California Environmental Quality Act
(CEQA)

INITIAL STUDY

Supporting the Preparation of a Mitigated Negative Declaration

Waste Discharge Requirements
for
Timber Harvesting and Related Land Management Activities
Conducted by Humboldt Redwood Company, LLC.
In Upper Elk River,
Humboldt County, California

December 4, 2015

California Regional Water Quality Control Board, North Coast Region
5550 Skylane Blvd.
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Prepared By:
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Nonpoint Source Pollution Control Unit

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A. PROJECT TITLE:

Waste Discharge Requirements for Nonpoint Source Discharges and Other Controllable Water Quality Factors Related to Timber Harvesting and Associated Activities Conducted by Humboldt Redwood Company, LLC, In the Upper Elk River Watershed, Humboldt County.

B. LEAD AGENCY

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D. PROJECT LOCATION

Upper Elk River watershed, tributary to the Humboldt Bay in Humboldt County California.

E. PROJECT DESCRIPTION

This Project consists of adoption of Waste Discharge Requirements (Order) by the California Regional Water Quality Control Board, North Coast Region (Regional Water Board) that, if adopted, would establish water quality requirements for nonpoint source waste discharges and other controllable factors related to timber harvesting and associated activities conducted by Humboldt Redwood Company, LLC (HRC), a timberland management company, in the Upper Elk River (UER) watershed, Humboldt County, California.

The Order establishes enforceable general and specific requirements to achieve compliance with water quality objectives in receiving water through implementation of stringent management practices designed to minimize discharges. The main elements include:

- Limits on the intensity and areal extent of timber harvesting including a temporary prohibition on harvesting in high risk areas within the UER;
- Management practices to prevent sediment discharge from road use, construction, reconstruction, decommissioning, repair and maintenance;
- Inventory and treatment of controllable sediment discharge sources from roads, skid trails, landslides, and other sources related to timberland management;

- Methods to prevent sediment discharge from landslides by implementation of hillslope prescriptions designed to minimize impacts to slope stability and review by Professional Geologist of all proposed harvesting and road construction or reconstruction;
- Riparian management zones, in which retention of riparian vegetation, exclusion of ground based logging equipment, and enhanced erosion control serves to minimize sediment inputs from streamside areas and preserve and restore riparian shade to protect water temperature;
- Restoration of stream channels and riparian zones to control sediment and improve salmonid habitat, including:
    - Large wood augmentation for the purposes of improving fish habitat and sediment routing. Methods could include falling riparian zone trees or placement of logs using heavy equipment;
    - Construction of in-stream or off-channel sediment detention basins;
    - Streambank stabilization using large wood, excavation, planting, rip-rap, or other methods;
    - Removal or reconstruction of watercourse crossings and near stream road segments; and
    - Excavation of in-stream sediment deposits.
- A monitoring and reporting program that includes watershed trend monitoring, annual work plans describing HRC's planned activities for each upcoming year, and an annual summary report of activities conducted during the previous year.

The potential impacts of those activities included in this Project and the specifics of the Order are described in section H of this initial study. The draft Order and supporting documentation are attached to this initial study.

Environmental Setting and Regulatory Background

The Elk River watershed is a 33,700 acre (52.7 mi^2) watershed located in coastal northern California, draining into Humboldt Bay just south of the city of Eureka, in Humboldt County (Figure 1). Elk River has relatively steep forested headwater slopes and flows across a primarily grassland coastal plain into the central portion of Humboldt Bay, across from the bay inlet. The watershed is made up of six Calwater (version 2.2) planning watersheds: Martin Slough, Lower Elk River, Lower North Fork Elk River, Upper North Fork Elk River, Lower South Fork Elk River, and Upper South Fork Elk River. The Mediterranean climate of the Elk River watershed is characterized by mild, wet winters and a prolonged summer dry season. Mean annual precipitation ranges from 39 inches at Eureka, located on the coast, to 60 inches in Kneeland, which is near the top of the watershed, 2,657 feet above sea level, and approximately 12 miles inland from Humboldt Bay. Roughly 90% of the annual precipitation occurs as rainfall between October and April. Elevation ranges within the watershed range from 2800 feet in the headwaters of the watershed to

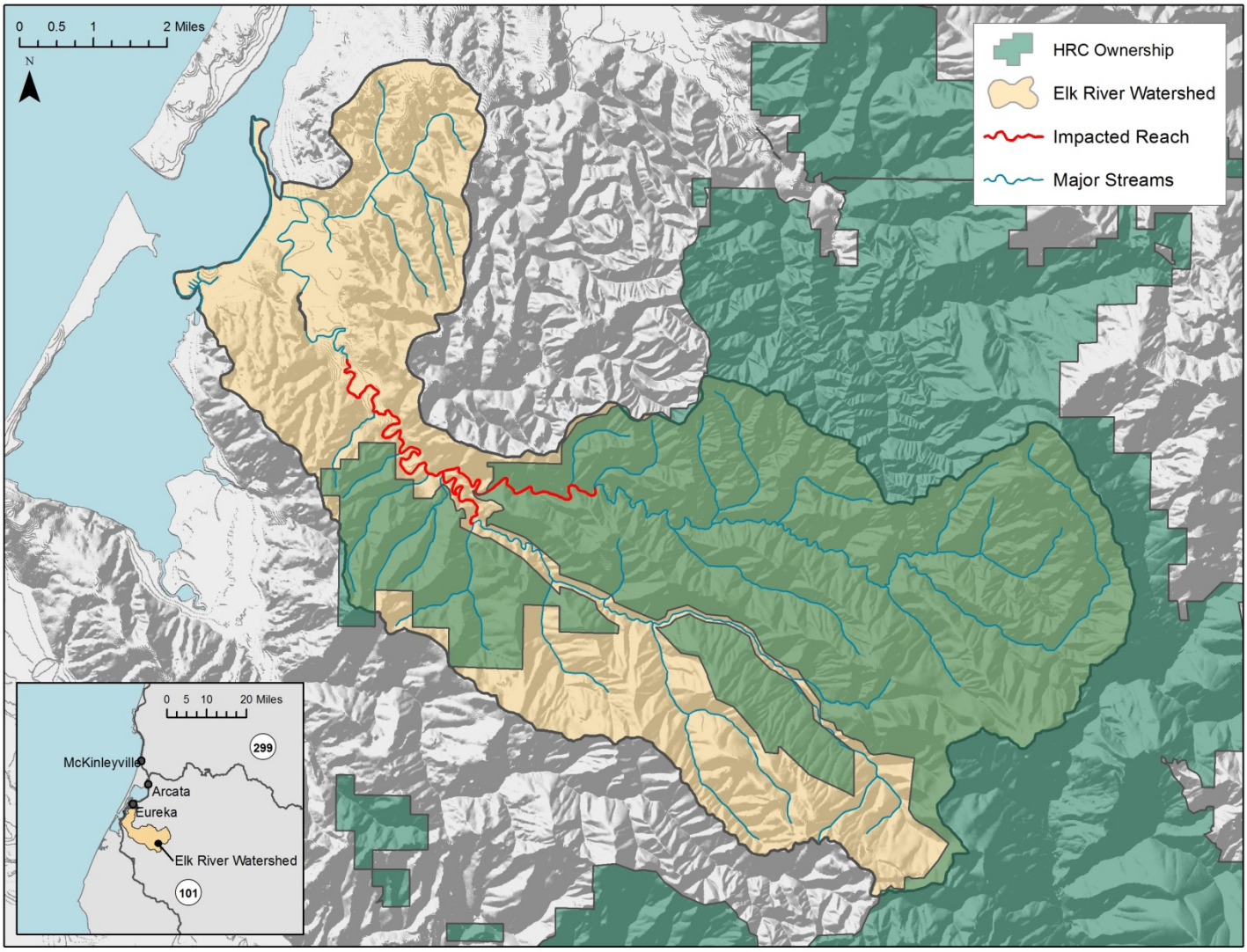

Figure 1. Elk River and Vicinity

sea level at its confluence with Humboldt Bay. Ridge-top areas can be fairly gentle with slopes typically steepening to ≥ 40% approaching watercourses.

HRC lands account for approximately 66% of the watershed: 98% of the North Fork Elk Basin, 50% of the South Fork basin, and a small section of the mainstem region near the confluence of the two major forks. This area is referred to as the Upper Elk River (UER). Other ownerships within the UER include the Bureau of Land Management (Headwaters Forest Reserve), Green Diamond Resource Company, the City of Eureka, and mixed private residential and agricultural ownerships. Approximately 85% of the land in the UER is owned by the two industrial timber management companies (HRC and Green Diamond) and is managed for growing conifer and hardwood trees for the production of saw and chip logs and other renewable forest products such as bio-fuel, split products, firewood, and burls.

In 1997, the Regional Water Board and other state agencies began to receive reports from downstream residents of increased turbidity, channel filling, and flood frequency. In December 1997, California Department of Forestry and Fire Protection (CAL FIRE), California Department of Fish and Wildlife (DFW, then California Department of Fish and Game), California Geological Survey (CGS) and the Regional Water Board determined, based on field observations and aerial photograph data, that the Elk River Watershed was one of five Humboldt County watersheds that were significantly cumulatively impacted by sediment discharges following the large storm events in late 1996 and early 1997. Following this determination, a series of regulatory and non-regulatory actions designed to increased land use controls to reduce sediment discharges from timber harvesting activities have been implemented.

Over time, sediment transported from the upper tributaries has been deposited in low gradient downstream reaches at the confluence of the North and South Fork Elk River (hereinafter referred to as the impacted reach) and has resulted on going aggradation, encroachment of riparian vegetation onto relatively recent fine sediment deposits, and an increased incidence of overbank flooding which has impacted the residential community for the past 20 years. It is estimated that over 600,000 cubic yards (yd^3) of sediment produced by management activities over the past two decades are stored within the low gradient stream reaches of the UER. In addition to elevated sediment loads, hydromodification from channel stabilization, removal of large woody material, dredging, and channel constrictions in lower portion of the watershed such as bridges and roads have diminished the ability of the river to assimilate increased sediment loads.

