

APPENDIX B

STREAMSIDE MANAGEMENT ZONE PLAN AND RESOURCE OBJECTIVES

Plan Objectives

This plan describes goals, objectives and treatments for all streamside and riparian zones within the project area that would be impacted by management activities. As required by the Plumas Land and Resource Management Plan, this plan also identifies the vegetative treatments within riparian and streamside areas and the maximum amount of vegetation manipulation allowable to meet the stated objectives. In addition, the maximum area of soil exposure allowable is identified, as well as the necessary erosion control measures to meet the stated objectives. This plan also assesses those areas "... within the SMZ having oversteepened slopes (over 60 percent) with a very high erosion potential or high instability, and procedures to limit soil disturbance to no more than 5 percent of these areas per decade". Specific prescriptions for roads, skid trails, landings and other harvesting facilities are referenced and opportunities and procedures for restoration of deteriorated watershed conditions are presented.

Definitions Used For Determining Riparian Habitat Conservation Areas and Streamside Management Zones

Widths of Riparian Habitat Conservation Areas (RHCAs) were determined under the provisions of the Herger-Feinstein Quincy Library Group Forest Recovery Act Final Environmental Impact Statement (HFQLG FEIS) (USDA Forest Service, 1999). These guidelines were applied on the ground, and RHCAs were flagged as no-equipment zones.

The HFQLG FEIS Glossary defines these terms:

1. A perennial stream is a stream or portion of a stream that flows throughout the year. The groundwater table lies above the bed of the stream at all times.
2. An intermittent stream is any non-permanent flowing drainage feature having a definable channel and evidence of annual scour and deposition, including ephemeral streams with a definable channel and evidence of annual scour or deposition.
3. An ephemeral stream is a stream that contains running water only sporadically, such as during and following storm events. Ephemeral streams with a definable channel are considered "seasonally flowing" or intermittent when they show evidence of annual scour or deposition. Ephemeral streams without a definable channel are considered swales.

4. An ephemeral stream/swale is a shallow, trough-like depression in the landscape that may be hydraulically connected to stream channels downslope. Swales are sometimes referred to as those ephemeral channels having an undefined channel and no evidence of scour or deposition. Upslope precipitation, as rainfall or snowmelt, is generally concentrated in swales and directed towards definable stream channels as subsurface flow.

Scientific Analysis Team (SAT) Guidelines Table 5-4 (also HFQLG FEIS Table 2.15)

defines how to delineate “interim boundaries” of RHCA for different water bodies.

The prescribed minimum widths as "interim boundaries" in RHCA are:

1. 300 feet (perennial fish bearing streams and lakes),
2. 150 feet (perennial non-fish bearing streams, ponds, wetlands greater than 1 acre, and lakes), and
3. 100 feet (intermittent and ephemeral streams, wetlands less than 1 acre, and landslides). Features to in RHCA determination, (whichever is greatest) are: (1) top of inner gorge, (2) 100-year floodplain, (3) Outer edge of riparian vegetation, and (4) A distance equal to one or two tree heights.

The average height of a site potential tree has been determined to be 150 feet on the Feather River Ranger District. This means a 150-foot RHCA buffer width is applied to seasonally flowing streams (intermittent or ephemeral) that have a definable channel and evidence of annual scour and deposition, instead of a 100 foot RHCA buffer.

Ephemeral streams with a defined channel but without evidence of annual scour and deposition occur on the Feather River Ranger District. These ephemeral streams may only scour during the two-, five- or ten-year storm event. This situation is frequent on the west side of the forest due to periodic high rainfall intensities or durations and to heavy organic litter accumulation (Taylor, 2002). If these ephemeral channels were not protected from mechanized ground-base equipment, stream degradation could result. Neither the SAT guidelines nor the HFQLG FEIS specify interim guideline widths for channels without annual scour. Language in Component 2 of Appendix L 6-7 allows for field-refined areas of RHCA protection. Guidelines were previously established in the Plumas National Forest Land Resource Management Plan Appendix M - Guidelines for Widths of Streamside Management Zones (SMZs). These guidelines establish an SMZ width for streams based on active stream channel and sideslope stability. The width of SMZs varies from 0 to 50 feet of either side of the stream reach. For ephemeral streams, the range is 25 to 50 feet. These streams are also protected by application of BMPs from the Regional handbook (USDA Forest Service 2000). Appropriate SMZs will be identified prior to initiation of vegetation management activities.

