

## ENVIRONMENTAL ASSESSMENT

**EA Number:** OR-104-04-04

**BLM Office:** Swiftwater RA, Roseburg District

**Proposed Action Title:** **Swiftwater Stream Crossing Upgrade Project**

**Location of Proposed Action:** Section 17, T.21S., R.4W.; Sections 15 and 27, T.22S., R.4W.; Section 3, T.25S., R.4W.; and Section 17, T.26S., R.2W.; W.M.

### **Conformance with Applicable Land Use Plan:**

This proposed action is subject to the following land use plan:

Name of Plan: Roseburg District Record of Decision and Resources Management Plan (RMP)

Date Approved: June 2, 1995.

This plan has been reviewed to determine if the proposed action conforms with the land use plan terms and conditions as required by 43 CFR 1610.5.

### **Need for Proposed Action**

Roads that were built in the past, within the Roseburg BLM District were constructed to less stringent standards. Many of these crossings were not designed to facilitate fish passage and effectively blocked access to additional habitat or do not meet the Best Management Practice (RMP, pg. 134) that requires crossings be designed to meet 100 year flood events. In addition, many crossings are at the end of their serviceable life and are failing; posing risk to public safety and potential to introduce sediment into streams and thereby affecting water quality should a failure occur. Due to this need, many crossings are in need of maintenance upgrades or replacement to meet current standards and to remove a risk to safety (See Appendix C).

### **Purpose of Action**

The purpose of the action described in this EA is to upgrade or replace stream crossings in order to reduce potential sedimentation, improve fish passage and open additional stream habitat to salmonids, and remove a risk to public safety. This EA analyzes projects for contract award in fiscal year 2004 through 2005. The following objectives would be met by this action:

1. Reduce or eliminate stream crossings from being a direct source of sedimentation to streams.
2. Provide for unobstructed movement of aquatic fauna.

### **Description of Proposed Action**

Since the majority of the stream crossing culverts was installed in the 1970's and are reaching the end of their serviceable life there has been an ongoing effort in the Swiftwater Field Office in the past ten years to replace culverts rated as being in a poor or critical condition. The Swiftwater Field Office proposes to upgrade or replace six stream crossings in the Elk Creek, Middle North Umpqua, and Upper Calapooya fifth-field watersheds (see maps, Appendix A and B). The Project Design Features listed in Appendix D are included as a part of the proposed action.

**Affected Environment**

The FSEIS describes the affected environment for the Cascades and Coast Range provinces on page 3&4-19 (Cascades) and 3&4-21 (Coast Range). The Roseburg District Proposed Resource Management Plan/Environmental Impact Statement (PRMP/EIS, pp. 3-3 through 3-71) provides a detailed description of BLM administered lands on the Roseburg District. A further description can also be found in the Elk Creek, Calapooya and Middle North Umpqua Watershed Analyses.

**Botany** – There are no known Special Status Plants (SSP) or Survey and Manage plant species in the project areas. Pre-disturbance surveys for Survey and Manage plant species are not required for “Routine maintenance of improvements and existing structures . . .” (USDA / USDI 2001, pg. 22). There are some known localized infestations of Scotch broom, Tansy ragwort, and Himalayan blackberry in all of the project areas. Additionally, there are sizable infestations of Portuguese broom in the vicinity of the proposed project areas on Cox Creek and Curtis Creek.

**Cultural** - No cultural resources were found in the project area.

**Hydrology** - The proposed project is located within the following fifth-field watersheds and sixth-field subwatersheds:

**Table1: Watersheds and Subwatersheds**

<b>Culvert Replacement Location</b>	<b>Watershed</b>	<b>Subwatershed</b>
Cox Creek*	Elk Creek	Upper Elk Creek
Curtis Creek	Elk Creek	Upper Elk Creek
Honey Creek	Middle North Umpqua River	Susan Facial
Long Valley Creek	Calapooya Creek	Middle Calapooya Creek
Ward Creek	Elk Creek	Upper Pass Creek

\*There are two culverts being replaced in the Cox Creek drainage

Only one waterbody in the project area (Ward Creek) is listed on the Oregon Department of Environmental Quality’s 2002 303(d) List of Water Quality Limited Waterbodies. Ward Creek is listed from the mouth to River Mile 3.2 for: (1) excessive summer temperature which impairs the salmonid rearing; and (2) temperature from Sept 15 – May 31 which impairs the salmonid spawning, egg incubation, and fry emergence (ODEQ, 2003 (a) and (b)).

**Fisheries** - There are six fish-bearing streams (Cox Creek and one of its tributaries, Curtis, Honey, Long Valley, and Ward Creek) within the proposed stream crossing upgrade project area. According to the Elk Creek Watershed Analysis (pg. 7-1) Oregon Coast Coho (*Oncorhynchus kisutch*), Oregon Coast Steelhead trout (*O. mykiss*), and Coastal Cutthroat trout (*O. clarki clarki*) are present in the watershed. The Calapooya and Middle North Umpqua Watershed Analysis (pg. 7-1 and 110 respectively), indicate Oregon Coast Coho (*Oncorhynchus kisutch*), Oregon Coast Steelhead trout (*O. mykiss*), Coastal Cutthroat trout (*O. clarki clarki*), Pacific Lamprey (*Lampetra tridentata*), and Oregon Coast Chinook salmon (*Oncorhynchus tshawytscha*) are present in the watershed. Calapooya Watershed analysis also indicates Umpqua chub (*Oregonichthys kalawatseti*) within the watershed. The Oregon Coast Coho has been designated by the Endangered Species Act as a threatened species (Federal Register, Vol. 63, No.153, August 10, 1998, p.42587).