In addition to the stored sediment within the impacted reach, elevated sediment production from in-stream sources within lower order watercourses further up in the watershed is being transported through the system downstream.

There is a strong association between land management practices that were used during the period between 1988 and 1997 and the impairment of beneficial uses of water in the UER. Data from field observations and interpretation of aerial photographs show that sediment production rates during this time greatly exceed long term natural background rates due to several factors, including an approximate four-fold increase in logging under then-owner, the Pacific Lumber Company (PALCO), during this time period, poorly regulated logging practices, a series of winters with above average precipitation and large storm events, and potentially of a magnitude 7.2 earthquake off Cape Mendocino in 1992.

Starting in 1997, the Regional Water Board issued Cleanup and Abatement Orders (CAO) that required the inventory, prioritization, treatment, and monitoring of existing sediment sources associated with land management activities, prevention of creation of new sediment sources, and monitoring of in-stream sediment-related indices. Treatment of controllable sediment discharge sources (CSDS) related to roads, off-road sites, and landslides throughout HRC's ownership in the UER watershed have been conducted under Cleanup and Abatement Order (CAO) Nos.

R1-2004-0028 (for the South Fork and Mainstem Elk River) and R1-2006-0055 (for the North Fork Elk River). The majority of road related sites have been treated as of the end of 2015. Treatment of all road related sites is scheduled to be completed by the end of 2017. Over 12,300 acres have been surveyed since 2007 and 143 off-road CSDSs, primarily associated with skid trails, were identified. By 2011, 80% of the top 100 sites with the greatest potential for environmental impact were treated. In 2012, HRC submitted a new master treatment plan to schedule treatment of the remaining sediment sources in the watershed. As of 2014, corrective action had been implemented at approximately half of these sites. The Order requires HRC to continue to treat sites that annually based on priority and proximity to timber operations and other sediment control work .

In 2006 the Regional Water Board adopted Order No. R1-2006-0039, Elk River Watershed-Wide Waste Discharge Requirements (2006 WDR). Among other requirements, the 2006 WDR includes receiving water limitations on peak flow increases and sediment discharge from harvest-related landslides; and rate of harvest (ROH) limitations based on two scientific models.

In October 2008, HRC acquired ownership of PALCO's timberland holdings throughout Humboldt County, including the approximately 22,000acres in the UER. Since acquiring the property, HRC has implemented a significantly different silvicultural management strategy throughout their ownership that predominantly utilizes partial harvesting methods, such as selection silviculture. Partial harvesting results in post-harvest conditions that are less susceptible to mass wasting and increased erosional processes as compared to clearcut harvesting.

On September 22, 2015, pursuant to Water Code section 13260(a), HRC submitted a report of waste discharges (ROWD) for its timber harvesting and related management activities. The ROWD includes HRC's proposed long term timber management strategy, including proposed measures designed to prevent or minimize water quality impacts from activities associated with its forest management.

F. PURPOSE AND NEED

The 2006 WDRs are not tailored to the management practices of HRC, and do not comprehensively address HRC's obligations for cleanups and TMDL implementation. The Order needs to reflect current conditions, and all parties agree that a more comprehensive and readable permit is desirable. In addition, it is agreed that remaining requirements for erosion control from the two CAOs should be incorporated for a more efficient management of related monitoring and reporting.

The purpose of the revised Order is to provide a water quality regulatory structure for HRC to prevent and/or address discharges of waste and other controllable water quality factors associated with timber harvest activities in the UER. The WDR is informed by the total maximum daily load (TMDL) sediment source analysis for the UER and overwhelming evidence pointing to the lack of assimilative capacity in the

impacted reach.[1] The WDR provides for implementation of strict best management practices (BMP) prepared with the collaboration and cooperation of HRC, some that vary according to the sediment loading risk of subwatersheds. The WDR provides a five year interim program where HRC will refrain from timber harvest activity in high risk subwatersheds to allow time for stewardship efforts to move forward and improve conditions in the impacted reach.

The Order prescribes general and specific requirements that HRC conduct timber harvesting and associated management activities to reduce the potential for sediment and temperature impacts, including best management practices intended to implement applicable water quality standards from the Water Quality Control Plan for the North Coast Region (Basin Plan) (NCRWQCB, 2011). The proposed Order is attached to this Initial Study.

G. CONSISTENCY WITH PLANS AND POLICIES

Timber Harvesting Under the California Forest Practice Rules

CAL FIRE is the state agency responsible for overseeing timber harvesting activities through implementation of the Forest Practice Rules (FPRs)(Cal. Code Regs., tit. 14, §895 *et seq.*[2]). Under the Z'Berg-Nejedly Forest Practice Act, non-federal landowners proposing to harvest timber are required to have an approved timber harvest plan (THP) prior to commencing timber harvesting.

The FPRs include rules for protection of the beneficial uses of water, including rules for enhanced protection in watersheds with listed anadromous salmonids. The FPRs provide measures designed to prevent sediment discharges (see FPR §§914, 934 [harvesting practices and erosion control]; §923, 943 [prescriptions for construction, reconstruction, use, maintenance, and decommissioning of road sand landings]; §916.4, 936.4 [requiring evaluation of sites that could adversely impact beneficial uses of water and treatment of such sites when feasible].) FPR section 916.9 requires that every timber operation in watersheds with listed anadromous salmonids shall be planned and conducted to comply with the terms of a Total Maximum Daily Load (TMDL) if one has been established for the receiving waters within the plan area. The FPRs also provide measures to limit reductions in riparian shade to protect water temperature.

Additionally, CAL FIRE is the CEQA Lead Agency for timber harvesting operations in California. The Secretary of Resources has certified that regulation of timber harvesting operations by CAL FIRE is exempt from CEQA's requirements to prepare an Environmental Impact Report (EIR) or Negative Declaration. A THP that is approved by CAL FIRE is considered the functional equivalent of an EIR under

[1] The term "impacted reach" applies the North Fork Elk River below Browns Gulch, the South Fork Elk River below Tom Gulch, and the mainstem of Elk River from the confluence of the North and South Forks downstream to Bertas Road.

[2] Citations to the Forest Practice Rules contained in Title 14 of the California Code of Regulations will be indicated by "FPR" followed by the relevant § number.

CEQA. The Regional Water Board, the California Department of Fish and Wildlife (DFW), the California Geologic Survey, and other agencies are responsible agencies charged with the multidisciplinary review of THPs for compliance with CEQA. All timber harvesting activities in the UER watershed will first be certified by CAL FIRE and considered to have completed the CEQA Functional Equivalent process. Regional Water Board staff participate in the THP review process, which provides a mechanism to ensure compliance with the Order and a supplemental CEQA review for individual THPs. Applicable FPRs and other mitigations identified in the THP review process are included as enforceable provisions of the Order.

Endangered Species Act and Habitat Conservation Plan

All of HRC's ownership in the UER watershed is covered by a multi-species state and federal Habitat Conservation Plan (HCP), which was approved in 1999 by the California Department of Fish and Game (now CDFW), the National Marine Fisheries Service (NMFS), and the U.S. Fish and Wildlife Service (USFW). The state and federal Incidental Take Permits (ITP) issued for aquatic species including Chinook salmon, Coho salmon, cutthroat trout, steelhead trout, southern torrent salamander, tailed-frog, red-legged frog, foothill-yellow legged frog, and the northwestern pond turtle are most relevant to protection of the Beneficial Uses of UER. The management measures for water quality protection of the HCP were the subject of the federal Environmental Impact Statement and state Environmental Impact Report which led to the issuance of the ITP in conformance with the federal Endangered Species Act.

In 2005, as per the HCP requirements, PALCO conducted a watershed analysis of the Elk River and Salmon Creek watersheds. Watershed-specific prescriptions were developed for these watersheds that included riparian and landslide protections. The watershed analysis was revisited in 2014, and additional updates to the specific prescriptions were made. The revised sections of the HCP addressing Hillslope and Riparian Management Zone Prescriptions and Control of Sediment from Roads and Other Sources are included as enforceable provisions of the Order.

Master Agreement of Timber Operations

The CDFW has jurisdiction over the conservation, protection, restoration, enhancement, and management of fish, wildlife, native plants, and habitat necessary for sustainable populations of those species under state law, including Fish and Game Code , section1600 *et seq*. In August of 2006, HRC submitted a notification to CDFW for a long-term master harvesting operation lake and stream bed alteration agreement (MATO) pursuant to Fish and Game Code section1602 and 1605(g) for road work activities associated with the HCP. The MATO was issued in May 2011, and subsequently updated in June 2015. Section 10 of the MATO provides a detailed list of conditions necessary for protection of fish and wildlife resources from impacts of covered activities subject to the agreement.

Land Use Zoning

Current land uses in the UER are largely determined by local zoning regulations which have zoned 82% of the area as timber production zone. Most of the UER (75%) is privately managed for industrial timber harvest, with the exception of the

federally managed Headwaters Forest Reserve (located in the South Fork Elk River subbasin) and a small portion dedicated to private residential and agricultural uses in the lower South Fork Elk River valley.

H. SPECIFICS OF PROPOSED PROJECT AND GENERAL ENVIRONMENTAL CONCERNS

This section describes the potential impacts of timber harvesting and related management activities and the measures incorporated into the Order to mitigate those impacts.

General Effects of Timber Harvesting

The UER has been utilized primarily for timber harvesting since the 1850s. A wide range of environmental effects at varying spatial and temporal scales can result from timber harvesting. In addition, the impacts can vary greatly depending on factors such as pre-harvest stand condition and harvesting practices used. For example, clearcutting an old growth stand can have significantly different results than thinning a suppressed stand second growth stand. Removal of trees diminishes the structure of a forest stand for a period of time. However, a forest is a dynamic environment, which even under natural conditions, changes constantly as trees grow, mature, and die and are replaced by new trees. A portion of the trees in a forest can be harvested and the remaining stand may retain much of the inherent qualities of a mature forest that support a watershed's physical and ecological integrity. This is not the case with intensive harvesting practices such as clearcutting, which transforms a forest stand into essentially non-forest conditions for a period of time until trees grow back. When an old-growth forest is clearcut, as occurred in UER beginning in the mid-1800s and continuing episodically through the end of 1900s, its inherent ecological integrity and unique characteristics may be lost for centuries. The majority of the timber in the UER is now in a condition of varying stages of second growth conifers and hardwood, with the exception of approximately 5,000 acres of intact old growth forest remaining in the Headwaters Forest Reserve in the Little South Fork Elk River. Impacts resulting from timber harvesting are not limited solely to those caused by tree removal, but also those caused by ground disturbance and changes to watershed hydrology associated activities such as road construction and use and transporting trees to roads and landings. Water quality impacts from this history of timber management activities are mostly associated with increased sedimentation resulting in:

a. Impaired domestic and agricultural water quality;
b. impaired spawning habitat; and
c. increased rate and depth of flooding due to channel in-filling by sediment.