Standards, Guidelines, and Mitigation Measures for Hydrology Resources:

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
Treatment units where the use of Sporax® is proposed	Pesticide Use Planning Process – To introduce water quality and hydrologic considerations into the pesticide use planning process.	BMP 5-7	HFQLG Final Supplemental Environmental Impact Statement (FSEIS) in compliance with the <i>Clean Water Act</i>	N/A	—	N/A	N/A	B and C	Water Quality management for Forest System Lands in California Best Management Practices
Treatment units where the use of Sporax® is proposed	Pesticide Application According to Label Directions and Applicable Legal Requirements – To avoid water contamination by complying with all label instructions and restrictions for use.	BMP 5-8	HFQLG FSEIS in compliance with the <i>Clean Water Act</i>	N/A	—	N/A	N/A	B and C	Water Quality management for Forest System Lands in California Best Management Practices
Treatment units where the use of Sporax® is proposed	Pesticide Application Monitoring and Evaluation – 1. To determine whether pesticides have been applied safely, restricted to intended target areas, and have not resulted in unexpected non-target effects. 2. To document and provide early warning of possible hazardous conditions resulting from possible contamination of water or other non-target areas by pesticides. 3. To determine the extent, severity and possible duration of any potential hazard that might exist.	BMP 5-9	HFQLG FSEIS in compliance with the <i>Clean Water Act</i>	N/A	—	N/A	N/A	B and C	Water Quality management for Forest System Lands in California Best Management Practices

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
Treatment units where the use of Sporax®is proposed	Pesticide Spill Contingency Planning – To reduce contamination of water by accidental pesticide spills.	BMP 5-10	HFQLG FSEIS in compliance with the <i>Clean Water Act</i>	N/A	—	N/A	N/A	B and C	Water Quality management for Forest System Lands in California Best Management Practices
Treatment units where the use of Sporax®is proposed	Cleaning and Disposal of Pesticide Containers and Equipment – To prevent water contamination resulting from cleaning, or disposal of pesticide containers. The cleaning and disposal of pesticide containers must be done in accordance with Federal, State, and local laws, regulations, and directives. Specific procedures for the cleaning and disposal of pesticide containers are documented in the Forest Service Pesticide Use Management and Coordination Handbook (FSH 2109.114), and state and local laws.	BMP 5-11	HFQLG FSEIS in compliance with the <i>Clean Water Act</i>	N/A	—	N/A	N/A	B and C	Water Quality management for Forest System Lands in California Best Management Practices
Treatment units where the use of Sporax®is proposed	Streamside Wet Area Protection During Pesticide Spraying – To minimize the risk of pesticide inadvertently entering waters, or unintentionally altering the riparian area, Stream Management Zone (SMZ), of wetland.	BMP 5-12	HFQLG FSEIS in compliance with the <i>Clean Water Act</i>	N/A	—	N/A	N/A	B and C	Water Quality management for Forest System Lands in California Best Management Practices

