sensitive species habitats and/or mitigation plans in areas where sensitive plant populations are documented. This shall be accomplished by a journey-level Forest Service botanist in collaboration with the interdisciplinary team and other stakeholders.
- Heavy equipment, vehicle operation, road construction, staging areas, stockpile areas, piling of slash, fence construction, recreation sites, prescribed fires, fire lines, and other operational activities shall not be allowed in any documented sensitive plant sites unless it is for the demonstrated benefit or protection of the site. All sensitive plant populations should be buffered 100 feet from all operational activities where topography does not restrict such a distance. Sensitive plant sites and associated buffers shall be identified as Areas to Protect (ATPs).

Sensitive and Unique Habitats

- The integrity of unique habitats shall be maintained. Unique habitats [may] include meadows, rimrock, talus slopes, cliffs, animal dens, wallows, bogs [fens], seeps and springs. This shall be accomplished by incorporating cover buffers approximately 100 feet in width.
- Heavy equipment, vehicle operation, road construction, staging areas, stockpile areas, piling of slash, fence construction, recreation sites, prescribed fires, fire lines, and other operational activities shall not occur within, or at the interface of lithosols (scablands).
- Cutting of old-growth juniper shall be prohibited. Old-growth characteristics include: sparse limbs, dead limbed or spiked-tops, deeply furrowed and fibrous bark, branches covered with bright-green arboreal lichens, noticeable decay of cambium layer at base of tree, and limited terminal leader growth in upper branches.

Groundwater-Dependent Ecosystems

- The integrity of groundwater-dependent ecosystems (GDE) shall be maintained. Spring developments shall not dewater GDEs. Spring developments shall not be allowed if the spring is occupied by rare or sensitive plant species, or in peatlands, fens, or where historic soils are present. These sites should be buffered 100 feet from all operational activities

where topography does not restrict such a distance, and be identified as areas to protect (ATPs).

- Heavy equipment, vehicle operation, road construction, staging areas, stockpile areas, piling of slash, fence construction, fire lines, and other operational activities shall not be allowed in springs, seeps, or any other GDE, unless it is for the benefit or protection of the GDE or development of the spring.
- Spring developments should not disturb the spring orifice (point where water emerges). Spring head boxes should be placed in a location that will cause the least amount of disturbance to the soils and vegetation of the GDE. Preferable locations for spring head boxes should be in an established channel downstream from the orifice or a location where flowing water becomes subsurface.
- When necessary, construct fenced enclosures around spring developments to prevent damage from wild ungulates and livestock.
- Spring developments shall have a return flow system to minimize the diversion of surface and subsurface water from the catchment area. Consider using a float valve or similar device to reduce the amount of water withdrawn from the GDE.
- When developing springs, place troughs far enough away from GDEs, wetlands, and other sensitive or unique habitats to prevent erosion, compaction, or degradation to sensitive soils and vegetation due to livestock congregation.

Invasive Plant Species

- ***Pre-Implementation:*** Proposed restoration projects shall be surveyed for invasive plants early in the implementation planning process by a qualified invasive plant specialist /technician, to identify and assess any undocumented invasive plant infestation.
- ***Pre-Implementation:*** For project areas that overlap or are adjacent to invasive plant infestations, assure that there is sufficient time prior to develop a long-term site strategy for control, eradication, and revegetation of the site. This shall be accomplished by a qualified invasive plant specialist in collaboration with the interdisciplinary team and other stakeholders.
- All activities shall be conducted in a manner as to minimize or prevent the potential spread or establishment of invasive species.
- Actions conducted on National Forest System Lands that will operate outside the limits of the road prism, require the cleaning of all heavy equipment (bulldozers, skidders, graders, backhoes, dump trucks, etc.) prior to entering the National Forest. Cleaning will be inspected and approved by the forest officer in charge of administering the project.
- Assure that all materials are weed-free. Use weed-free straw and mulch for all projects conducted or authorized by the Forest Service on National Forest System Lands. If State certified straw and/or mulch is not available, individual Forests should require sources certified to be weed-free using the North American Weed Free Forage Program standards or a similar certification process.
- Inspect active gravel, fill, sand stockpiles, quarry sites, and borrow material for invasive plants before use and transport. Treat or require treatment of infested sources before any use of pit material. Use only gravel, fill, sand, and/or rock that are judged to be weed free by District or Forest weed specialists.