These impacts result from a complex interaction between inherent watershed characteristics, such as geology and geomorphology, external natural processes such as climate and timing of stochastic events (i.e. large storms, earthquakes, fires)

and type of management practices and extent and rate of watershed area disturbed. Increased sediment production is the result of greater incidence of landsliding, surface and gully erosion, and increases in channel erosion due to higher runoff rates. Much of the increased sediment production is associated with roads, skid trails, and landings, with the highest potential for sediment discharge occurring at road watercourse crossings.

HRC practices uneven-aged silvicultural techniques, such as selection and variable retention systems that result in generally continuous forest cover and a mix of age classes. Harvest management design criteria (referred to as prescriptions) are designed to capture mortality, improve the health of timber stands, and restore native species compositions more similar to what exited prior to the onset of widespread harvesting in the watershed. As the extent of mortality and inferior trees within a stand decreases from successive entries, the harvest orientations turn more towards spacing and concentration of growth on the best phenotypes of the desired species. Unless dictated by inordinate mortality, HRC's selection harvest entries into the watershed are planned to occur on 10-20 year intervals within an individual stand. Regeneration objectives are achieved through a combination of natural and artificial regeneration. HRC's silvicultural policy is based on the following:

- Operate without traditional clear-cutting;
- Harvests will retain elements of the original stand such as snags, green trees; stand structure, and other features important for a variety of functions for biotic organisms;
- Harvest less than growth so forest stand volume increases over time;
- Uneven-aged management will be employed on well-stocked conifer stands; and
- No harvest of old growth.

The overall result of timber harvesting as described in HRC's management strategy is a "managed" forest, which is qualitatively different from an untouched old growth forest. However, the management strategy is designed to retain much of the wildlife and watershed functions of the forest and will maintain or improve those values over current conditions. While it is difficult to quantify, when the proposed rate of harvest and partial harvesting methods are considered together with the emphasis on landslide avoidance strategy, landslide hazard analysis, and land management prescriptions, the potential for watershed impacts from timber harvesting is considered to be fairly low. That said, new discharges of sediment from harvesting and associated activities can be significant due to the existing impacted and degraded water quality of the watershed.

Measures to Prevent Sediment Discharge

Specific requirements to prevent new sediment discharge and address existing discharges fall into several categories discussed below, including forest management (including harvest rate limits), a temporary prohibition on harvesting in subwatersheds with high risk of sediment discharge, riparian protections, roads

management, landslide prevention, wet weather restrictions, inventory and treatment of existing controllable sediment sources, and watershed restoration efforts. In addition, the Order includes a monitoring and reporting program designed to evaluate the effectiveness of sediment control measures, identify where additional measures are necessary, and track in-stream water quality trends. Management measures in separate categories often overlap, and also provide benefits relevant to other categories. For example, riparian protections can preserve shade and prevent increases in water temperature as well as reducing sediment discharge and landslides.

Forest Management/Harvest Rate

Tree removal can result in reduced interception, evaporation, and evapotranspiration of rainfall by forest canopy and can therefore increase the volume of precipitation that infiltrates and remains in soils, increasing pore pressure, and altering stream hydrographs by increasing the magnitude and shortening the duration of peak flows in watercourses. Increased pore pressures can increase the likelihood and magnitude of slope failures. Changes in hydrographs can result in channel scour and increases in bank failures. Tree roots enhance the strength of shallow soils, increasing the soil's ability to resist failure. When trees are harvested their roots gradually decay, reducing the soil reinforcement they provide and increasing the potential for shallow landslides. Harvesting trees can result in increased soil moisture and runoff and decreased root strength, which can contribute to landsliding and increased erosion throughout a watershed. These impacts can be reduced or prevented by limiting canopy removal through silvicultural prescriptions and/or harvest rate limits.

The rate of harvest in a watershed is an important management variable. Various studies cite specific thresholds for the rate of harvest, above which, cumulative impacts become more likely to occur and have linked specific processes to watershed impacts, such as increased peak flows from road and canopy removal (Lisle et al. 2000, Lewis et al. 2001), landslide related sediment discharge (Reid, 1998), road density (Cedarholm et al. 1981, Gucinski et al. 2001, Trombulak et a, 2000), or equivalent clearcut area[3] (USDA Forest Service, 1974). Watershed-wide average annual harvest rates required under the Order equate to less than 1.5% equivalent clearcut acres. These rates are lower than required under the 2006 WWDRs, which allowed annual harvest rates of 1.9% in the North Fork and 1.8% and upwards in the South Fork. Based on the transition to unevenaged management under HRC's ownership, the proposed average annual harvest rate throughout the UER is less than 1.5% equivalent clearcut acres, the harvest rate above which Klein et. al (2012) found elevated chronic turbidity levels. In addition, the Order requires that the rate of harvest in any subwatershed not exceed 2% equivalent clearcut

[3] Equivalent clearcut area (ECA) is a widely used methodology developed by the United States Forest Service (USFS) to account for the relative impacts of different types of silvicultural treatment. It assigns a weighting factor of one to clearcutting and a value less than one for partial harvesting silvicultural treatments. The weighting factor for a silvicultural treatment is multiplied by total area treated under each silviculture to arrive at a normalized disturbance calculation. Therefore, 100 acres of selection harvest, which is typically assigned a ECA factor of 0.5, would be counted as 50 equivalent clearcut acres.

acres per year averaged over any 10 year period. This is to ensure that proposed harvest rates are generally below a threshold that would cause concern for contributing to ongoing cumulative impacts on water quality and contribute towards control of sediment and improvement of impaired beneficial uses of water.

Riparian Zone Management
Under natural conditions, the riparian areas in the UER created complexity in stream channels, both in the steep upper watershed as well as in depositional reaches. A riparian zone helps maintain healthy stream ecosystems and supports beneficial uses by:

- Stabilizing banks through provision of roots cohesion on banks and floodplains;
- Filtering sediment from upslope sources;
- Filtering chemicals and nutrients from upslope sources;
- Supplying large wood to the channel, which maintains channel form and improves in-stream habitat complexity;
- Helping to maintain channel form, in-stream habitat, and an appropriate sediment regime through the restriction of sediment inputs or metering of sediment through the system;
- Moderating downstream floods peaks through the temporary upstream storage of water;
- Helping maintain cool water temperatures through provisions of shade and creation of a cool and humid microclimate over the stream; and
- Providing both plant and animal food resources for the aquatic ecosystem in the form of, for example, leaves, branches, and terrestrial insects.

Alteration of physical processes in riparian zones have led to reduced complexity, including reduction in the trees available within riparian areas for recruitment to streams, increased surface erosion and landsliding, and destabilization of stream channels. Subsurface erosion of soil pipes is prevalent in the UER, particularly in swales above small headwater channels. Preferential flow through soil pipes results in internal erosion of the pipe, which may produce gullies by tunnel collapse. Considerations of the interactions between sediment processes, water temperature, and riparian trees are essential for evaluating and avoiding these management related impacts to streams. Management of riparian zone must be designed to preserve and restore the function of riparian vegetation and hillslope processes, including retention of adequate riparian zone trees and avoiding use of roads and heavy equipment on vulnerable hillslopes and swales.

The Order relies in part on water quality protection derived from the Elk River/Salmon Creek Watershed Analysis Revisited (ERSC WA), prepared by HRC in June 2014 pursuant to the provisions of their HCP. The ERSC WA establishes forest management prescriptions pertaining to slope stability and riparian protection established in consultation with state and federal resource agencies. The Order includes as enforceable provisions those prescriptions designed to prevent or minimize sediment delivery to Class I, Class II, and Class III watercourses, with additional water quality protections. These are summarized below:

Protection measures for Class I RMZs include:

- RMZs for Class I watercourses extend to 300 feet on either side of the channel;
- No harvesting within 50 feet of Class I watercourses;
- Retain the 18 largest conifer trees per acre (measured along 435 feet of watercourse length and within 100 feet of the watercourse and lake transition line);
- Between 50 feet and 150 feet of Class I watercourses, retain a minimum of 200 square feet of basal area per acre;
- Post-harvest basal area shall not be lowered below 150 square feet per acre between 150 feet to 300 feet from a Class I watercourses.

Protections measures for Class II RMZs include:

- RMZs for Class II watercourses extend up to 200 feet on either side of the channel;
- No harvesting within 30 feet of Class II watercourses;
- Between 30 feet and 100 feet of Class II watercourses, retain a minimum of 60% post-harvest conifer canopy coverage watercourses;
- Basal area shall not be lowered below 150 square feet per acre between 30 feet and 200 feet from a Class II watercourse.

Specific requirements for Class III protection measures include:

- RMZs for Class III watercourses extend to 100 feet on either side of the channel;
- No harvesting within 20 feet of Class III watercourses;
- Basal area shall not be lowered below 150 square feet per acre between 20 feet and 100 feet from a Class III watercourse.

Additionally, only single tree selection will be utilized in RMZs. No small group openings will take place. No ground based equipment, with the exception of at existing roads and permitted new road construction, is allowed within 150 feet of a Class I watercourses, 100 feet of Class II watercourses, and 50 feet of a Class III watercourse or to the closest hydrologic divide.