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNEPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
All treatment units	Standard resource protection measures for hydrology and fisheries resources.	S&G, BMPs 1-3, 1-6, 1-8, 1-18, 1-19, 1-20, 1-21, 2-12, 5-1, 5-2, 7-3, and 7-4	HFQLG FSEIS, Scientific Analysis Team (SAT) Guidelines, Plumas National Forest LRMP, Water Quality Management for National Forest System Lands in CA, BMPs (2000)	B6.34, B6.341, B6.342, B6.5, B6.65, C6.411, C6.5, C6.6, C6.65 and C6.601	—	All	N/A	All	—
All	Timber Sale Planning Process – Incorporate water quality and hydrological considerations into the timber sale planning process.	BMP 1-1	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	none	Completed by Interdisciplinary (ID) Team during the project planning process.	N/A	N/A	All	—
All	Timber Harvest Unit Design – Timber harvest unit design will secure favorable conditions of water quality and quantity while maintaining desirable stream channel characteristics and watershed conditions.	BMP 1-2	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	none	Completed by ID Team during the project planning process.	N/A	N/A	All	—
See soils resource mitigation measures for applicable units	Determination of Surface Erosion for Timber Harvest Unit Design – Identify high erosion hazard areas in order to adjust treatment measures to prevent downstream water quality degradation.	BMP 1-3	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B6.65 C6.6 and C6.601	Completed by ID Team during the project planning process.	All	N/A	All	—
All	Use of Sale Area Maps and/or Project Maps for Designating Water Quality Protection Needs – Recognition and protection of areas related to water quality protection delineated on sale area maps or project map.	BMP 1-4	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	SAM	—	All	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
3, 7, 27, 29, 154, 500, 530, 533, 535, 543, 556, 584, 599, 636, 914C, LP2	Protection of Unstable lands – Provide special treatment of unstable areas to avoid triggering mass slope failure with resultant erosion and sedimentation.	BMP 1-6	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B6.6, C6.6, and C6.601	Completed by ID Team during the project planning process.	All	N/A	All	—
All	Riparian Habitat Conservation Area (RHCA) – Protect riparian areas, streams with annual scour, lakes, wetlands, and ponds: (a) 300 foot buffer on each side of fish bearing streams and lakes, and ponds with mountain yellow-legged frog habitat and (b) 150 foot buffer on each side of perennial non-fish bearing streams, intermittent and ephemeral channels with annual scour, meadows, ponds, wetlands, lakes greater than 1 acre and landslide-prone areas.	S&G, BMP 1-8, BMP 1-18, BMP 1-19, BMP 7-3	HFQLG FSEIS, Scientific Analysis Team (SAT) Guidelines, PNF LRMP, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	SAM, B6.5, B6.61, C6.5, C6.62 and C6.411	—	All	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
All	Streamside Management Zone (SMZ) – Protect ephemeral stream channels without evidence of annual scour: (a) for channels with a slope less than 60—percent a 25 foot buffer on each side is applied and (b) unstable channel slopes or channel slopes greater than 60 percent a 50 foot buffer on each side is applied. In all treatment units with ground-based mechanical equipment, equipment may reach into SMZs in the identified no-tractor equipment zone. Retain trees along streambanks.	S&G, BMP 1-8	Plumas National Forest LRMP, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	SAM, B6.5, C6.5 and C6.411	—	All	N/A	All	—
All	TM-1: Prohibit scheduled timber harvest, including fuelwood cutting, in RHCAs.	BMP 1-8, BMP 1-18, BMP 1-19, BMP 7-4	HFQLG FSEIS	B6.5, C6.5, and C6.411	—	All	N/A	All	—
All	Management activities in RHCAs must contribute to improving or maintaining watershed and aquatic habitat conditions described in the Riparian Management Objectives. When activities are found to detract from meeting RMOs, those activities will be modified, rescheduled, or discontinued. Areas where riparian conditions are presently degraded, management activities must be designed to improve habitat conditions.	S&G	HFQLG FSEIS	none	Completed by ID Team during the project planning process.	N/A	N/A	All	—

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905, 907	<p>RHCA mechanical treatments in DFPZ units:</p> <p>(a) 50 foot buffer or extent of riparian vegetation, whichever is greatest, applied on each side of fish-bearing streams and</p> <p>(b) 25 foot buffer or extent of riparian vegetation, whichever is greatest, applied on each side of non-fish bearing streams.</p> <p>Limited operation has been approved in RHCAs in two DFPZ units (905, 907). Mastication will be permitted to reduce fuel loads and ladder fuels adjacent to headwater ephemeral channels as approved by the hydrologist. Retain trees along streambanks. In all other units, standard RHCA and SMZ restrictions apply.</p>	RMO, BMP 1-8, BMP 1-19	RMOs of the HFQLG FSEIS, PNF LRMP SMZ guidelines, and Water Quality Management for National Forest System Lands in CA, BMPs (2000)	SAM, B6.5 and C6.5	—	All	N/A	All	—
All DFPZ units	FM-1 – Design fuel treatment to meet Resource Management Objectives (RMO), and to minimize disturbance of riparian ground cover and vegetation.	S&G, BMP 1-8, BMP 1-20	HFQLG FSEIS and Water Quality Management for National Forest System Lands in CA, BMPs (2000)	B6.5 and C6.5	—	All	N/A	All	—