The Oregon Department of Fish and Wildlife (ODFW, 1994) has conducted aquatic habitat surveys in the Middle North Umpqua Fifth-Field Watershed. Habitat data is available for Honey Creek (Reach 2, Section 17, T. 26 S., R. 2 W). Habitat data is not available for Cox, Curtis, Long Valley, and Ward Creek.

**Wildlife** - This project has been reviewed for Federally Threatened and Endangered (T&E) species known to occur in the Roseburg District. No currently suitable Northern spotted owl (*Strix occidentalis caurina*), (NSO), marbled murrelet (*Brachyramphus marmoratus*) (MAMU), or bald eagle (*Haliaeetus leucocephalus*), habitat would be altered by the project. The Honey Creek culvert is within the 0.25 mile disturbance zone of the Honey Creek NSO site. The Honey Creek, Curtis Creek, and Cox Creek culverts are within critical habitat units (CHU-OR-27 and CHU-OR-23) for the NSO. The Ward Creek culvert falls within MAMU Zone 2 (35 - 50 mile zone). There is suitable, unsurveyed MAMU habitat within 0.25 mile of the Ward Creek site. None of the project area falls within MAMU critical habitat or NSO core areas. There are no known bald eagle nests which could be affected by disturbance above ambient noise levels within a mile of any of the culvert upgrades. The remaining T&E species do not occur in the project area. There are no known Survey & Manage (S&M) species sites within the project area. The project area does not meet the protocol requirements to initiate surveys for current S&M species. There are no known sites of Bureau Sensitive or Bureau Assessment species within the project area.

### **Environmental Impacts of the No Action**

The No Action Alternative is required by NEPA and provides a baseline for the comparison of the alternatives. This alternative represents the existing condition. If this alternative were selected there would be no replacement of stream crossing culverts at this time. Impacts associated with the proposed action would not occur; however, crossings would persist in a fair to poor condition with one to ten years of useful life remaining (see Appendix C). They could potentially fail during a future storm event resulting in sediment input to the stream system. Barriers to juvenile salmonids would continue.

### **Environmental Impacts of the Proposed Action**

#### 1. Description of Potential Impacts

Analysis considers the direct impacts (effects caused by the action and occurring at the same place and time), indirect impacts (effects caused by the action but occurring later in time and farther removed in distance) and cumulative impacts (effects of the action when added to other past, present and reasonably foreseeable future actions) on the resource values.

**Botanical** –Surveys for SSP will be conducted in the summer of 2004. If SSP are found as the result of surveys, efforts will be taken to reduce or entirely avoid direct impacts to the population locations. Kincaid’s lupine (*Lupinus sulphureus* var. *kincaidii*) (federally threatened) has been found on District. If it is found in any of the project areas, all impacts would be avoided or formal consultation with the USFWS would be initiated to determine if appropriate mitigations could be applied to avoid a “Jeopardy” determination. Indirect impacts affecting any SSP plant population(s) found in the project area would consist of changes in microclimatic conditions (i.e.

increased solar radiation, soil temperatures, and wind velocities; decreased relative humidity and soil moisture content). The project sites are currently subject to highly fluctuating conditions associated with road prisms and vehicle traffic; it is not anticipated that the proposed projects would greatly change the microclimatic conditions at the project sites if they are implemented or not. Another indirect impact associated with the proposed project is the potential risk of introducing noxious weeds to the project area.

**Hydrology** - Construction activities would result in direct impacts of a small but temporary increase in turbidity due to the introduction of sediment during culvert removal and replacement. Impacts would be short-term and minimized by limiting work to low flow periods and adhering to Best Management Practices (see Fisheries section below for sediment discussion.). An indirect impact would be long-term reduction in the risk of sedimentation resulting from road fill failures. There may be a minimal long-term decrease in stream temperature and increase in bank stability in areas where willows and other riparian hardwoods are planted. No change in large woody debris, pH, dissolved oxygen or other chemical parameters is likely as a result of the proposed action.

**Fisheries** - It's likely that there would be some immediate sedimentation downstream of the projects (direct impact) due to the disturbance at the sites; however, the project design criteria to control sediment as later described would minimize these effects. An additional influx of sediment may occur following the first rain events, but this sedimentation is not expected to significantly disrupt the feeding or reproduction of fish communities. Some riparian vegetation at the project sites would be removed and/or disturbed during construction, but the impacts would be limited to a small area in close proximity to the stream crossings. These effects are expected to have a negligible impact on stream shade, streambank stability, or water quality.

Implementing the proposed actions is expected to improve fish passage through the stream crossings considerably over the existing condition. Culverts and open-bottom structures would provide connectivity for those fish species which have little to no jumping abilities such as sculpin, dace, and lamprey (brook and Pacific species). Allowing fish the opportunity to access their historic habitats would help to ensure maximum habitat usage for the various life history stages. Salmonid species that are currently threatened or proposed would have increased opportunities for reproduction and survival with improved access to smaller tributary streams.

Some minor headward channel degradation (indirect impact) may occur upstream of some of the crossings until the streams reach equilibrium following high water events, however, the channels would eventually establish a more uniform grade and improve conditions for upstream and downstream migration of fish and other aquatic organisms. If necessary, check structures or constructed step-down channels would be incorporated into the stream channel to prevent significant headward erosion. These structures would be installed in order to maintain desirable habitat conditions upstream, such as productive alluvial flats and spawning areas.