- Prohibit heavy equipment operation, vehicle travel, staging areas, fire-control lines, and any other operational activities in invasive plant infestations, unless the activities are for the express purpose of eradicating the infestation or INV1 and INV2 have been completed.
- Conduct post-implementation monitoring for invasive plants. Continue monitoring, treating, and removing invasive plants until all infestations are eradicated and native plant species are well established.

Native Plant Materials and Revegetation

- ***Pre-Implementation:*** Where the need for native plant materials is anticipated, assure that there is sufficient time for the plant materials specialist to develop a native plant materials plan and/or prescription prior to implementation of planned revegetation, rehabilitation, and restoration projects. This may include allowing for enough time to harvest and store hardwood cuttings, produce suitable quantities of native seed, and/or grow-out container stock.
- Locally adapted, genetically appropriate native plant materials are the first choice for use in revegetation, restoration and rehabilitation, where timely natural regeneration of the native plant community is not likely to occur. Use a diverse assemblage of species that have the potential to naturally occur in the project area. Acquire native seed or plant sources as close to the watershed as possible. Examples of areas that may need treatment include: habitat restoration efforts, log decks, staging areas, landing zones, temporary roads, slash piles, culvert replacements, severely burned areas, skid trails, decommissioned roads, invasive species treatments, and other disturbances.
- Non-native, non-invasive plant species may be used in the following situations: (1) when needed in emergency conditions to protect basic resource values (e.g., soil stability, water quality, and to help prevent the establishment of invasive species), (2) as an interim, non-persistent measure designed to aid in the re-establishment of native plants, (3) if native plant materials are not available and/or are not economically feasible, and (4) in permanently altered plant communities.
- Under no circumstances shall non-native invasive plant species and/or noxious weeds be used for revegetation.
- Development, review and/or approval of revegetation, rehabilitation, and restoration prescriptions, including species selection, genetic heritage, growth stage, seed mixes, sowing guidelines, and any needed site preparation, shall be accomplished by a plant materials specialist who is knowledgeable and trained or certified in the plant community type where the revegetation will occur.
- Concentrate plantings above the bank-full elevation. Sedge and rush mats should be placed and sized to prevent their movement during high flow events.
- Newly planted and/or seeded areas should be protected from animals and activities that may prevent, retard, or slow the establishment and recovery of native vegetation. Site-specific measures may include building fences, piling slash, jackstrawing, closing areas to vehicles, and/or temporarily changing grazing regimes until the desired condition is sufficiently achieved.

Soils

- For projects involving heavy machinery off roads, the project proponents shall inspect the site for existing impacts to the soil. If existing impacts appear to be heavy on the Malheur or moderate on the Ochoco, they shall contact a soil scientist, who shall determine what site-specific project design criteria are necessary to meet Forest Plan and Forest Service Manual standards and guidelines. (If a soil scientist is not available, a silviculturist or hydrologist can do the work.) If standards and guidelines cannot be met, heavy machinery shall not be used.
- Erosion would be minimized by following General Aquatic Conservation Measures and by implementing the appropriate project design criteria based on the type of activity (see appendix A).
- Erosion from heavy machinery use would be minimized; by minimizing compaction and puddling, rutting would be minimized.
- For Livestock Stream Crossings and Off-Channel Watering Facilities, out-of-channel erosion would be minimized.
- For Road Erosion Control, erosion would be minimized.
- For Juniper Removal, erosion would be minimized. It is possible that Juniper Removal would increase ground cover within a few years, and thereby reduce erosion.
- Prescribed Fire (including for disposal of slash after Juniper removal) can involve only low and moderate severity fire, and erosion from fire lines would be minimized, so erosion from prescribed fire would not be significant.