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11G, 11P, 12G2, 12P1, 12P2, 12P3, 13T, 15T, 15TA, 901A, 902, 903, 909, 912, 913, A, A2, A3, B, B2, D, E, F, LP1	FM-4 – Design prescribed burn projects to protect RHCAs from burning. Where riparian ecosystems would be enhanced by prescribed burns, clearly identify the specific objectives and risks.	S&G, BMP 1-8, BMP 1-21	HFQLG FSEIS and Water Quality Management for National Forest System Lands in CA, BMPs (2000)	none	—	Service Contract	N/A	All	—
Treatment units identified as natural stands	RHCA non-mechanical treatments in DFPZ units – Any DFPZ prescription and follow-up treatments within RHCAs by Fuel Specialist determination and approval. Methods include hand cutting and underburning with possible limited ignition within RHCAs. RHCA lighting will only occur if fuel objectives are not met by backing fire and low burn severities will result. All burning shall be conducted on permissive burn days, within air quality constraints. Hand line construction allowed within RHCAs only where necessary, with hydrologist approval and appropriate rehabilitation.	RMO, BMP 1-8, BMP 1-19	RMOs of the HFQLG FSEIS, and Water Quality Management for National Forest System Lands in CA, BMPs (2000)	none	—	Service Contract	N/A	All	—
All	Protection of Wetlands – Avoid adverse water quality impacts associated with destruction, disturbance, or modification of wetlands. The Forest Service will not permit the implementation of activities and new construction in wetlands whenever there is a practical alternative.	BMP 7-3	RMOs of the HFQLG FSEIS, and Water Quality Management for National Forest System Lands in CA, BMPs (2000)	B6.61, B6.62	—	All	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
All	Cumulative Off-Site Watershed Effects – Protect the identified beneficial uses of water from the combined effects of multiple management activities which individually may not create unacceptable effects but collectively may result in degraded water quality conditions.	BMP 7-8	RMOs of the HFQLG FSEIS, and Water Quality Management for National Forest System Lands in CA, BMPs (2000)	N/A	—	N/A	N/A	All	—
Temporary road locations, Haul Routes, Road Reconstruction, and Stream Crossing Upgrade or Removals	Standard resource protection measures for hydrology and fisheries resources.	S&G, BMP 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-9, 2-10, 2-11, 2-13, 2-14, 2-16, 2-17, 2-19, 2-20, 2-21, 2-22, 2-23, 2-24, 2-26	HFQLG FSEIS and Water Quality Management for National Forest System Lands in CA, BMPs (2000)	B5.12, B5.2, B6.63, B6.631, B6.312, B6.5, B6.65, B6.66, C6.5, C6.6 and C6.65	—	All	N/A	All	—
Temporary road locations, Haul Routes, Road Reconstruction.	General Guidelines for the Location and Design of Roads – Locate and design roads with minimal resource damage.	BMP 2-1	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B5.12, B5.2, B6.63, B6.631, B6.312, B6.5, B6.65, B6.66, C6.5, C6.6 and C6.65	Done During T.S. Planning	All	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	RF-8 – Require a Road Management Plan be developed and carried out that meets the RMOs.	S&G, BMP 2-1	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B6.312, B6.5, C6.5	—	All	N/A	All	—
Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Erosion Control Plan – Limit and mitigate erosion and sedimentation through effective planning prior to initiation of construction activities and through effective contract administration during construction.	BMP 2-2	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B6.312	—	All	N/A	All	—

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Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Timing of Construction Activities – Minimize erosion by conducting operations during minimal runoff periods.	BMP 2-3	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B6.312	—	All	N/A	All	—
Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Stabilization of Road Slope Surfaces and Spoil Disposal Areas – Minimize erosion from exposed cut slopes, fill slopes, and spoil disposal areas.	BMP 2-4	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B6.312	—	All	N/A	All	—