Erosion control practices in RMZs will implement the highest feasible erosion control methods including surfacing all segments of road and skid trails within riparian areas with pavement, rock, slash, mulch, straw, or other adequate materials. Practices that trap and filter all road and skid trail surface drainage within riparian areas to prevent the discharge of sediment to watercourses will also be used. Tractor crossings in un-channeled swales are to be avoided, and trees along the centerlines of swales and in areas of subsurface flow paths will be retained.

Control of Sediment from Roads

The Elk River sediment source analysis as well as other sediment TMDLs adopted for watersheds throughout the North Coast Region have identified logging roads as one of the most significant sources of anthropogenic sediment discharge. Logging

roads can alter hillslope hydrologic processes and increase sediment discharge from surface and gully erosion and landslides. Roads can contribute to landsliding by undermining and over steepening slopes and placing poorly compacted fill material on steep slopes. Roads also intercept and concentrate shallow groundwater and surface runoff, which can cause gully erosion and saturate vulnerable slopes, increasing the potential for failure. Road crossings of watercourses are subject to the force of high stream flows and failure usually results in direct delivery to streams. Road crossings of watercourses are one of the most common controllable sediment sources. Management practices to reduce the potential for road related sediment discharge have become standard in timberlands throughout the North Coast. Inventory and treatment of existing controllable sediment sources from roads is addressed under a separate heading below.

A programmatic approach to road construction, reconstruction, maintenance, decommissioning and regular inspections is essential to controlling sediment discharge from roads. A widely used reference document for planning, designing, constructing, reconstructing, maintaining, and decommissioning roads on forestlands in the North Coast is the Handbook of Forest and Ranch Roads (Weaver and Hagans, 1994). The Handbook contains a comprehensive suite of measures for forestland roads that Regional Water Board consider adequate and necessary to control sediment discharge from roads. Roads that have implemented all feasible site specific sediment control measures as described in the Handbook are referred to as "stormproofed."

Stormproofed roads incorporate the design features as summarized below into construction of new roads or reconstruction of existing roads:

- Hydrologically disconnecting road segments from watercourses and minimizing concentration of surface runoff by installing drainage structures at sufficient intervals to disperse runoff so as to avoid gully formation and minimize erosion of the road surface and inside ditches;
- Identifying and treating potential road failures (mostly fill slope failures) that fail and deliver sediment to streams;
- Designing watercourse crossings to minimize the potential for crossing failure and diversion of streams and sizing adequately to accommodate estimated 100-year flood flows (including wood and sediment);
- Inspecting and maintaining roads annually; and
- Avoiding or limiting wet weather road use to well rocked, paved, or chip sealed surfaces.

Sediment control measures for roads from the HCP largely rely on implementation of standards identified in Weaver and Hagans Handbook. Implementation of these road prescriptions are established as specific requirements of the Order. These requirements include:

- Implementing management practices and specifications to prevent and minimize sediment discharge from active roads;
- Upgrading of all roads by October 15, 2018, to meet the storm-proofed standard;

- Treating road-related controllable sediment discharge sources currently identified in the inventory by October 15, 2018;
- Maintaining and updating the inventory of controllable sediment discharge sources from roads;
- Inspecting all roads within their Elk River ownership at least annually between May 1 and October 15;
- Inspecting storm-proofed roads as soon as conditions permit following any storm event that generates 3 inches or more of precipitation in a 24-hour period, as measured at the Elk River rain gauge; and
- Notifying the Regional Water Board within one year of identifying new sediment discharge sources from roads; documenting and implementing measures to prevent or minimize sediment discharge at any new controllable sediment discharge sources identified during road inspections.

Landslide Prevention

Due to the weak geologic bedrock underlying much of the watershed, relatively high rates of tectonic uplift, and high annual precipitation rates, hillslopes throughout much of the UER are naturally vulnerable to landsliding. Natural rates of landslide related sediment production vary based on the occurrence of landscape disturbance such as large storms, fires, earthquakes or other infrequent natural events. Timber harvesting and associated ground disturbance can result in increased rates of shallow landslides on vulnerable slopes due to decreases in root strength, increased soil moisture, altering hillslope hydrologic process, and oversteepening or loading slopes by cut and fill road construction.

Tree roots can enhance the strength of shallow soils, increasing the soil's ability to resist failure. When trees are harvested, their roots gradually decay, reducing the reinforcement they provide and increasing the potential for shallow landslides. The loss of root strength gradually increases over a period of several years, with the critical period of maximum loss occurring approximately 5 to 15 years after harvesting. Loss of root strength varies with species and intensity of harvest. Interception, evaporation, and evapotranspiration of rainfall by forest canopy can reduce the volume of precipitation that infiltrates and remains in soils. Harvesting trees can therefore result in increased soil moisture and runoff, which can contribute to landsliding and increased erosion. Construction of roads, skid trails, and landings can also increase landsliding. Excavations on vulnerable areas to construct roads and skid trails can undermine steep slopes. In addition, fill material placed on steep slopes on the outboard edge of roads can fail. Such failures can trigger larger failures on slopes below, often displacing large volumes of debris which can be transported considerable distances down slope.

The sediment source analysis found that landslide-related sediment production increased over two-fold above natural rates during the period between 1955 and 2001, with the highest rates (almost 5 times natural landslide rates) observed during the 1988 to 1997 time period. Open-slope landslides and road-related landslides were the dominant sediment sources during this period. Landslide-related sediment production has declined in the UER during subsequent time periods, notwithstanding large storm events that occurred in 2003 and 2006.

Declines in landsliding rates are thought to be partially the result of the HCP mass wasting avoidance strategy, which limits or precludes operations on areas identified as high landslide hazard as well as the ERSC WA prescriptions for landslide prevention.

HRC's approach for evaluating landslide hazards relative to proposed land use activities includes ERSC WA Prescriptions. As part of THP planning, a review of pertinent technical data are conducted to denote potential high risk slopes, including landslide inventories, regional geomorphic maps, stereoscopic aerial photographs, and a shallow landslide potential map developed using the SHALSTAB landslide model. The Order requires the implementation of the following prescriptions as part of HRC's hillslope management mass wasting strategy:

- Utilize a hillslope management checklist to identify areas that are particularly vulnerable to mass wasting;
- No harvesting or road construction or reconstruction on Class I inner gorges; and
- No harvesting or road construction or reconstruction on the following areas without characterization and development of measures to protect water quality prescribed by a PG:
    - Class II or III inner gorges
    - headwall swales;
    - other areas with very high mass wasting hazard (including slopes greater than 60%; and
    - earthworks (skid trails, landings, road prisms, or other earthen structures) exhibiting characteristics identified in the hillslope management checklist.

In addition to the hillslope management mass wasting strategy described above, HRC implements a comprehensive approach to preventing increases in landslide related sediment discharge that includes characterization of landslide hazards, designing projects to minimize impacts to slope stability based on site specific hazards, and ongoing monitoring of landslide activity to better understand landslide patterns and modify management practices based on observed activity. The California Geological Survey Note 45 provides guidelines for Engineering Geologic Reports for Timber Harvesting Plans, which must be prepared by California Professional Geologist (PG) who is familiar with watershed characteristics. The Order establishes requirements for characterization of geologic hazards by a PG and development of site specific mitigations. Characterization of landslide hazard should at a minimum consider the following information:

- Existing hazard maps derived from slope stability models;
- Available maps and reports;
- Aerial photographs;
- Field investigation and mapping; and
- Applicable studies and technical models.

During development of individual THPs, a PG evaluates potential effects on slope stability and surface soil erosion, and landslide related sediment discharge from the proposed management activity, identifies problem areas, and describes specific

mitigation measures needed to minimize potential effects for identified areas of concern. The site-specific mitigations are based on the potential hazard process (likelihood of landslide initiation or acceleration in sediment mobilization or water flow, and the potential risk to water quality). Where appropriate, mitigations include, but are not necessarily limited to the following:

- Limit canopy removal in areas with elevated landslide hazard;
- Limit activities upslope of existing landslide and on vulnerable portions of deep seated landslides;
- Avoid road or skid trail construction on steep or vulnerable slopes; and
- Stabilization of existing landslides where applicable by methods such as planting, manipulate drainage, buttressing, and other feasible engineering techniques.

The Order establishes enforceable provisions to prevent increases in sediment discharge from landslides associated with HRC's timber harvest activities. The provisions entail an overall strategy that includes HRCs hillslope management mass wasting strategy from the ERSC WA, as well as additional measures included in their ROWD and those deemed necessary by Regional Water Board to prevent management related landsliding. These are summarized below as follows:

- Harvest rates throughout HRC's ownership in the UER that are less than those allowed under the limits set by the landslide reduction model under the current WDRs;
- Use of partial harvesting methods that retain a significant component of post-harvest root strength;
- Temporary prohibition of harvesting in high risk subwatersheds;
- Riparian protection zones, which include no harvesting within 50 feet of Class I watercourses, 30 feet of Class II watercourses, 20 feet of Class III watercourses and significant tree retention up to 300, 200, and 150 feet of Class I, II and III watercourses respectively;
- Review by licensed geologist of all proposed activities, including harvesting and construction or reconstruction of roads and watercourse crossings; and
- Implementation of HRCs ERSC WA hillslope management prescriptions.

Wet Weather Restrictions

Conducting timber operations during wet weather increases the potential for sediment production and discharge from roads, landing, and skid trails. Use of trucks and heavy equipment during saturated soil conditions can compact soil, create ruts which effect road drainage, and increase production of fine sediment. Typically the most effective way to prevent impacts from operations during saturated soil conditions is to avoid operations during the period of the year when rain is likely to occur. This allows for timely implementation of seasonal erosion control, completion and stabilization of construction and reconstruction of roads, landings, skid trails and watercourse crossings. In the North Coast, over 90% of average annual precipitation falls between October 15th and May 1st.

In order to minimize the impacts of conducting timber operations during wet weather, the Order applies the following seasonal restrictions:

- Road construction or reconstruction may not take place between September 15th and May 1st except in response to failure of a road segment or watercourse crossing that resulting in ongoing or imminent sediment discharge;
- No timber operations between October 15th and May 1st.

