Attachment D

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STEELHEAD (*Oncorhynchus mykiss*)

Project work within the wetted stream shall be limited to the period between June 15 and November 1, or the first significant fall rainfall. This is to take advantage of low stream flows and to avoid the spawning and egg/alevin incubation period of steelhead. Whenever possible, the work period at individual sites shall be further limited to entirely avoid periods when salmonids are present (for example, in a seasonal creek, work will be confined to the period when the stream is dry).

No heavy equipment shall operate in the live stream, except as may be necessary to construct coffer dams to divert stream flow and isolate the work site and to excavate the stored sediments from the stream channel immediately upstream of the road crossing.

Work must be performed in isolation from the flowing stream. If there is any flow when the work is done, the operator shall construct coffer dams upstream and downstream of the excavation site and divert all flow from upstream of the upstream dam to downstream of the downstream dam. The coffer dams may be constructed with clean river gravel or sand bags, and may be sealed with sheet plastic. Upon project completion, sand bags and any sheet plastic shall be removed from the stream in such a manner that would allow for the least disturbance to the substrate. Clean river gravel may be left in the stream, but the coffer dams must be breached to return the stream flow to its natural channel.

For minor actions, where the disturbance to construct coffer dams to isolate the work site would be greater than to complete the action (for example, placement of a single boulder cluster), measures will be put in place immediately downstream of the work site to capture suspended sediment. This may include installation of silt catchment fences across the stream, or placement of a filter berm of clean river gravel. Silt fences and other non-native materials will be removed from the stream following completion of the activity. Gravel berms may be left in place after breaching, provided they do not impede the stream flow or fish passage.

The channel shall not be excavated for the purpose of isolating the workspace from flowing water.

The Operator shall obtain a biologist with all necessary State and Federal permits, to rescue any fish within work sites prior to dewatering. Rescued fish shall be moved to the nearest appropriate site on the stream outside of the work area. A record shall be maintained of all fish rescued and moved, and the record shall be provided to DFG at the completion of the work season.

A Service-approved biologist shall permanently remove from within the project work site, any individuals of exotic species, such as bullfrogs, centrarchid fishes, and non-native crayfish, to the maximum extent possible. The Operator shall have the responsibility that such removals are done in compliance with the California Department of Fish and Game Code.

If it is necessary to divert flow around the work site, either by pump or by gravity flow, the suction end of the intake pipe shall be fitted with fish screens meeting DFG and NMFS criteria to prevent entrainment or impingement of small fish. Any turbid water pumped from the work site itself to maintain it in a dewatered state shall be disposed of in an upland location where it will not drain directly into any stream channel.

Any disturbed banks shall be fully restored upon completion of construction. Revegetation shall be done using locally obtained native species. Planting techniques can include seed casting, hydroseeding, or live planting methods using the techniques in Part XI of the *California Salmonid Stream Habitat Restoration Manual*.

Suitable large woody debris removed from fish passage barriers that is not used for habitat enhancement, shall be left within the riparian zone so as to provide a source for future recruitment of wood into the stream, reduce surface erosion, contribute to amounts of organic debris in the soil, encourage fungi, provide immediate cover for small terrestrial species, and to speed recovery of native vegetation.

The following measures shall be taken to minimize injury and mortality to listed salmonids resulting from fish relocation and dewatering activities:

a) Fish relocation and dewatering activities shall only occur between June 15 and November 1 of each year,
b) The Operator shall minimize the amount of wetted stream channel that is dewatered at each individual project site to the fullest extent possible, and
c) All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

Installation of the contracted bridge(s) will be of adequate size that it will allow anadromous fish passage at all life stages and is designed to comply with current National Marine Fisheries Service (NMFS) Southwest Region fish passage guidelines.

If for some reason these mitigation measures cannot be implemented, or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to anadromous salmonids or their habitat, then activity at that work site will be discontinued.

HAZARDS AND HAZARDOUS MATERIALS

The Operator shall have dependable radio or phone communication on-site to be able to report any accidents or fire that might occur.

Heavy equipment that will be used in these activities will be in good condition and will be inspected for leakage of coolant and petroleum products and repaired, if necessary, before work is started.

All equipment operators will be trained in the procedures to be taken should an accident occur. Prior to the commencement of work, the Operator shall provide DFG with a plan allowing for prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

All activities performed in or near a stream will have absorbent materials designed for spill containment and cleanup at the activity site for use in case of an accidental spill.

All fueling and maintenance of vehicles, other equipment, and staging/storage areas shall be located at least 20 meters from any riparian habitat or water body. The Operator shall ensure contamination of habitat does not occur during such operations.

Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be checked and maintained daily, to prevent leaks or materials that if introduced to water could be deleterious to aquatic life.

Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders, located within the dry portion of the stream channel or adjacent to the stream, will be positioned over drip-pans.

All internal combustion engines shall be fitted with spark arrestors.

The Operator shall have an appropriate fire extinguisher(s) and fire fighting tools (shovel and axe at a minimum) present at all times when there is a risk of fire.

Vehicles shall not be parked in tall grass or any other location where heat from the exhaust system could ignite a fire.

The Operator shall follow any additional rules the landowner has for fire prevention.

HYDROLOGY AND WATER QUALITY

Work shall be conducted during the period of lowest flow.

If it is necessary to divert water around the work site, unimpeded bypass flows shall be maintained at all times to maintain downstream water quality.