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Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Road Slope Stabilization Construction Practices – Reduce sedimentation by minimizing erosion from road slopes and slope failure along roads.	BMP 2-5	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B6.312	—	All	N/A	All	—
Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Dispersion of Subsurface Drainage From Cut and Fill slopes – Minimize the possibilities of cut or fill slope failure and the subsequent production of sediment.	BMP 2-6	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B6.312	—	All	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Control of Road Drainage – Minimize the erosive effects of water concentrated by road drainage features; disperse runoff from disturbances within the road clearing limits; to lessen the sediment yield from roaded areas; minimize erosion of the road prism by runoff from road surfaces and from uphill areas.	BMP 2-7	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B6.312	—	All	N/A	All	—
Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Timely Erosion Control Measures on Incomplete Roads and Stream Crossing Projects – Minimize erosion and sedimentation from disturbed ground on incomplete projects.	BMP 2-9	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B6.312, B6.6, C6.6	—	All	N/A	All	—

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Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Construction of Stable Embankments (Fills) – Construct embankments with materials and methods, which minimize the possibility of failure and subsequent water quality degradation.	BMP 2-10	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B6.312	—	All	N/A	All	—
Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Control of Sidecast Material During Construction and Maintenance – Minimize sediment production originating from sidecast material during road construction or maintenance.	BMP 2-11	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B6.312	—	All	N/A	All	—
All	Servicing and Refueling of Equipment – Prevent pollutants such as fuels, lubricants, bitumens and other harmful materials from being discharged into or near rivers, streams and impoundments, or into natural or man-made channels.	BMP 2-12	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B6.34, B6.341, and B6.342	—	All	N/A	All	—

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Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Control of Construction and Maintenance Activities Adjacent to SMZs – Protect water quality by controlling construction and maintenance actions within and adjacent to any streamside management zone	BMP 2-13	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B6.312, B6.5	—	All	N/A	All	—
Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Controlling In-Channel Excavation – Minimize stream channel disturbances and related sediment production. During construction, heavy equipment is only permitted to cross, or work in and near streams or lakes during the construction, or removal of culverts and bridges and other facilities (e.g., water sources, boat ramp/launching sites, etc.) and only under specific protection requirements. The Engineering Representative is authorized to designate the location of crossings or work sites. Excavation during the installation of instream structures must follow all of the minimum water quality protection requirements listed with this BMP.	BMP 2-14	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	B6.312	—	All	N/A	All	—

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Temporary road locations	Stream Crossings on Temporary Roads – Ensure that temporary roads do not unduly damage stream channels and to ensure that fish passage is unimpeded by stream crossing structures. Contact Hydrologist for verification and recommendations. List of road location recommendations is in the Sugarberry project file.	BMP 2-16	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B5.1, B6.312, B6.63, B6.5, C6.5, C6.6	—	All	N/A	All	—
Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Bridge and Culvert Installation – Minimize sedimentation and turbidity resulting from excavation for in-channel structures.	BMP 2-17	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	B6.312, B6.5	—	All	N/A	All	—
Haul Routes, Road Reconstruction, and Stream Crossing Upgrades	RF-4 – Require improvement of culverts and stream crossings found to pose a substantial risk to riparian conditions to accommodate at least a 100-year flood, including associated bedload and debris. Base priorities for upgrading on the potential impact and ecological value of the riparian resources affected. Design and construct new stream crossings to accommodate at least a 100-year flood, including associated bedload and debris.	BMP 2-17	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	SAM, B6.5	—	All	N/A	All	—