In addition, the following FPR restrictions on conducting timber operations during saturated soil conditions[4] apply:

914.7– "Tractor yarding or the use of tractors for constructing logging roads, landings, watercourse crossings, layouts, firebreaks or other tractor roads shall be done only during dry, rainless periods and shall not be conducted on saturated soil conditions that may produce significant sediment discharge."

915.1 – "Heavy equipment shall not be used for site preparation under saturated soil conditions that may produce significant sediment discharge; or when it cannot operate under its own power due to wet conditions."

923.4 – "Logging roads or landings shall not be constructed or reconstructed under saturated soil conditions that may produce significant sediment discharge, except that construction may occur on isolated wet spots arising from localized ground water such as springs, provided measures are taken to prevent significant sediment discharge."

Temporary Harvesting Prohibitions
Regional Water Board staff evaluated the relative risk of sediment production and discharge in each subwatershed in the UER based on probabilistic landslide hazard, bedrock geology, and observed sediment production from 2000-2011. This evaluation was used to establish a ranking of relative risk to water quality of low, moderate, or high for each subwatershed. Similarly, section 5.4 of the ROWD identifies five subwatersheds predominantly underlain by the Hookton Formation, a geologically young sandstone/siltstone bedrock unit that is highly vulnerable to surface erosion and mass wasting. These areas closely correlate with the Regional Water Board's assessment, and include: Clapp, Tom, and Railroad Gulches, McCloud Creek, and the Lower South Fork Elk River. Sediment production from these subwatersheds, which are also located directly above and adjacent to the impacted reach of the South Fork Elk River, is among the highest observed throughout the

[4] **Saturated Soil Conditions** means that soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur. Indicators of saturated soil conditions may include, but are not limited to: (1) areas of ponded water, (2) pumping of fines from the soil or road surfacing material during timber operations, (3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, (4) spinning or churning of wheels or tracks that produces a wet slurry, or (5) inadequate traction without blading wet soil or surfacing materials (FPR section 895.1).

UER. The five subwatersheds identified above are therefore appropriately considered as high water quality risk for the purposes of the Order. The Orders establishes a temporary prohibition on timber harvest activities in high risk subwatersheds. By refining water quality risk at a subwatershed scale, HRC can still engage in timber operations while refraining from activities in the most sensitive subwatersheds to allow active measures to be taken to improve downstream beneficial uses.

Inventory and Treatment of Controllable Sediment Discharge Sources
Timber harvesting and associated road construction and use have historically left disturbed areas throughout the landscape that have the potential to discharge sediment over extended periods of time. These legacy sites may include failing or failed watercourse crossings, road failures, road surfaces, landslides, unstable watercourse banks, soil stockpiles, skid trails, landings, exposed harvest units, or any other site discharging or threatening to discharge waste or earthen materials (referred to as controllable sediment discharge sites [CSDS]).

The identification, evaluation, and treatment of CSDS are important components of a strategy to prevent or minimize ongoing sediment discharge. The Order supersedes two existing CAOs No. R1-2004-0028 and R1-2006-0055 that required inventory, prioritization and treatment of CSDS related to roads, off-road sites, and landslides throughout HRC's ownership in the UER watershed. The majority of road related sites have been treated as of the end of 2015. Treatment of all road related sites is scheduled to be completed by the end of 2017. As a result of the CAOs, over 12,300 acres has been surveyed since 2007 and 143 off-road CSDSs, primarily associated with skid trail, were identified. As a result, over 12,300 acres have been surveyed since 2007 and 143 off-road CSDSs, primarily associated with skid trails, were identified. As of 2014, corrective action had been implemented at approximately half of these sites. HRC will continue to treat these sites annually according to the prioritization described in the master treatment schedule, as well as concurrently with timber operations for those sites located in the vicinity of THPs.

New active or potential sediment sources are also identified through implementation of an Annual Road Inspection Program (ARIP). This program requires that all accessible roads be inspected for maintenance needs at least once annually. CSDSs identified by ARIP, storm-triggered inspections, and active THP inspections are typically scheduled and treated within one year of discovery during the drier months of the year (May – November) and will be included in annual reports pursuant to the monitoring and reporting requirements of the Order. HRC maintains an inventory to track these new CSDS when identified and subsequently treated. Additional non-scheduled routine minor maintenance (i.e. shaping of road surface, cleaning of inboard ditches and culvert inlets, maintenance of energy dissipation/downspouts, and roadside brush maintenance) also occur as needed in response to road inspection results and management directive.

CSDSs not previously identified are also addressed by preparation and submittal of Erosion Control Plans (ECPs) for individual THPs. ECPs must include an inventory of

CSDS within the logging area of all THPs submitted by HRC. The inventory must include a description of each CSDS and corrective actions that can reasonably be expected to control sediment discharge from each site. Corrective action for each site must be implemented during the life of the THP. In addition, HRC must conduct three annual inspections of the THP project area including appurtenant roads and harvest units where timber operations are or have been active.

In-Stream Sediment Sources and Restoration

The sediment source analysis estimates that in-channel sources such as low order channel incision, bank erosion, and streamside landslides represent approximately 74% of the potential sediment load from the UER. In-channel sources such as these can be difficult to treat due to limited access and the potential for corrective action to result in short-term increased sediment discharge with no guarantee of long term improvements. The Order requires that HRC conduct a feasibility study to evaluate potential methods to control in-channel sources or trap or meter sediment in the UER before it can be transported to the impacted reach.

If the feasibility study identifies potential methods that may be effective in reducing in-channel sources, such methods should be tested through design and implementation of small scale pilot projects. If the pilot projects demonstrate the success of methods to reduce transport of sediment from tributaries in the UER to the impacted reach, HRC is to develop a plan to implement these methods on a wider scale throughout the UER. If the feasibility study concludes that no, or limited, effective methods for control of in-channel sources in the UER, resources that would have been used for that work should be committed to projects to improve beneficial use impairment in the impacted reach.

In-stream restoration and enhancement work consisting primarily of loading the stream with large wood placement to provide increased aquatic habitat complexity including pool development, sediment sorting, shelter and refuge has been implemented in the upper watershed since the 1990s. In addition to on-property conservation restoration and enhancement activities, HRC is also partnering with the Regional Water Board, other agencies, and NGOs to address chronic downstream health and safety concerns relative to water quality and domestic water supply, and winter storm flooding, including both financial and in-kind contributions to both the Elk River Recovery Assessment and Stewardship Projects.

HRC may conduct various types of restoration projects intended to improve fish habitat and control sediment delivery from in-stream and near-stream resources. Restoration activities covered under the Order would take place within the smaller, tributary watersheds to the South Fork and North Fork of Elk River, and would include projects such as:

- Large wood augmentation for the purposes of improving fish habitat and sediment routing. Methods could include falling riparian zone trees or placement of logs and stumps using heavy equipment;
- Streambank stabilization using large wood, excavation, planting, rip-rap, or other methods;

- Removal or reconstruction of watercourse crossings and near stream road segments;
- Construction of in-stream or off-channel sediment detention basins; and
- Excavation of in-stream sediment deposits.

Large wood performs important functions in stream channels: sorting sediment, scouring pools, and providing cover for fish. Individual pieces of large wood are episodically transported downstream during high, turbulent flow conditions, becoming temporarily lodged at new locations in the channel until they eventually decay or exit the watershed.
Large pieces of wood can catch other pieces, creating a log jam. As large wood moves through a stream, it changes flow dynamics, which can allow for both scouring and storage of sediment stored in the channel and on banks, resulting in pool and riffle formation, as well as improved salmonid habitat conditions.

Streambank stabilization is intended to remediate existing and prevent further in-channel failures adjacent to watercourses within the UER. Stabilization would be achieved using large wood, excavation, planting, rip-rap, or other methods. Removal or reconstruction of watercourse crossings will be done prevent and minimize erosion and hydrologic connectivity and road sediment delivery.

Removal or reconstruction of watercourse crossings and near stream road segments will reduce the hydrologic connectivity of the road system to the UER, reducing the amount of sediment that can potentially be delivered to the system and re-establishing more natural hillslope and instream hydrology.

Construction of in-stream or off-stream sediment detention basin will allow for attenuation of peak flows and sediment routing from the water column for later removal. Excavation of in-stream deposits would be done in order to prevent further downstream transport and eventual deposition of sediment within the nuisance reach.

REMEDIATION AND RESTORATION IMPACTS
This document addresses impacts from remediation and restoration described in the Order for treatment and control of CSDS and instream sediment control and restoration, including pilot projects for the instream feasibility study and HRCs voluntary restoration activities. As described above, the Order requires treatment of CSDS to reduce potential existing sediment inputs to the Elk River. By definition CSDSs have the potential to discharge sediment to waters of the state. The goal of treatment is to prevent the sediment from being mobilized and transported to waters. Implementation of corrective action on a CSDS often entails excavation of near-stream areas as well as channels and banks, installation of new drainage structures, disturbance of soil and loss of vegetation in riparian areas. These activities have the potential to result in some short term impacts to riparian area as well as short term increase in sediment discharge. However, the desired outcome of this work is in improve long-term site stability and decrease sediment discharge. Therefore, the result is going to be long term environmental benefit. In addition,

short term impacts can be minimized by implementation of appropriate management practices as described in the section below.

In addition, other restoration activities have the potential to result in impacts to the already-impaired UER, including:

- Increased erosion and short-term sediment discharges, short-term increases in turbidity and total suspended solids levels during construction and following construction;
- The introduction of hazardous materials (e.g. oil, grease, gasoline, hydraulic fluids and solvents) to the UER from construction staging locations;
- Re-routing of in-stream flows that could result in accelerated bank and channel erosion;
- Loss of riparian area function due to channel rocking or other stabilization activities;
- Increases in water temperature due to loss of riparian trees from felling; oil, fuel, and other fluids from heavy equipment being discharged to waters of the state;
- Siltation of spawning and rearing habitat for anadromous fishes;
- Mortality of fishes due to direct injury during in-channel construction activities;
- Permanent and temporary loss of shaded riverine aquatic habitat due to removal of established riparian vegetation along the banks of the UER;
- Temporary loss of fish passage during in-stream project work; and
- Increased aggradation, frequency, and magnitude of flooding in the nuisance reach due to upstream sediment mobilization and subsequent deposition.