Although there would be minor impacts to special status fish species, a Programmatic Biological Opinion was issued from the National Marine Fisheries Service approving projects of the type proposed, due to the long-term benefits to fish and critical habitat. The benefits and effects of the proposed actions on waters and substrates necessary to fish and fish habitat described above also pertain to Essential Fish Habitat.

**Wildlife** - There are potential direct effects to NSO and MAMU due to disturbance from the use of heavy equipment within 0.25 mile of a known NSO site and within 0.25 mile of unsurveyed, suitable MAMU habitat. No indirect effects from this action are foreseen.

2. Cumulative Impacts Analysis

**Botanical** - An increase in the abundance of noxious weeds could occur within the project areas.

**Hydrology** - This action may result in an unquantifiable but small and temporary increase in turbidity and sediment below each project site. There would be no increase in turbidity or sedimentation present at the watershed or subwatershed level.

**Fisheries** - Survival and reproduction opportunities would be improved over the long-term for fish species, and combined with other management strategies, populations of sensitive species could increase. Fish species would have the increased ability to withstand natural events (such as floods and drought) that can lead to population declines because of their ability to migrate into more desirable habitats. An additional 10 miles of habitat would be made available to anadromous fish species. Due to differing species habitat criteria, coho would make use of 4.5 miles while steelhead would use all 10 miles.

**Wildlife** - No cumulative effects are anticipated.

3. Critical Elements of the Human Environment

“Critical Elements of the Human Environment” is a list of elements specified in BLM Handbook H-1790-1 that must be considered in all EA’s. These are elements of the human environment subject to requirements specified in statute, regulation, or executive order. These elements have been analyzed for potential effects and are as follows:

<u>Critical Elements</u>	<u>Potentially Affected</u>	
	<u>No</u>	<u>Yes</u>
Air Quality	X	
ACEC	X	
Cultural Resources	X	
Environmental Justice	X	
Farmlands, Prime/Unique	X	
Floodplains	X	
Invasive and Nonnative Species		X
Nat. Amer. Religious Concerns	X	
T & E Species		X
Waste, Hazardous/Solid	X	
Water Quality, Drinking / Ground	X	
Wetlands/Riparian Zones	X	
Wild and Scenic Rivers	X	
Wilderness	X	

### **Invasive and Nonnative Species -**

The project would increase the risk of noxious weed infestations in the project areas. Project Design Criteria measures #4 and #10 (Appendix D) to control or prevent the spread of noxious weeds would be implemented. Application of these measures would likely control or prevent the spread of noxious weeds into the project areas.

### **T & E Species -**

Terrestrial Species - Seasonal restrictions for NSO's and daily operating restrictions for MAMUs included in the design of this project are expected to alleviate potential disturbance effects resulting from the use of heavy equipment.

Aquatic Species - The Oregon Coast Coho has been designated by the Endangered Species Act as a threatened species. The entire Umpqua Basin is within the Oregon Coast Evolutionarily Significant Unit (ESU) for coho salmon. The replacement of existing culverts at six sites would allow fish to access historic habitats above impassable culverts. Removal of stream crossings, that present barriers to juvenile salmonids and non-salmonids, would allow passage to smaller tributaries that are important to their survival for overwintering, and refuge from high temperatures in mainstem tributaries during the summer months. The survival and reproduction of local populations could possibly decline if individuals remain limited to mainstem habitats. If failing culverts are not removed, sediment delivery would likely degrade spawning and rearing habitat, and possible direct death or injury of fish species could occur if large pulses of sediment are released due to culvert failure.

## **Description of Mitigation Measures and Residual Impacts**

No residual impacts are expected with the implementation of the proposed action and associated Project Design Criteria; therefore no mitigating measures are necessary to lessen impacts below certain thresholds.

## **Agencies, Persons, and Permittees Consulted**

### **US Fish and Wildlife Service**

The Roseburg District's consultation for T&E wildlife species is covered under the *Formal Consultation and Written Concurrence on FY 2003-2008 Management Activities (Ref. # 1-15-03-F-160)* (Feb. 21, 2003) which concluded that the project would “. . . not likely to jeopardize the continued existence of the spotted owl, murrelet and bald eagle, and are not likely to adversely modify spotted owl or murrelet critical habitat . . .”.

### **National Oceanic and Atmospheric Administration (NOAA - fisheries)**

The Roseburg District's consultation for T&E fish species is covered under the *Programmatic Biological and Conference Opinion* (Oct. 18, 2002). The Biological Opinion (BO) concluded that the project “. . . is not likely to jeopardize the continued existence of . . . OC coho salmon, or OC steelhead”. . .” In addition, the proposed activities were analyzed for, and determined to not adversely affect Essential Fisheries Habitat (EFH).

**State Historic Preservation Office**

National Historic Preservation Act (Section 106) responsibilities under the 1997 National Programmatic Agreement and the 1998 Oregon Protocol have been completed. No consultation with the State Historical Preservation Office (SHPO) was required.

**Preparers**

Isaac Barner	_____	Archeology
Mike Crawford	_____	Fisheries Biologist
Denise Dammann	_____	Hydrologist
Randy Lopez	_____	Engineer / Project Lead
Jim Luse	_____	Environmental Coordinator / Writer-Editor
Rex McGraw	_____	Wildlife Biologist
Evan Olson	_____	Natural Resource Specialist - Botany

---

**Literature Cited**

- Oregon Department of Environmental Quality, 2003. Consolidated assessment and listing methodology for Oregon's 2002 303(d) list of water quality limited waterbodies and integrated 305(b) report, Portland Oregon [<http://www.deq.state.or.us/wq/303dlist/Final2002AssessmentAndListingMethodolgy.pdf>].
- Oregon Department of Environmental Quality, 2003. Oregon's final 2002 303(d) list, Portland Oregon [<http://www.deq.state.or.us/wq/303dlist/303dpage.htm>].
- USDA/USDI, 2001. Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines. Portland, Oregon.

## CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT

The following elements of the human environment are subject to requirements specified in statute, regulation, or executive order (BLM NEPA Handbook, Appendix 5). These resources or values are either not present or would not be affected by the proposed actions or alternatives, unless otherwise described in this EA. This negative declaration is documented below by individuals who assisted in the preparation of this analysis.

<b>Element</b>	<b>Responsible Position</b>	<b>Initials</b>	<b>Date</b>	<b>Remarks</b>
Air Quality	Fuels Management Specialist			Possible minimal localized dust at project site
Areas of Critical Environmental Concern	Environmental Specialist			Project is not within or near an ACEC.
Cultural Resources	Archeologist			Not affected
Environmental Justice	Environmental Specialist			No disproportionate use by Native Americans, minorities or low-income populations.
Farm Lands (prime or unique)	Soil Scientist			“No discernable effects are anticipated” (PRMP pg. 1-7)
Flood Plains	Hydrologist			The crossings will be designed to pass a 100 year flow event.
Invasive Nonnative Species	Botanist			Mitigation measures would control or prevent the spread of noxious weeds
Native American Religious Concerns	Environmental Specialist			No concerns were noted from public contact
T&E Terrestrial Species	Wildlife Biologist			PDC’s would mitigate effects
T&E Plant Species	Botanist			PDC’s would mitigate effects
T&E Aquatic Species	Fisheries Biologist			PDC’s would mitigate effects
Hazardous/Solid Wastes	Area Hazardous Materials Coordinator			Applicable Haz Mat policies would be in effect.
Water Quality Drinking/Ground Water	Hydrologist			There are no domestic water rights within one mile downstream of the project.
Wetlands/Riparian Zones	Hydrologist			No adverse effects
Wild and Scenic Rivers	Recreation Planner			Project is not within or does not affect scenic river corridor
Wilderness	Recreation Planner			Project is not within a wilderness study area.

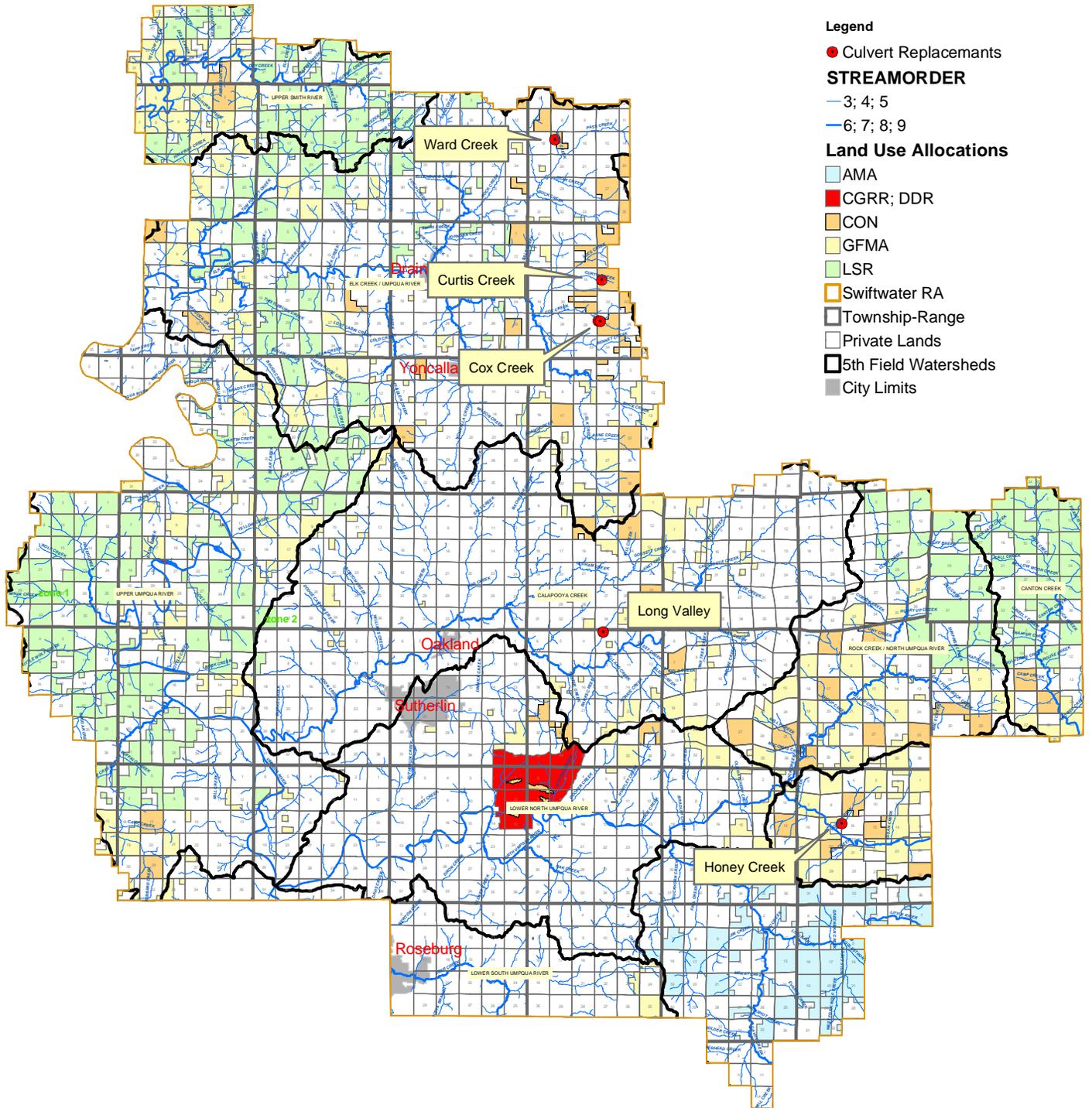
The following items are not considered a Critical Element but have been cited by regulation or executive order as an item warranting consideration in NEPA documents:

**Healthy Lands Initiative** - This project would not violate this initiative the Healthy Lands Initiative in that this project would be in compliance with the RMP which has been determined to be consistent with the standards and guidelines for healthy lands (43 CFR 4180.1) at the land use plan scale and associated time lines.

**Adverse Energy** - Executive Order 13212 provides that all decisions made by the Bureau of Land Management will take into consideration adverse impacts on the President's National Energy Policy. This project would not have a direct or indirect adverse impact on energy development, production, supply, and/or distribution and therefore would not adversely affect the President's National Energy Policy.

**Indian Trust Resources** - Secretarial Order No. 3175 (November 8, 1993) requires that any significant impact to Indian Trust resources be identified and addressed in NEPA documents. There are no known Indian Trust resources on the Roseburg District therefore this project is expected to have no impacts to these resources.

# Appendix A Swiftwater Stream Crossing Upgrade Project Location Map



- Legend**
- Culvert Replacements
  - STREAMORDER**
  - 3; 4; 5
  - 6; 7; 8; 9
  - Land Use Allocations**
  - AMA
  - CGRR; DDR
  - CON
  - GFMA
  - LSR
  - Swiftwater RA
  - Township-Range
  - Private Lands
  - 5th Field Watersheds
  - City Limits

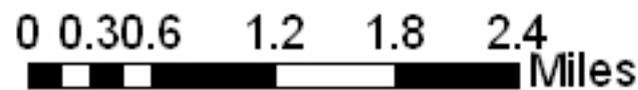
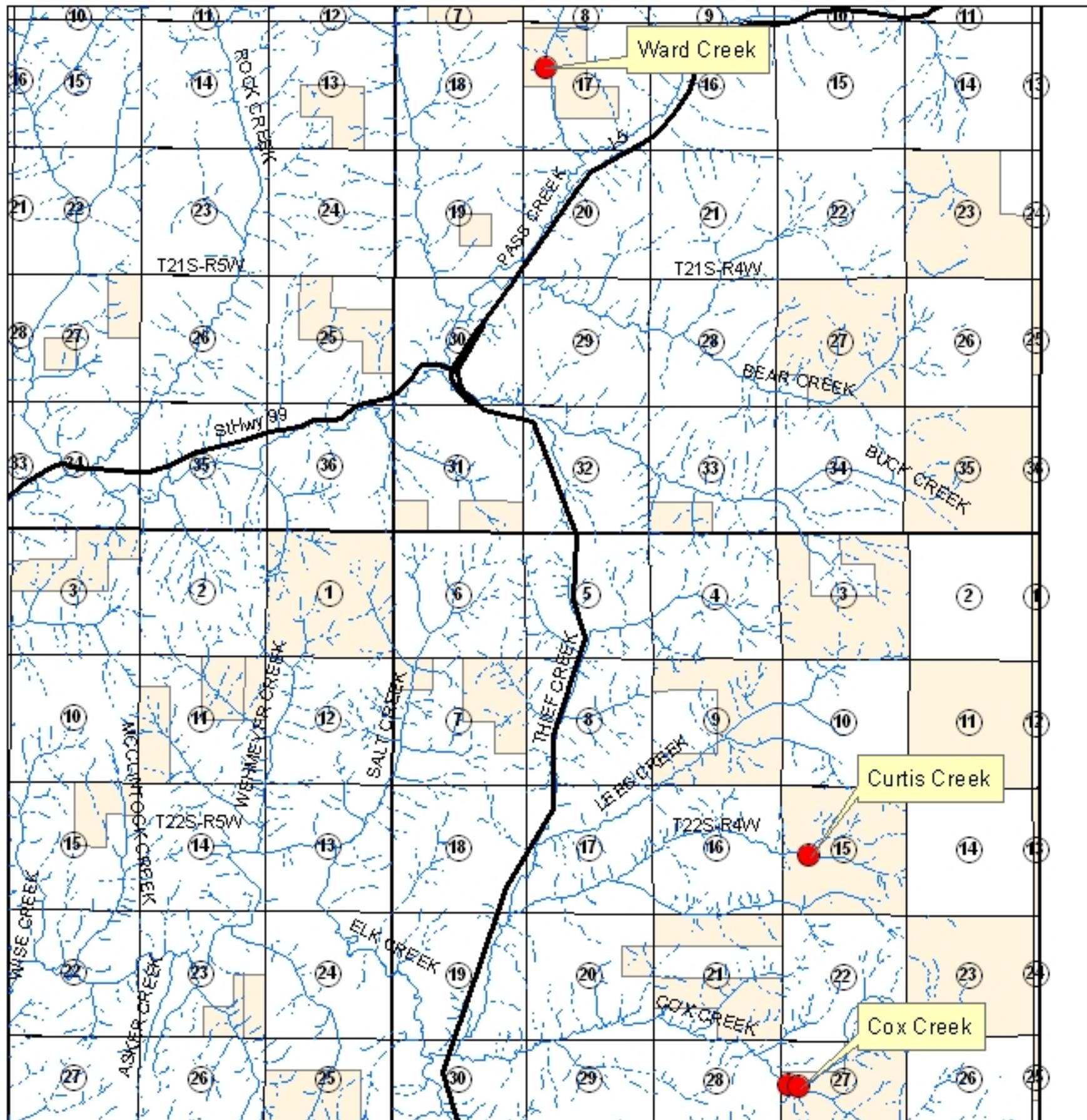
0 1.25 2.5 5 7.5 10 Miles