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Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Disposal of Right-of-Way and Roadside Debris – (a) ensure that organic debris generated during road construction is kept out of streams so that channels and downstream facilities are not obstructed. (b) ensure debris dams are not formed which obstruct fish passage, or which could result in downstream damage from high water flow surges after dam failure.	BMP 2-19	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	—	—	All	N/A	All	—
Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Specifying Riprap Composition - minimize sediment production associated with the installation and utilization of riprap material.	BMP 2-20	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and <i>Clean Water Act</i>	—	—	All	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Water Source Development Consistent with Water Quality Protection – Supply water for roads and fire protection while maintaining existing water quality.	BMP 2-21	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	C5.36	—	All	N/A	All	—
Temporary road locations, Haul Routes, and Road Reconstruction	Maintenance of Roads – Maintain roads in a manner which provides for water quality protection by minimizing rutting, failures, sidecasting, and blockage of drainage facilities all of which can cause erosion and sedimentation, and deteriorating watershed conditions.	BMP 2-22	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	B5.12	—	All	N/A	All	—
Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Road Surface Treatment to Prevent Loss of Materials – Minimize the erosion of road surface materials and consequently reduce the likelihood of sediment production from those areas.	BMP 2-23	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	—	—	All	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
Temporary road locations, Haul Routes, Road Reconstruction, Road Decommissioning, and Stream Crossing Upgrade or Removals	Traffic Control During Wet Periods – (a) reduce road surface disturbance and rutting of roads. (b) minimize sediment washing from disturbed road surfaces.	BMP 2-24	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	—	—	All	N/A	All	—
Meadow Restoration, Streambank Stabilization, Fish Barrier Removals, Road Decommissioning (see Fig A-1.e. and Fig A-3.a for roads)	Standard resource protection measures for hydrology, fisheries and soil resources	MM, BMP 2-26, BMP 7-1	HFQLG FSEIS and Water Quality Management for National Forest System Lands in CA, BMPs (2000) and Clean Water Act	N/A	—	N/A	N/A	All	—
Road Decommissioning, temporary roads	Obliteration or Decommissioning of Roads – reduce sediment generated from temporary roads or unneeded system roads by obliterating or decommissioning them at the completion of their intended use.	BMP 2-26	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	B6.63	—	N/A	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
Road Decommissioning	<p>Unclassified Road Decommissioning and Egregious Resource Damage – The following roads have been determined by the ID Team to be unnecessary unclassified roads and/or roads that are the cause of egregious resource damage: U1433, U1431, U1420, U1390, U1333, U1329, U1220, U1219, U1169, U1153, U1140, U1133, U1124, U1119, U1082, U1076, U1068. Portions of these roads are designated for immediate closure and rehabilitation, as allowed under the terms of the OHV Route Designation Process.</p>	MM and BMP 2-26	HFQLG FSEIS, Route designation memo J. Pena 5/31/2005	N/A	—	N/A	N/A	All	—
Meadow Restoration, Streambank Stabilization, Fish Barrier Removals, Road Decommissioning	Watershed Restoration – repair degraded watershed conditions and improve water quality and soil stability.	BMP 7-1	HFQLG FSEIS in compliance with the Clean Water Act	N/A	—	N/A	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNEPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
Aspen Enhancement	Protection of Wetlands – avoid adverse water quality impacts associated with destruction, disturbance, or modification of wetlands. The Forest Service will not permit the implementation of activities and new construction in wetlands whenever there is a practical alternative. Employ directional felling and/or endlining where necessary to protect wetlands, meadows and other riparian resources.	BMP 7-3	Riparian Management Objectives (RMO) objectives of the HFQLG FSEIS, and Water Quality Management for National Forest System Lands in CA, BMPs (2000)	B6.61, B6.62, B6.5, C6.62, C6.411, C6.422, SAM	—	Timber Sale	—	—	—
Harvest, Group Selection, and Individual Tree Selection (ITS) Treatment Units	Standard resource protection measures for hydrology and soil resources.	BMPs 1-9, 1-10, 1-11, 1-12, 1-13, 1-15, 1-16, 1-17, 1-21	HFQLG FSEIS and Water Quality Management for National Forest System Lands in CA, BMPs (2000)	B6.422, B6.65, B6.67, C6.36, C6.425, C6.427, C6.5, C6.601, and C6.65	—	Timber Sale	N/A	All	—