Additional Soils PDCs added April 2018

Soil Protection Guidance for Aquatic Restoration Projects Using Heavy Equipment Off-roads

Hersh McNeil, Tom Friedrichsen, & Steve Namitz 3-20-2018

The following are soil protection practices typically used to minimize adverse effects to the environment, in order to meet desired soil conditions (including Forest Plan standards) as well as Project Design Criteria described in the Aquatic Restoration EA.

Avoid heavy machinery travel ("HMT") on slopes steeper than 35 percent, where feasible.
No heavy equipment shall be allowed on highly erodible soil. "Highly erodible soil" generally means areas larger than 50 feet diameter, and either: (1) steeper than 30 percent, with less than 75 percent ground cover, (2) 20-30 percent slope with less than 50 percent ground cover, (3) 10-19 percent slope with less than 25 percent ground cover, or (4) with signs of current erosion, such as pedestaling or rilling.
For tree-tipping or removal for LWD projects ---- On areas where existing skid trails spaced 100 to 140 feet apart can be reused, reuse the old skid trails. Otherwise, space HMT travel ways about 120 feet apart where practical, using existing skid trails where possible and appropriate. Travel ways ("trails") should average less than 14 feet wide.
Low ground pressure equipment (less than 8.5 pounds per square inch [psi]) can be allowed off trails on dry, snow-covered, or frozen soil. For soil protection practices "dry" means July through September, or obviously dry in 6 of the top 10 inches in other months; "snow-covered" means sufficient snow strength and depth to prevent compaction; "frozen" means the soil is frozen at least through the top 4 inches.
Tree tipping trails shall be covered with slash to reduce runoff and erosion.

Fire and Fuels

- Mechanical tools may be necessary to prepare fire control lines for these burns, but would be limited, and typically no heavy equipment would be used. Prescribed burns or wildfires could temporarily affect air quality.
- The project design criteria for both Juniper Removal and Riparian Vegetation Treatment (controlled burning) would be followed. National, state, and local policies regarding prescribed fire implementation will be met.
- Activities that are expected to create smoke emissions would follow the State of Oregon Smoke Management Plan. Prior to burning, approval will be obtained from the Oregon Department of Forestry, who determines compliance with the Clean Air Act. State smoke forecasts, which predict wind direction and smoke mixing height, will be obtained prior to all burning to ensure smoke intrusions will not occur in the local smoke sensitive receptor areas.
- Burning will follow the guidance provided by the Oregon Smoke Management Plan (Directive 1-4-1-601, Operational Guidance for the Oregon Smoke Management Program), which is an agreement between federal land management agencies in northeast Oregon and Oregon Department of Forestry limiting smoke emission amounts. Oregon Department of Forestry monitors activity, and if a limit is reached it will shut down prescribed fire activity.

Heritage Resources

- Compliance with Section 106 of the National Historic Preservation Act for activities authorized under this analysis will be completed and concurred with by the Oregon State Historic Preservation Office before any ground disturbing action takes place. For each potential activity, the District or Zone archaeologist will determine which of the criteria in the 2004 Programmatic Agreement with the Oregon State Historic Preservation Office best fit the particular project. This will vary somewhat project to project based on the scale of the particular activity, the location on the landscape, and the nature of associated cultural resources, if any.
- The District or Zone archaeologist will document their findings on a Programmatic Agreement form with a project description, rationale and location map which will be attached to the Forest Service Heritage Event database. The Forest archaeologist will review and sign off on the Programmatic Review form if concurred with. For appendices A, B and C projects as defined in the 2004 Programmatic Agreement, the Forest will retain the documentation and provide the Oregon State Historic Preservation Office with the annual summary of projects as described in the Preservation Act.
- For full inventories, the District or Zone archaeologist will complete an inventory report meeting current Oregon State Historic Preservation Office standards which will be reviewed by the Forest archaeologist. The Forest archaeologist will forward the completed inventory report to the Oregon State Historic Preservation Office for review and concurrence signature or further discussion as appropriate.
- Consultation with Native American tribes is conducted under the terms of the Memorandums of Understanding the Forest has with each individual tribe. The Forest regularly consults with the Burns Paiute Tribe, the Confederated Tribes of the Umatilla Indian Reservation and the Confederated Tribes of Warm Springs Reservation.