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

# APPENDIX B VICINITY MAP

## Swiftwater Stream Crossing Upgrade



1:80,000



NOT TO SCALE

### Legend

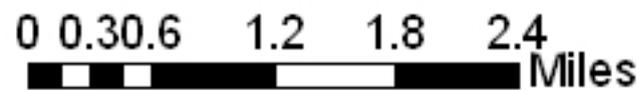
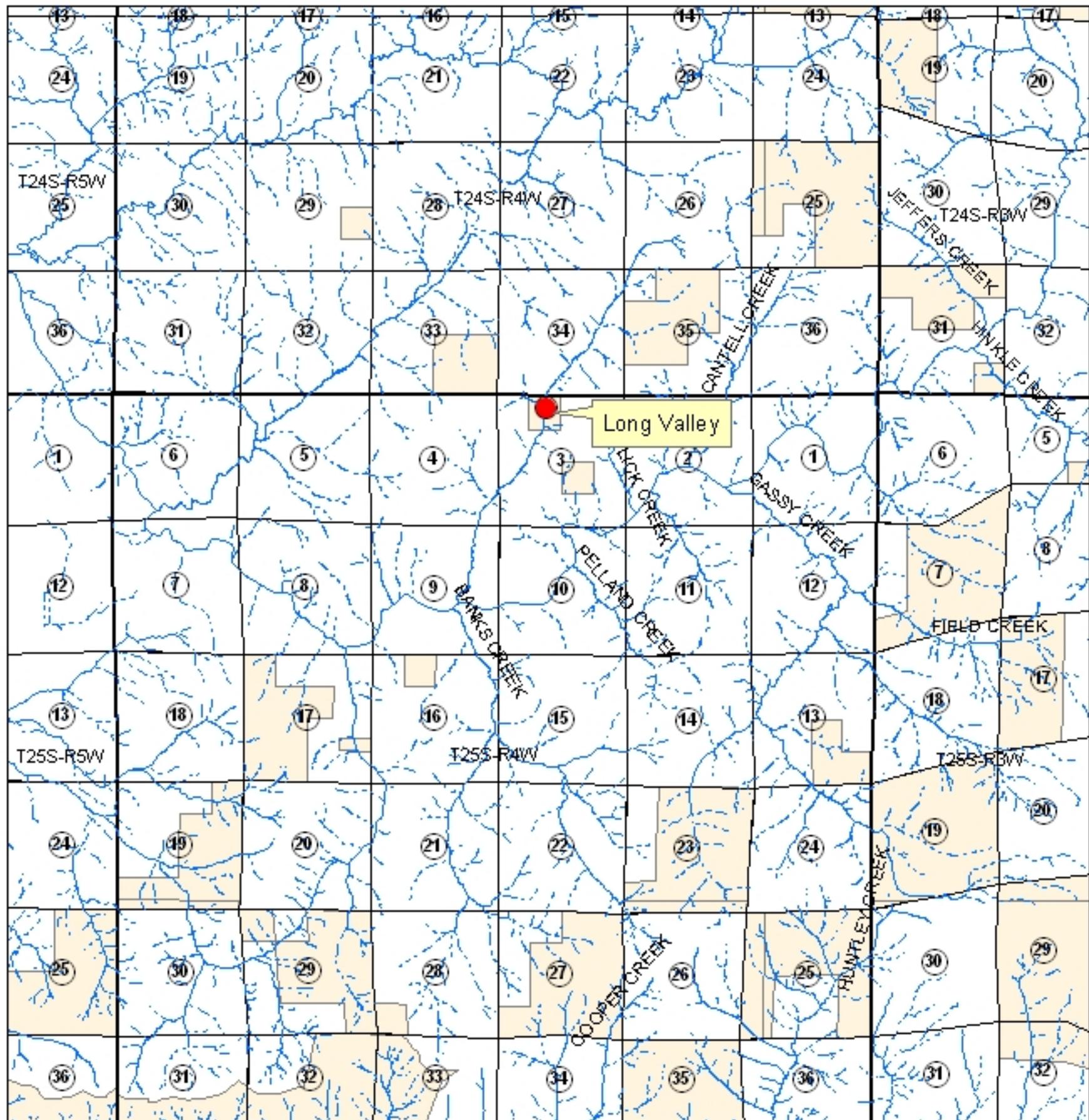
- CULVERT REPLACEMENT SITES
- INTERMITTENT STREAMS
- PERENNIAL STREAMS
- BLM ADMINISTERED LANDS
- MAJOR ROADS



United States Department of the Interior  
 Bureau of Land Management  
 Oregon State Office  
 P.O. Box 2965  
 Portland, Oregon 97208-2965  
 No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