All treatment units	Standard resource protection measures for hydrology and soil resources.	BMP 1-18, 1-20, 5-3, 5-4, 5-6, 7-3	HFQLG FSEIS and Water Quality Management for National Forest System Lands in CA, BMPs (2000)	B6.61, B6.67, C6.62, C6.313, C6.411, C6.601, C6.62, SAM	—	All	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
All	Determining Tractor Loggable Ground – Minimize erosion and sedimentation resulting from ground disturbance of tractor logging systems.	BMP 1-9	Riparian Management Objectives (RMO) objectives of the HFQLG FSEIS, and Water Quality Management for National Forest System Lands in CA, BMPs (2000)	B6.65, B 6.67, C6.5, C6.601, and C6.65	—	All	N/A	All	—
Harvest, Group Selection, and ITS Treatment Units	Tractor Skidding Design – Design skidding patterns to best fit the terrain, the volume, velocity, concentration, and to control direction of runoff water in a manner that will minimize erosion and sedimentation.	BMP 1-10	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	B6.422 and C6.422	—	Timber Sale	N/A	All	—
Harvest, Group Selection, and ITS Treatment Units	Suspended Log Yarding in Timber Harvest – (a) protect the soil mantle from excessive disturbance (b) maintain the integrity of the SMZ and other sensitive watershed areas (c) control erosion on cable corridors.	BMP 1-11	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	B6.422, B6.65, C6.422, C6.425, C6.427, and C6.601	—	Timber Sale	N/A	All	—
Harvest, Group Selection, and ITS Treatment Units	Log Landing Location – Locate new landings or reuse old landings in such a way as to avoid watershed impacts and associated water quality degradation.	BMP 1-12	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	SAM, B6.422	—	Timber Sale	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
All	Erosion Prevention and Control Measures During Timber Sale Operations – Ensure that the purchasers' operations will be conducted reasonably to minimize soil erosion.	BMP 1-13	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	B6.5, C6.5	—	All	N/A	All	—
Group Selection Treatments located in Unit DFPZ Treatment unit 5: 33g, 34g, 35g, 36g, and 37g	Special Erosion Prevention Measures on Disturbed Land – Provide appropriate erosion and sedimentation protection for disturbed areas. The purchaser will give adequate treatment by spreading slash, mulch or wood chips (or, by agreement, some other treatment) on portions of tractor roads, skid trails, landings, cable corridors or temporary road fills.	S&G, MM, and BMP 1-14	PNF LRMP, HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	C6.601	—	All	N/A	All	—
All SMZs and RHCAs where temp roads or landings are present and will be used/re-used	Do not sub-soil landings or temp roads in RHCAs or SMZs; seed and mulch and allow natural regeneration.	MM, BMP 1-14, and BMP 1-16	HFQLG FSEIS	C6.601	—	Timber Sale	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
Harvest, Group Selection, and ITS Treatment Units	Revegetation of Areas Disturbed by Harvest Activities – Where soil has been severely disturbed by the purchaser's operations, and the establishment of vegetation is needed to control accelerated erosion, the purchaser will be required to take appropriate measures normally used to establish an adequate ground cover of grass or other vegetative stabilization measures acceptable to the Forest Service. The type and intensity of treatment to establish ground cover is prescribed by the Timber Sale Administrator, with assistance from soil scientist and botanist as needed.	BMP 1-15	PNF LRMP, HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	C6.601	—	Timber Sale	N/A	All	—
Harvest, Group Selection, and ITS Treatment Units	Log Landing Erosion Control – Reduce the impacts of erosion and subsequent sedimentation associated with log landings by use of mitigating measures.	BMP 1-16	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	B6.64 and C6.601	—	Timber Sale	N/A	All	—
Harvest, Group Selection, and ITS Treatment Units	Erosion Control on Skid Trails – Protect water quality by minimizing erosion and sedimentation derived from skid trails.	BMP 1-17	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	B6.65 and C6.601	—	Timber Sale	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
All	Erosion Control Structure Maintenance – Ensure that constructed erosion control structures are stabilized and working.	BMP 1-20	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	B6.67	—	All	N/A	All	—
All	Acceptance of Timber Sale Erosion Control measures Before Sale Closure – Ensure the adequacy of required erosion control work on timber sales. The effectiveness of soil erosion prevention and control measures is determined by the conditions found after sale areas have been exposed for one, or more years to the elements as determined by the sale administrator.	BMP 1-21	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	B6.36	Purchaser responsible for up to one calendar year after sale.	T.S.	N/A	All	—