Some restoration projects that involve construction and other work in waters of the United States (that are not included under timber activities) may require a federal permit pursuant to section 404 of the Clean Water Act or other federal law. Section 401 of the Clean Water Act requires each applicant for a federal license or permits to provide water quality certification from the state in which the activity will occur. All water quality requirements are contained in the main body of the WDR and most remediation and restoration activities are expected to be included as part of HRC's timber management activities. Nevertheless, in the event that the Army Corps of Engineers requires a Clean Water Act section 404 permit for a given restoration project in the UER, the Order contains a general water quality certification for coverage that may be requested by submitting a Notice of Intent (NOI) to the Regional Water Board.

While short term impacts may result from implementation of restoration projects, the desired outcome of this work is in improve long-term stability, decrease sediment discharge, improve streams capacity to meter or route sediment, and improve habitat for anadromous salmonids. Therefore, the result is going to be long term environmental benefit. In addition, short term impacts can be minimized by implementation of appropriate management practices as described below.

HRC's approach for conducting restoration includes utilizing the methods, techniques, and BMPs contained in the *California Department of Fish and Game Habitat Restoration Manual*, the *Handbook for Forest, Ranch & Rural Roads*, and the

Natural Resources Conservation Service Stream Restoration Design: National Engineering Handbook. In addition to these publications, HRC's MATO with CDFW (updated and revised in 2014) contains conditions and requirements for restoration activities. Attachment A of this Initial Study provides a comprehensive list of conditions enforceable under the MATO that are designed to prevent or minimize impacts with construction, reconstruction, or restoration work in stream, and near-stream zones.

Past restoration activities undertaken by HRC have demonstrated that proper implementation of the requirements, conditions, best management practices, and on-the-ground prescriptions contained in these documents can mitigate impacts from the listed restoration activities to less than significant. Where applicable, in-stream work, including placement of wood for enhancement of fish habitat or sediment storage, armoring of banks using unanchored wood structures, excavation of channels and stream banks to stabilize, trap, or remove excess sediment, shall be done in accordance with techniques in the California Salmonid Stream Habitat Restoration Manual (Habitat Restoration Manual). The placement and construction of such in-stream structures shall be planned and conducted to persist when subjected to large flood events.

Attachment A of this initial study include a list of Best management practices (BMPs) designed to prevent or minimize impacts, particularly sediment discharge and increased suspended sediment, associated with stream restoration and remediation. The Order requires HRC to utilize and implement Standard BMPs for Restoration Projects contained in Attachment A when implementing remediation and restoration activities, which include but are not limited:

- Temporal Limitations on restoration activities, which include seasonal, restrictions as well as restrictions based on
- Limitation on Earthmoving and construction Equipment to minimize soil and compaction;
- Erosion Control Requirements to stabilize areas disturbed during restoration work;
- Guidelines for minimizing impacts from channel excavation and stream bank stabilization;
- Limitations on work in streams and Wet Areas;
- Guidelines for temporary stream diversion and dewatering in flowing streams;
- Protection of Sensitive Species.

HRC has indicated a willingness and commitment to participation in watershed stewardship process to address beneficial use impairments in the impacted reach. In addition, the Order provides for limited timber harvesting in high risk watersheds based on a project proposal that when implemented must make a meaningful contribution to correcting beneficial use impairment in the impacted reach. Project proposals may include:

- Flood flow routing improvement (e.g. replace earthen approaches on bridge with culverts, riparian plantation thinning);
- Sediment storage reduction (e.g. slowing, trapping, removing) accumulated sediment in or delivering to the impacted reach;
- Water supply reliability (implement alternative supplies); and
- Infrastructure enhancement (E.g. roads, bridges, septics, raise houses).

These types of large restoration projects are beyond the scope of this CEQA analysis. Programmatic CEQA documentation has been previously developed and adopted by the Regional Water Board in its supplemental environmental documentation (SED) supporting the Temperature Policy and Policy in Support of Restoration. (Cal. Code Regs., tit. 14, § 15251, subd. (g); Cal. Code Regs., tit. 23, § 3782.) The SED analyzed and addressed potential impacts and mitigation measures of a full range of potential restoration projects that could be implemented. The SED includes a programmatic statement of overriding considerations if the State or Regional Water Board finds that a project's potentially significant, unavoidable environmental impacts could be acceptable in light of the benefits of attainment and protection of beneficial uses. Decision-makers will have the benefit of project-level review of any large-scale restoration projects.

INITIAL STUDY/ENVIRONMENTAL CHECKLIST

CEQA requires a Lead Agency to prepare an Initial Study to determine whether a project may have a significant effect on the environment (Cal. Code Regs., tit. 14, §15063(a)). A "significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance (Cal. Code Regs., tit. 14, §15382). If the Initial Study does not show that there is substantial evidence, in light of the whole record before the agency, that a project may have a significant effect on the environment, a Negative Declaration may be prepared. If the Initial Study identifies potentially significant effects, but identifies revisions or conditions to mitigate the effects to a point where clearly no significant effects would occur, a Mitigated Negative Declaration may be prepared (Cal. Code Regs., tit. 14, §15070).

Proposed requirements to be established in the Order would regulate timber harvesting and related management activities to protect, maintain, and restore water quality to meet Basin Plan objectives, avoid violations of prohibitions, abate or diminish nuisance conditions, and implement TMDL load allocations. The proposed Order is intended to provide additional water quality protection to timber and land management activities that are also subject to rules and restrictions of the California Forest Practice Rules and HRC's Habitat Conservation Plan. The proposed Order relies, in part, on existing prescriptive standards imposed by the FPRs and imposed through the CAL FIRE approved timber harvest plan review process. Conditions added to a THP during the approval process that are intended to protect water quality, such as riparian and hillslope protection and prevention of

controllable sediment discharge from roads, are included in the Order and would become enforceable requirements.

For the purposes of this Initial Study, the Regional Water Board has evaluated the potential impacts of all land management activities, which includes timber harvesting (falling and yarding, log hauling), road construction, reconstruction, and maintenance), location of and use of skid trails and landings, and watercourse crossings, site preparation, and restoration activities.

Some of the requirements of the Order are intended to either mitigate or evaluate existing watershed impacts and have no potential for impacts. An example is the requirement that HRC maintain a landslide inventory, which consists of data gathering and interpretation for the purposes of understanding landslide distribution and evaluating and improving management practices. This is an activity that combines field investigation as well as remote sensing (review of aerial photograph) that has no reasonably foreseeable potential for causing significant adverse impacts.

The Order would not limit or change the land owner's responsibility to comply with existing requirements, authorities, or responsibilities imposed by other agencies. Where applicable, these requirements and authorities of other agencies are described in the following checklist.

For each CEQA factor, the Regional Water Board evaluated potential environmental effects from the Order. The following checklist describes the specific and general requirements included in the Order and mitigation measures to reduce potential impacts to less than significant levels.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors marked below would be potentially affected by this project, as indicated by the checklist on the following pages.

☒ Aesthetics	☐ Agriculture and Forestry	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Geology/Soils
☒ Greenhouse Gas Emissions	☒ Hazards and Hazardous Materials	☒ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☒ Recreation
☒ Transportation/Traffic	☐ Utilities/Service Systems	☐ Mandatory Findings of Significance

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the

effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature Date

EVALUATION OF ENVIRONMENTAL IMPACTS

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from § XVII, "Earlier Analyses," may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. (Cal. Code Regs., tit. 14, §15063(c)(3)(D)). In this case, a brief discussion should identify the following:

a) Earlier Analysis Used. Identify and state where they are available for review.

b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project**:**				
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X	
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			X	
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?				X

a-c) The majority of the land covered in the Order has been and will be managed consistent with the timberland management of the surrounding lands, which are primarily zoned for timber production. While individual THPs or portions thereof will be in view of communities adjacent to or within view of the THP, aesthetics will be consistent with ongoing timberland management in this area.

Many travelers are interested in this industry and land management as evidenced by attendance at the logging museum and mill tours at Scotia, and the exhibits at the Humboldt Redwoods State Park Visitors Center in Weott. It is part of many travelers' expectations to see areas of on-going timber management, saw mills, log trucks and lumber trucks in northern California, just as they expect to see orchards and row crops from Interstate-5, fishing boats and freighters in our harbors, residences in suburban areas, or office buildings and industrial parks in urban areas. The juxtaposition of the preserved redwood groves within the Headwaters Forest Reserve and these timber production zones is striking and interesting and exemplifies competing land and resource uses. The fact that the view of the portions of the landscape planned for timber production changes more over time is not found to be a significant adverse effect.

Forests are not static; a harvested area will not remain open ground over time. Trees that have been retained, especially redwoods, will expand their crowns to utilize the available sunlight. Redwood stumps will sprout and these sprouts generally grow rapidly. Planted conifers will grow in the open areas. Open areas will quickly regain a forested appearance.

The majority of HRC's land will be harvested using uneven aged management; the canopies of harvest areas would be largely retained, and views of bare or exposed ground would be screened by the canopy. Areas that were previously clearcut will regrow and subsequent areas harvested under the current management practices will much more closely resemble an intact forest. The appropriate finding is **less than significant impact**.

d) The proposed project would not create a new source of substantial light or glare, which would adversely affect day or nighttime views; therefore, the appropriate finding is **no impact.**

II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
	Potentially Significant Impact	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				X

a-c) HRC lands in the UER are not Prime Farmland, Unique Farmland, or Farmland of Statewide Importance or otherwise zoned for agricultural use. The proposed project would not involve converting or re-zoning agricultural land to non-agricultural use. There will be no change to agricultural resources in the project area over existing conditions due to timber harvesting activities covered under the Order; therefore, the appropriate finding is **no impact**.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X	
c) Result in a cumulatively considerable net increase of any			X	

criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?				
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?			X	

a-e) HRC's management activities covered by the Order include road work and heavy equipment use, which could generate dust, particulate matter, emissions from slash burning, and exhaust as part of logging equipment and vehicle use to transport logs, equipment, and workers to job sites, or conducting restoration activities, which could temporarily impact ambient air quality and possibly create objectionable odors.