- For work requiring a full inventory under the terms of the 2004 Programmatic Agreement any identified cultural resources sites will generally be avoided. For cases where site avoidance is impractical mitigation procedures will be developed in consultation with the Oregon SHPO before project work begins.
- If any previously unidentified cultural resources are located during project implementation, ground disturbing work will be halted until the resources are evaluated by the District or Zone archaeologist. If the cultural resources are determined to be potentially eligible for listing on the National Register of Historic Places work will either be permanently halted or a mitigation plan will be developed in consultation with the Oregon SHPO before work continues.

Recreation

- Motorized aquatic restoration methods would not be used within Wilderness, Wild portions of Wild and Scenic Rivers, and Inventoried Roadless Areas.
- Mechanized aquatic restoration methods would not be used within Wilderness or Wild portions of Wild and Scenic Rivers.

Grazing

General

- Range and Fire Specialists and permittees would coordinate activities including scheduling of burning activities in grazing units.
- Utilize the Forest Post-Fire Interim Grazing Guidelines to aid in determining when to resume grazing activities.
- Whenever possible, units to be rested would be burned in the spring of the year to be rested or in the fall prior to the rest year.
- If a rest period is required following a burn the permittee has the option to exclude cattle grazing from those portions of a pasture that were burned using fencing and could continue to graze the unburned areas of a unit.

Protection of Government and Permittee Investments

- All existing structural range improvements (fences, gates, spring developments, etc.) and permanent ecological plots would be contractually protected.
- Maintain structural integrity of range improvements.
- If structural improvements are damaged during project operations they would be repaired to Forest Service standards prior to livestock scheduled use by the party responsible for causing the damage. Repairs would be required of the purchaser if damage were done during thinning or fuel treatment contractors or by force account where appropriate.
- Three or more splices to a single wire within 20 feet will be replaced with a single splice.
- Fence right of ways (6 feet either side of fence), trails, other developments and access to them would be cleared of slash produced by project activities.

Aspen Restoration

- New aspen enclosure fences would have gates installed in proper locations to allow for removal of stray livestock. Aspen fences would be maintained each year and repaired whenever necessary. Plans for aspen enclosures will define when restoration of the protected stand has been achieved and who has responsibility for maintenance of the structure. When fences are no longer needed, aspen fences should be removed.
- Alternate livestock water sources to those being used in aspen stands would be developed off-site before fencing aspen or re-evaluate fencing of the aspen site. Coordinate with range specialist and permittee.

Notification

- During planning stage of each individual project all potentially impacted grazing permittees will have notice of action and opportunity to provide input that may lessen impacts to their livestock operation well in advance of implementation.
- Prior to implementation all potentially impacted grazing permittees will be given notice of dates when work will start.

Project Design Criteria by Aquatic Restoration Activity Categories

17. Fisheries, Hydrology, Geomorphology, Wildlife, Botany, and Cultural Surveys in Support of Aquatic Restoration include assessments and monitoring projects that could or are associated with planning, implementation, and monitoring of aquatic restoration projects covered by this opinion. Such support projects may include surveys to document the following aquatic and riparian attributes: fish habitat, hydrology, channel geomorphology, water quality, fish spawning, fish presence¹⁹, macro invertebrates, riparian vegetation, wildlife, and cultural resources (including excavating test pits less than 1 m² in size). This also includes effectiveness monitoring associated with projects implemented under ARBO II, provided the effectiveness monitoring is limited to the same survey techniques described in this section.

- a. Train personnel in survey methods to prevent or minimize disturbance of fish. Contract specifications should include these methods where appropriate.
- b. Avoid impacts to fish redds. When possible, avoid sampling during spawning periods.
- c. Coordinate with other local agencies to prevent redundant surveys.
- d. Locate excavated material from cultural resource test pits away from stream channels. Replace all material in test pits when survey is completed and stabilize the surface.
- e. Does not include research projects that have or should obtain a permit pursuant to section 10(a) of the ESA.