# APPENDIX B VICINITY MAP

## Swiftwater Stream Crossing Upgrade



1:80,000



### Legend

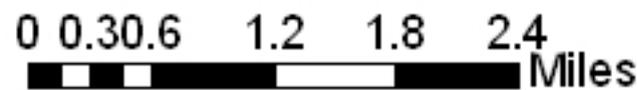
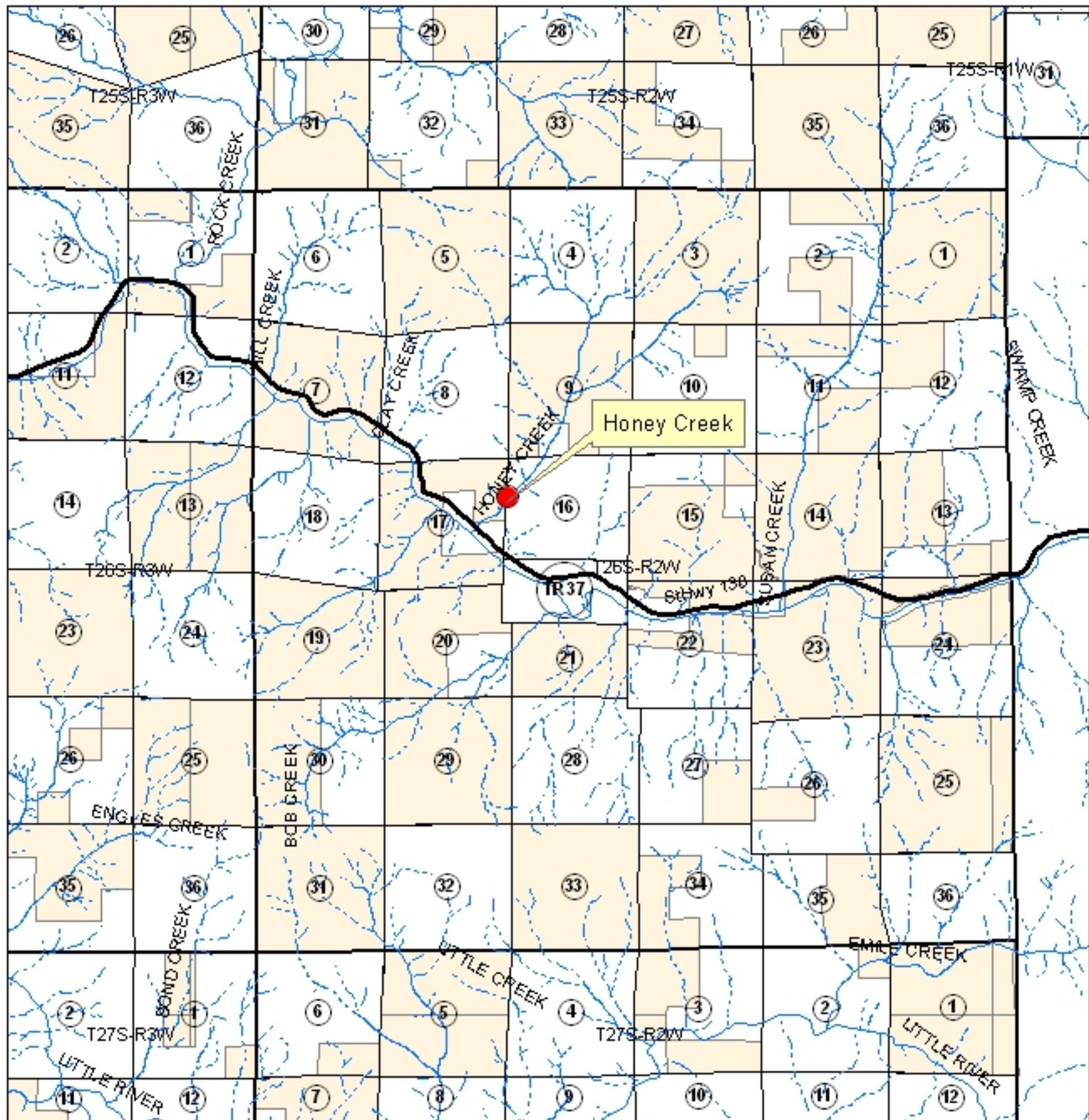
-  CULVERT REPLACEMENT SITES
-  INTERMITTENT STREAMS
-  PERENNIAL STREAMS
-  BLM ADMINISTERED LANDS
-  MAJOR ROADS



United States Department of the Interior  
 Bureau of Land Management  
 Oregon State Office  
 P.O. Box 2965  
 Portland, Oregon 97208-2965  
 No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

# APPENDIX B VICINITY MAP

## Swiftwater Stream Crossing Upgrade



1:80,000



NOT TO SCALE

### Legend

-  CULVERT REPLACEMENT SITES
-  INTERMITTENT STREAMS
-  PERENNIAL STREAMS
-  BLM ADMINISTERED LANDS
-  MAJOR ROADS



United States Department of the Interior  
 Bureau of Land Management  
 Oregon State Office  
 P.O. Box 2965  
 Portland, Oregon 97208-2965  
 No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

## APPENDIX C

### Culvert Replacement Summary

PROJECT	ROAD NUMBER	LOCATION			FEATURE CROSSED	CONDITION OF CULVERT	FISH	
		T	R	S			PASSAGE	BARRIER TO
Ward Creek	21-4-20.0	21	4	17	Ward Creek	Fair/Poor	Y	Juvenile
Curtis Creek	22-4-16.0	22	4	15	Curtis Creek	Fair/Poor	Y	Juvenile
Cox Creek Culvert No.1	22-4-28.0	22	4	27	Cox Creek	Fair/Poor	Y	Juvenile
Cox Creek Culvert No.2	22-4-27.1	22	4	27	Cox Creek Trib.	Fair/Poor	Y	Juvenile
Long Valley <sup>1</sup>	25-4-10.0	25	4	3	Long Valley Creek	Critical	Y	Juvenile
Honey Creek <sup>1</sup>	26-2-17.0	26	2	16	Honey Creek	Poor	Y	Juvenile