Increases in road use, road construction, slash burning, logging equipment and vehicle use are not anticipated under the Order. A slight increase in vehicle emissions from Water Board and third-party inspections at various sites in the region could occur. Based on the temporary and geographically dispersed nature of emissions, it is reasonable to conclude that ambient air quality standards would not be violated nor would such emissions interfere with the attainment of ambient standards.

Because potential impacts to air quality are short-term and the Order requires compliance with all local, state, and federal regulations, including the federal Clean Air Act and applicable state air quality standards, activities covered by the Order are not expected to have a significant impact on air quality, and therefore, the appropriate finding is **less than significant impact.**

	Potentially Significant Impact	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
IV. BIOLOGICAL RESOURCES – Would the project:				
a) Have a substantial adverse effect, either directly or through habitat		X		

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?		X		
c) Have a substantial adverse effect on federally protected wetlands as defined by § 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		X		
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		X		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

a-c) The goal of the Order is to establish requirements for HRC to conduct timber harvest and related activities in compliance with applicable water quality standards and regulations. Therefore, requirements of the Order are designed to mitigate impacts to the habitat of riparian and aquatic species. These include protection and restoration of the beneficial uses of water, including those that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered. Adverse impacts to such habitat could potentially result from activities covered by the Order either directly from disruption of stream banks, channel, or riparian zone or indirectly from sediment discharges from up-stream or hillslope disturbances. The Order includes a wide range of specific requirements designed to prevent or minimize either direct or indirect adverse impacts to in-stream and riparian habitat. The primary mitigation strategy for avoidance of direct impacts to aquatic and riparian habitat is through RMZ prescriptions and limits on canopy removal as described in section H of this initial study.

The Order relies in part on implementation of the HCP and MATO for water quality improvements. These were prepared and approved by federal and state fish and wildlife agency specifically for the purpose of species protection. Further, CDFW is one of the agencies that participate in individual THP review process to add site-specific mitigation measures as appropriate.

While the Order is not explicitly designed to mitigate potential impacts to terrestrial species, approval of the Order and implementation of covered activities will not significantly alter conditions currently existing in the Project area.

The potential impacts to biological resources from the proposed Project are inferred from existing available habitat and expected post-harvest habitat included within each individual project (THP). Habitat is a reasonable

surrogate for projecting the future existence of wildlife and plant species. The impacts to individual species that are anticipated to result from timber harvesting operations are described in each timber harvest plan and address Biological Resources in the following manner:

Birds
Maintenance of diverse forest stand conditions is necessary to provide habitat for the varied species of birds present within the Project area. Following completion of each management activities covered by the Order, significant retention of habitat types that are essential to bird species sensitive to logging-induced habitat changes will be maintained. Essential elements of habitat such as snags, green replacement trees and suitable nesting structures are being retained throughout the logging area and will continue to be retained during future projects as required by the HCP and the FPRs. Forest openings and young forest will continue to offer important habitat to many neotropical migrant birds. In addition, these early-seral areas foster abundant prey species populations—such as wood rats—for raptors.

Because of the gradual average stand age that will be maintained within the Project area throughout the life of the project due to HRC's unevenaged silviculture practices and requirements under their HCP, no significant adverse individual or cumulative effects to bird species are anticipated.

Mammals
Maintenance of a variety of seral stages is necessary to provide habitat for the various mammal species that may occur within the area. A significant retention of habitat type acres that are essential to mammal species will be maintained and disclosed for the project area following permitted management activity. Essential terrestrial habitat attributes such as snags, green replacement trees, and down woody debris for denning sites are being retained throughout the Project area, and will continue to be retained during future projects as required by the HCP and FPRs. Because of the significant amount of mid- to late-seral habitat that will be maintained within the area throughout the life of the project due to the landowner's sustainable silviculture practices and requirements under the landowner's HCP, no significant adverse individual or cumulative effects to mammal species are anticipated.

Rare and Uncommon Plants
The maintenance of diverse forest stand conditions on the landscape over time—especially of individual stages that are regionally restricted—is an essential element to the long-term protection of rare and uncommon flora. The numbers and distribution of rare plants in the redwood region are generally dependent on the diversity of soil types, microclimates, and land use.

Section 6.12 of HRC's HCP, Conservation Plan for Sensitive Plants, specifies measures necessary to avoid significant impacts to plants. These measures include surveys for sensitive plants or potential habitat conducted by a qualified botanist Any rare or endangered plants found during any botanical surveys that are required during harvesting. Listed plan species must be flagged or delineated from herbicide usage through an avoidance strategy wherein those populations will likewise be avoided inside the same flagged or delineated areas. In addition, Technical Rule Addendum #2 from FPR section 912.9 (Cumulative Impacts Assessment Checklist) requires an evaluation of any known rare, threatened, or endangered species or sensitive species that may be directly or indirectly affected by project activities. Because of the patchy distribution of rare and uncommon flora, and the relative lack of occurrence information in the redwood region, occurrence of many rare plants can only be ascertained through careful field surveys. Much of HRC's management activities covered under the Order are subject to site-specific botanical surveys designed to locate rare and uncommon flora. All feasible protection measures developed by a qualified botanist are implemented where necessary to avoid adverse impact.

Because a variety of seral stages are being maintained over time, and botanical surveys are conducted for each THPs and sensitive plants and potential habitat for sensitive plants are protected, no significant adverse individual or cumulative effects to plant species are anticipated.

Amphibians & Reptiles

Because the sensitive amphibian and reptile species have life-history traits that require cool and clean water, avoiding direct impact to Class I and II RMZs is the primary method of protection for amphibian and reptile species. Due to the uneven aged silviculture methods used by HRC, a variety of age classes and tree species will be retained within the project area following harvesting, and will continue to be retained. Maintenance of a variety of forest stand conditions is important because of the various life-history requirements of some amphibians and reptiles. Because significant acreage in streamside areas will be avoided by HRCs harvesting, no significant adverse individual or cumulative effects to amphibians or reptiles are anticipated.

Fish

Elk River, a major tributary to Humboldt Bay, provides important freshwater habitat for anadromous salmonids and steelhead. The watershed is home to five fish species listed under the Endangered Species Act (CDFW 2014). Salmonids are identified in North Coast watersheds as the most sensitive of the native cold-water aquatic organisms. They require clear, cold, well-oxygenated water; unimpaired migratory access to spawning grounds; clean, un-embedded gravels for spawning; and food, pools, and places to hide from predators for juvenile rearing.

Current habitat conditions throughout much of Elk River are substantially degraded by fine sediment. Stream substrate is very fine, potential spawning gravels are significantly embedded, pool depths and stream channel depths have been decreased by sediment filling (thus reducing salmonid ability to rear, avoid predators, and migrate during low-flow periods), and high suspended sediment concentrations and durations affect feeding and rearing behavior. However, there are still remaining reaches providing habitat and salmonid redd surveys conducted by HRC have shown steady increases since 2006.

The purpose of the Order is to ensure HRC's timber harvest and related activities are conducted in a manner that protects and restores beneficial uses of water in Elk River, including those associated with habitat for anadromous salmonids. Requirements of the Order that will likely result in decreased sediment production and ultimately in improved salmonid habitat include:

- Harvest limits, including Silviculture and rates, designed to minimize increases in peak flow and sediment production;
- Temporary prohibition on harvesting in subwatersheds with high risk of sediment production;
- Enhanced riparian zone buffers, including no harvesting adjacent to Class I and II watercourses, equipment exclusion zones, and tree retention standards;
- Measures to control sediment discharge from roads;
- Measures to control sediment discharge from off-road sites;
- Landslide prevention measures;
- Feasibility study for control of in-stream sediment sources.

As discussed in the section H, *Remediation and Restoration impacts*, implementation of corrective action on a CSDS and restoration projects often entail excavation of near-stream areas as well as channels and banks, installation of new drainage structures, disturbance of soil and loss of vegetation in riparian areas. These activities have the potential to result in some short term impacts to riparian area as well as short term increase in sediment discharge. However, the desired outcome of this work is to improve long-term site stability and decrease sediment discharge. Therefore, the result is long term environmental benefits. In addition, short term impacts can be minimized by implementation of appropriate management practices as summarized in section H and described fully in Attachment A. The Order requires HRC to utilize and implement the mitigations for construction impacts associated with remediation and restoration work contained in Attachment A.

Wetlands

Generally, wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and

animal communities living in the soil and on its surface (Cowardin, December 1979).
For regulatory purposes under the Clean Water Act, the term wetlands means "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas."

HRC's timber operation in the Elk River must be conducted in compliance with their HCP, California Forest Practice Rules, and their CDFW MATO. All of these include provisions for avoidance and protection of wetland areas.

The HCP includes the following definition of those areas that may meet the definition of, or may contain, wetlands.

Channel migration zone (CMZ)—The boundary generally corresponds to the modern floodplain, but may also include river terraces that are subject to significant bank erosion. The area adjacent to watercourses constructed by the river in the present climate and inundated during periods of high flow. The floodplain is delineated by either the flood-prone area (twice bankfull depth) or the 100-year floodplain, whichever is greater.

Class I Waters—Fish are always or seasonally present onsite. Class I waters include habitat to sustain fish migration, spawning, and rearing. They also include domestic water supplies, such as springs, onsite or within 100 feet downstream from the project operations area.

Class II Waters—Non-fish bearing waters. Aquatic habitat is present for non-fish aquatic species, including in watercourses, streams, seeps, springs, lakes, ponds, and wetlands.

The HCP establishes riparian management zones for the above defined areas, which include no harvesting of tree and equipment exclusion, except for roads and permitted equipment crossings.