All	Soil Disturbing Treatments on the Contour – decrease sediment production and stream turbidity while mechanically treating slopes. This is a preventive measure that limits surface disturbance activities to preclude water from concentrating by providing means of adequate infiltration and by decreasing the velocity of surface runoff so that infiltration is enhanced.	BMP 5-1	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	—	—	All	N/A	All	—
All	Slope Limitations for Mechanical Equipment Operation – reduce gully and sheet erosion and associated sediment production by limiting tractor use.	BMP 5-2	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	B6.42, SAM	Sale Prep	All	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
All	Tractor Operation Limitation in Wetlands and Meadows – Limit turbidity and sediment production resulting from compaction, rutting, runoff concentration, and subsequent erosion by excluding the use of mechanical equipment in wetland and meadows except for the purpose of restoring wetland and meadow function.	BMP 5-3	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	B6.61, B6.62, C6.62, SAM	—	All	N/A	All	—
All	Revegetation of Surface Disturbed Areas – Protect water quality by minimizing soil erosion through the stabilizing influence of vegetation foliage and root network. This is a corrective practice to stabilize an otherwise unstable soil surface during vegetation manipulation projects. The plant species selected will be a mix best suited for site conditions and attainment of multiple management objectives for the area.	BMP 5-4	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	C6.601	—	All	N/A	All	—
All	Soil Moisture Limitations for Mechanical Equipment Operations – Use to prevent compaction, rutting, and gullyng, with resultant sediment production and turbidity.	BMP 5-6	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	C6.313, SAM	Need Limited Operating Period (LOP) for soils - condition-based, rather than dates - see soils mitigations	All	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
Units with underburn or pile burn treatments	Standard resource protection measures for hydrology and soil resources for prescribed burning treatments.	BMP 6-1, 6-2, 6-3, 6-4, 6-5	HFQLG FSEIS and Water Quality Management for National Forest System Lands in CA, BMPs (2000)	N/A	—	Service Contract	N/A	All	—
Units with underburn or pile burn treatments	Fire and Fuel Management Activities – Reduce public and private losses and environmental impacts which result from wildfires and/or subsequent flooding and erosion by reducing or managing the frequency, intensity and extent of wildfire.	BMP 6-1	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	N/A	—	All	N/A	All	—
Units with underburn or pile burn treatments	Consideration of Water Quality in Formulating Fire Prescriptions – Provide for water quality protection while achieving the management objectives through the use of prescribed fire.	BMP 6-2	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	N/A	—	Service Contract or Force Account	N/A	All	—
Units with underburn or pile burn treatments	Protection of Water Quality from Prescribed Burning Effects – Maintain soil productivity, minimize erosion, and minimize ash, sediment, nutrients, and debris from entering water bodies.	BMP 6-3	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	N/A	—	Service Contract or Force Account	N/A	All	—
Units with underburn or pile burn treatments	Minimizing Watershed Damage from Fire Suppression Efforts – Avoid watershed damage in excess of that already caused by the wild fire. Avoid heavy equipment operation on fragile soils and steep slopes whenever possible.	BMP 6-4	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	N/A	—	Service Contract or Force Account	N/A	All	—

Applicable Units	Brief Description	Type of Direction	Source of Direction (LRMP, SNFPA, HFQLG, FSM, FSH, NHPA,	Applicable Timber Sale Provisions Alternatives B&C	Provision Specifications from Specialist	Contract Type (Timber Sale, Service, Construction)	Limited Operating Periods	Applicable Action Alternatives	Applicable Reference
Units with underburn or pile burn treatments	Repair or Stabilization of Fire Suppression Related Watershed Damage – Stabilize all areas that have had their erosion potential significantly increased, or their drainage pattern altered by suppression related activities. Treatments for fire-suppression damages include, but are not limited to, installing water bars and other drainage diversions in fire roads, firelines, and other cleared areas; seeding, planting and fertilizing to provide vegetative cover; spreading slash, or mulch to protect bare soil; repairing damaged road drainage facilities; clearing stream channels or structures and removing debris deposited by suppression activities which can have adverse life, property and environmental impacts.	BMP 6-5	HFQLG FSEIS, Water Quality Management for National Forest System Lands in CA, BMPs (2000), and Clean Water Act	N/A	—	Service Contract or Force Account	N/A	All	—