<sup>1</sup> Involves temporary bypass road

#### **Culvert Condition**

- Good - 10 years or more of serviceable life
- Fair - 5 to 10 years of serviceable life
- Poor - 1 to 5 years of serviceable life
- Critical - possible failure any time

# APPENDIX D

## Project Design Criteria

The following Project Design Criteria are included as part of the proposed project. These criteria are the result of the application Best Management Practices outlined in Appendix D of the RMP (pg. 129) specific to this project, as well as Terms and Conditions outlined in past consultations with regulatory agencies:

1. Potential disturbance effects to the nesting owl pair at Honey Creek would be mitigated by application of seasonal restrictions from March 1<sup>st</sup> through June 30<sup>th</sup>, unless protocol surveys have determined the activity center to be unoccupied, non-nesting, or failed in nesting attempt.
2. Potential disturbance effects to the marbled murrelet near the Ward Creek site would be mitigated through application of daily operating restrictions (DOR) from April 1<sup>st</sup> through August 5<sup>th</sup>. The DOR consists of limiting operations between two hours after sunrise and two hours before sunset.
3. Potential impacts to stream ecology would be accomplished by limiting in-stream work (i.e. culvert replacement and fill removal) to periods of low stream flow (between July 1 and September 15). In-stream work could be temporarily suspended if significant storm events occur during this period. Backfill material over temporary culverts would be as soil free as practicable. Streams would be diverted around work areas to minimize sedimentation effects down stream.
4. Prior to initial move-in, construction equipment would be steam cleaned or pressure washed to remove soil and vegetative material from the equipment to avoid the spread of noxious weeds (RMP, pg. 74; BLM Manual 9015 - Integrated Weed Management).
5. During construction, techniques designed to minimize sediment delivery and turbidity (such as stream diversions using high volume pumps and sediment control ponds) would be used. Silt dams and filters (such as straw bales) would be used to filter sediment from the water downstream of the project site.
6. Embankment for culvert backfill would be obtained from on-site excavation accumulated during culvert removal or from nearby developed borrow sources. Embankments would be constructed using controlled compaction. Embankment would be placed as close as practicable to its angle of repose, but in no case steeper than 1 1/2 to 1.
7. Graded rip rap would be placed on the embankment at the inlet and outlet of each culvert to a level equal to full-bank flow elevation and would be placed to a thickness to prevent embankment erosion and keyed below the streambed a minimum of three feet. The rip rap would be sized to prevent movement during high flow events. Rip rap would be placed in a way to minimize impacts to the active stream channel and maintain normal waterway capacity and configuration. Rip rap would be obtained from either commercial sources or developed rock quarries and pits and consist of clean non-erodible angular rock. A concrete and/or rip rap headwall would be placed at the inlet of each culvert. The head wall would extend a minimum

of two feet above the top and a minimum of three feet below the bottom of the culvert or to existing bedrock.

8. If significant headward degradation is likely to occur upstream of the replaced or removed stream crossing, check-structures would be placed within the channel to prevent barriers from forming as the channel reaches equilibrium.

9. An erosion control plan would be developed by the contractor describing erosion control measures (e.g., sediment fences or other measures sufficient to prevent offsite movement of soil, use of an impervious cover over stockpiled embankments if unusual adverse weather conditions occur, and sediment traps or catch basins to settle out solids prior to ditch water from entering waterways) that would be taken to prevent sediment from entering the stream. Such plans would be reviewed and approved by the Contracting Officer's Representative.

10. All disturbed surfaces would be seeded and/or planted with native species or a sterile hybrid mix depending on availability after the project completion to stabilize exposed soils and prevent erosion and sedimentation. Additionally, all disturbed surfaces would be mulched with native grass hay or weed-free straw.

11. Special Attention plant and animal sites would be protected according to established Management Recommendations. If, during implementation of the proposed action, any Special Status (threatened or endangered, proposed threatened or endangered, candidate, State listed, Bureau sensitive or Bureau assessment) Species are found, evaluation for the appropriate type of mitigation needed for each species would be performed. Stipulations would be placed in the contract to halt operations if any of these Special Status Species are found, and time would be allowed to determine adequate protective measures before operations could resume.

12. Stipulations would be placed in the contract to halt operations and evaluate the appropriate type of mitigation needed to provide adequate protection; if any objects of cultural value (e.g. historical or prehistorical ruins, graves, fossils or artifacts) are found during the implementation of the proposed action.

13. Hazardous materials (particularly petroleum products) would be stored in durable containers and located so that any accidental spill would be contained. All work site trash and materials would be removed. All equipment planned for instream work would be inspected beforehand for leaks. Accidental spills or discovery of the dumping of any hazardous materials would be reported to the Contracting Officer and the procedures outlined in the "Roseburg District Hazardous Materials (HAZMAT) Emergency Response Contingency Plan" would be followed.

14. Following completion of contracted work performance, the individual sites would be evaluated for the need for bioengineering to reduce erosion and sedimentation and maintain or restore riparian reserve diversity. This work would consist of the planting of willow and hardwood cuttings within the project areas.