When a dam (any artificial obstruction) is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain fishlife bellow the dam pursuant to Fish and Game Code Section 5837.

Debris, soil, silt, bark, rubbish, creosote-treated wood, raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any

other substances which could be hazardous to aquatic life, resulting from project related activities, shall be prevented from contaminating the soil and/or entering the waters of the state. Any of these materials, placed within or where they may enter a stream or lake, by Operator or any party working under contract, or with the permission of the Operator, shall be removed immediately.

Effective erosion control measures shall be in-place at all times during construction. Construction within the 5-year flood plain will not begin until all temporary erosion controls (e.g., straw bales or silt fences that are effectively keyed-in) are in-place down slope of project activities within the riparian area. Erosion control measures shall be maintained throughout the construction period.
Adequate erosion control supplies (gravel, straw bales, shovels, etc.) shall be kept at all restoration sites to ensure sediment is kept out of water bodies. Erosion control measures shall be utilized throughout all phases of operation where sediment runoff from exposed slopes threatens to enter waters of the State. At no time shall silt laden runoff be allowed to enter the stream or be placed where it may enter the stream.

Silty/turbid water from the excavation and/or project activities shall not be discharged into the stream, lake, or into storm drains. Such water shall be pumped into a holding facility or into a settling pond located in flat stable areas outside of the stream channel, or sprayed over a large area outside the stream channel to allow for natural filtration of sediments. At no time shall turbid water from the settling ponds be allowed to enter back into the stream channel until water is clear of silt.

Sediment shall be removed from sediment controls once it has reached one-third of the exposed height of the control. Whenever straw bales are used, they shall be staked and dug into the ground six (6) inches. Catch basins shall be maintained so that no more than six (6) inches of sediment depth accumulates within traps or sumps.

Sediment-laden water created by construction, washing or other activities or shall be filtered before it leaves the right-of-way or enters the stream network or an aquatic resource area. Silt fences or other detention methods shall be installed as close as possible to culvert outlets to reduce the amount of sediment entering aquatic systems.

Preparation shall be make so that runoff from steep, erodible surfaces will be diverted into stable areas with little erosion potential.

If continued erosion is likely to occur after construction is completed, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided.

Upon project completion, all exposed soil present in and around the project site shall be stabilized within seven (7) days.

Work sites will be winterized at the end of each day when significant rains are forecast that may cause unfinished excavations to erode. Winterization procedures shall

supervised by a professional trained in erosion control techniques and involve taking necessary measures to minimize erosion on unfinished work surfaces. Winterization includes the following: smoothing unfinished surfaces to allow water to freely drain across them without concentration or ponding; compacting unfinished surfaces where concentrated runoff may flow with an excavator bucket or similar tool, to minimize surface erosion and the formation of rills; and installation of culverts, silt fences, and other erosion control devices where necessary to convey concentrated water across unfinished surfaces, and trap exposed sediment before it leave the work site.

Mulching and seeding using local native species mix is required on all exposed soil which may deliver sediment to a stream.

Poured concrete shall be excluded from the wetted channel for a period of two (2) weeks after it is poured. During that time the poured concrete shall be kept moist, and runoff shall not be allowed to enter a live stream. Commercial sealants (e.g. Deep Seal, Elasto-Deck BT Reservoir Grade) may be applied to the poured concrete surface where difficulty in excluding water flow for a long period may occur. If sealant is used, water shall be excluded from the site until the sealant is dry.

RIPARIAN VEGETATION

No more than 1/3 of any willow plant shall be harvested annually. Care shall be taken during harvest not to trample or over harvest the willow sources.

Planting of seedlings shall begin after December 1, or when sufficient rainfall has occurred to ensure the best chance of survival of the seedlings, but in no case after April 1.

Building materials and/or construction equipment shall not be stockpiled or stored where they could be washed into the water or where they will cover aquatic or riparian vegetation.

The contractor shall not dump any litter or construction debris within the riparian/stream zone. All such debris and waste shall be picked up daily and properly disposed of at an appropriate site. During all activities at project work sites, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.

The Operator shall retain as many trees and brush as feasible, emphasizing shade producing and bank stabilizing trees and brush.

The Operator shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.

Use project designs and access points that minimize riparian disturbance without affecting less stable areas, which may increase the risk of channel instability.

Minimize compaction by using equipment that either has (relative to other equipment available) less pressure per square inch on the ground or a greater reach, thus resulting in less compaction or less area overall compacted or disturbed.

At the completion of the project, soil compaction that is not an integral element of the design of a crossing should be de-compacted.

Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations.

Disturbed and compacted areas shall be revegetated with locally obtained native plant species. The species used should be specific to the project vicinity or the region of the state where the project is located, and comprise a diverse community structure (plantings should include both woody and herbaceous species). Plant at a ratio of two plantings to one removed plant.

Unless otherwise specified, the standard for success is 80 percent survival of plantings or 80 percent ground cover for broadcast planting of seed after a period of three (3) years. If at the end of three (3) years there is less than 80% survival, all dead plants shall be replaced.

RARE PLANTS

Prior to the commencement of work, the Operator will employ one or more of the following protective measures:

a) Fencing to prevent accidental disturbance of rare plants during construction,
b) On-site monitoring by a qualified biologist during construction to assure that rare plants are not disturbed, and
c) Redesign of proposed work to avoid disturbance of rare plants.

If it becomes impossible to implement the project at the work site without potentially significant impacts to rare plants, then activity at that work site will be discontinued.