HRC forestry staff has received wetland and watercourse identification training. These trainings are internal but include guidance documents and presentations from CDFW, USFWS, NOAA, and CalFire During development of THPs, identification of watercourses and wetlands is conducted by forestry staff . Features are mapped and stored in a GIS database. Protection measures are applied based on watershed prescriptions and included in the permit for the proposed activity such as a THP or watercourse crossing. Generally, forestry staff locates the feature and if necessary wildlife, hydrology, fisheries, or botany staff provide input on the type and extent of the feature and any beneficial uses to native plants and animals that may be present. In questionable or marginal wet areas HRC botany staff

trained in Army Corps of Engineers (ACOE) wetland determination/delineation establishes plots within the feature to provide guidance on classification and potential protections. While ACOE does not take jurisdiction over these features the technical documentation serves to reinforce classification of the site. All areas regarded as wetlands by ACOE definitions are afforded Class II protection measures during permitted projects. Wet areas that do not meet ACOE standards may still be considered for protection if aquatic habitat or a predominance of wetland vegetation is present. ACOE determinations follow guidance provided in *US Army Corps of Engineers (ACOE). 1987. Corps of Engineers Wetland Delineation Manual. Wetlands Research Program Technical Report Y-87-1* and *US Army Corps of Engineers (ACOE). Draft Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region. Revised. 4-9-2007*.

Because the nature of permitted activities do not entail development or other permanent alteration of the landscape, no permanent impacts to wetlands are likely to occur as a result of activities covered under the Order, with the following exception. Newly constructed road crossings on watercourses frequently are constructed as culverted crossing structures. These structures entail placing fill material in a stream channel to as the base of a road prism.

The project will not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the CDFW, NMFS, or USFW. Such an impact will not occur because project activities are designed to protect and restore stream habitat, to provide a long-term benefit to both anadromous salmonids and other fish and wildlife. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance. Therefore, the appropriate finding is **less than significant with mitigation incorporation**.

d) Habitat for anadromous salmonids is impaired due to excess sediment. Spawning gravels have been covered by fine sediment, pools which provide cover have been filled, and increased turbidity due to elevated suspended sediment impairs their ability to feed. All of these factors inhibit the ability of anadromous salmonids to utilize Elk River for spawning, rearing, and migration. The purpose of the project, in conjunction with other aspects of the Regional Water Board's efforts related to the Elk River TMDL, is to reduce sediment and improve habitat for anadromous salmonids. Restoration efforts conducted pursuant to the Order have the potential to result in some short term impacts to riparian area as well as short term increase in sediment discharge. However, the desired outcome of this work is to improve long-term site stability and decrease sediment discharge. Therefore, the result is long term environmental benefits. In addition, short term impacts can be minimized by implementation of appropriate management practices as

summarized in section H and described fully in Attachment A. The Order requires HRC to utilize and implement the mitigations for construction impacts associated with remediation and restoration work contained in Attachment A. The project will not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Therefore, the appropriate finding is **less than significant with mitigation incorporation**.

e) The Order does not preclude HRC from the need to comply with applicable local, state or federal laws and regulations. However, HRC lands are not within the jurisdiction of local policies and ordinances, therefore, the Order does not conflict with local regulation protecting biological resources, such as a tree preservation policy or ordinance. Therefore, the appropriate finding is **no impact.**

f) HRC's timberlands in the UER are covered by a State and federally approved habitat conservation plan and their management activities conducted as part of this Project will be conducted pursuant to the requirements of the HCP. Therefore, the appropriate finding is **no impact**.

	Potentially Significant Impact	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
V. CULTURAL RESOURCES -- Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in '15064.5?			X	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?			X	
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	
d) Disturb any human remains, including those interred outside of formal cemeteries?			X	

a-d) Cultural resources are non-renewable resources. The most significant direct adverse effects to cultural resources are expected to potentially result from logging, road construction and borrow pit extraction, or excavation

conducted as part of a restoration ptoject. FPR section 929 provides directions to foresters preparing THPs to ensure that the significant archaeological and historical sites within the site survey area are adequately identified and protected. Development of THPs require that a professional archaeologist or a person with archaeological training conduct a field survey for archaeological and historical sites within the proposed plan area and a confidential archaeological addendum (CAA) is required by and enforced by CAL FIRE pursuant to the THP approval process. The CAA is designed to ensure that the significant archaeological and historical sites within the THP are adequately identified and protected.

However, restoration work may at times be conducted outside of areas covered under THPs. By definition, such projects will be conducted in areas that have been disturbed by past management activities. Therefore, it is unlikely that restoration activities would cause a substantial adverse change in the significance of a historical or archaeological resource pursuant to section 15064.5, directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, or disturb any human remains, including those interred outside of formal cemeteries. This includes "tribal cultural resources as defined in Public Resources Code section 21074." Most of the work is anticipated to occur in areas already disrupted and the likelihood of encountering historical archaeological and paleontological resources is low. In the event that restoration occurs in previously undisturbed areas, the project must include a cultural resources investigation and paleontological survey prior to any substantial disturbance as detailed in Attachment A.

The cultural resources investigation will include, at a minimum, a records search for previously identified cultural resources and previously conducted cultural resources investigations of the project parcel and vicinity. This record search should include, at a minimum, contacting the appropriate information center of the California Historical Resources Information System. In coordination with the information center or a qualified archaeologist, a determination regarding whether previously identified cultural resources will be affected by the proposed activity must be made and if previously conducted investigations were performed. The purpose of this investigation would be to identify resources before they are affected and avoid the impact.

In the event that the ground disturbances uncover previously undiscovered or documented resources, California law protects Native American burials, skeletal remains, and associated grave goods regardless of the antiquity and provides for the sensitive treatment and disposition of those remains (Health & Safety Code, section 7050.5; Public Resource Code, section 5097.9 et seq). Thus, the potential to cause a substantial adverse change in the significance of a historical resource or archaeological resource and the potential to disturb any human remains, including those interred outside of formal cemeteries is less than significant with mitigation incorporated.

Cultural sites that would potentially be impacted will be identified and protected as required by State regulations, prior to the initiation of timber operations. Therefore, any impacts to the cultural resources of the project area will be **less than significant**.

	Potentially Significant Impact	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
VI. GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii) Strong seismic ground shaking?				X
iii) Seismic-related ground failure, including liquefaction?				X
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?		X		
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the		X		

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X

a)

i-iii) Elk River is located in a seismically active area with the potential for strong ground motion associated with movement on several nearby faults, including the San Andreas, the Cascadia subduction zone, and other active faults. The trace of the Freshwater Fault, a Quaternary active faults, crosses the northeastern portion of the watershed trending northwest-southeast.

While any personnel and structures in the region are exposed to ground shaking from these faults, HRCs management activities conducted under the Order will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, or seismic-related ground failure, including liquefaction. Because the project does not involve these factors, the appropriate finding is **no impact**.

iv) The UER watershed is located in a tectonically active region and is underlain by the geologically recent and erodible Hookton Formation and Wildcat Group rocks, and sheared Yager terrane and Central Belt Franciscan rocks. Due to the weak underlying bedrock, relatively rapid rates of tectonic uplift, and high annual precipitation rates, hillslopes throughout much of the UER are naturally vulnerable to landsliding.

Natural rates of landslides vary based on the occurrence of landscape disturbance such as large storms, fires, earthquakes, or other infrequent natural events. Timber harvesting and associated ground disturbance can result in increased rates of shallow landslides on vulnerable slopes due to decreases in root strength, increased soil moisture, altered hillslope hydrologic processes, and over-steepened or over-loading of slopes by cut and fill road construction.

HRC's approach for evaluating landslide hazards relative to proposed land use activities includes the ERSC WA prescriptions. Requirements to prevent increased landslide rates due to timber harvesting and associated activities are specified in sections I(D) of the Order and described on pages 13 through 15 of the initial study. As part of THP planning a review of pertinent technical data is conducted to denote potential high risk slopes, including landslide inventories, regional geomorphic maps, stereoscopic aerial photographs, and a shallow landslide potential map developed using the SHALSTAB landslide model. The Order requires HRC to implement the following prescriptions as part of its hillslope management mass wasting strategy:

- A hillslope management checklist to identify areas that are particularly vulnerable to mass wasting;
- No harvesting or road construction or reconstruction on Class I inner gorges;
- No harvesting or road construction or reconstruction on the following areas without characterization and development of measures to protect water quality prescribed by a PG;
    - Class II or III inner gorges,
    - Headwall swales,
    - Other areas with very high mass wasting hazard (including slopes greater than 60%, and
    - Earthworks (skid trails, landings, road prisms, or other earthen structures) exhibiting characteristics identified in the hillslope management checklist.

In addition to the hillslope management mass wasting strategy described above, a comprehensive approach to preventing increases in landslide related sediment discharge resulting from timber harvesting and associated activities includes characterization of landslide hazard, designing projects to minimize impacts to slope stability based on site specific hazards, and ongoing monitoring of landslide activity to better understand landslide patterns and modify management practices based on observed activity. The California Geological Survey Note 50 provides guidelines for Engineering Geologic Reports for Timber Harvesting Plans, which must be prepared by California Professional Geologist (PG) who is familiar with watershed characteristics. Section I(D) of the Order establishes requirements for

characterization of geologic hazards by a PG during preparation of individual THP and development of site specific mitigations. Characterization of landslide hazard should at a minimum consider the following information:

- Existing hazard maps derived from slope stability models;
- Available maps and reports;
- Aerial photographs;
- Field investigation and mapping; and
- Applicable studies and technical models.

The report must be provided to Regional Water Board staff and other review team agencies during the initial review of each THPs, and must include an evaluation of potential effects on slope stability and surface soil erosion, and landslide related sediment discharge from the proposed management activity, identify problem areas, and describe specific mitigation measures needed to minimize potential effects for identified areas of concern. The mitigations should be based on the potential hazard process (likelihood of landslide initiation or acceleration in sediment mobilization or water flow, and the potential risk to water quality). Where appropriate, mitigations shall include, but are not necessarily limited to the following:

- Limiting canopy removal in areas with elevated landslide hazard;
- Limiting activities upslope of existing landslide and on vulnerable portions of deep seated landslides;
- Avoidance of road or skid trail construction on steep or vulnerable slopes:
- Stabilization of existing landslides where applicable by methods such as planting, manipulating road drainage, buttressing, and other feasible engineering techniques.

The Order establishes enforceable provisions to prevent increases in sediment discharge from landslides associated with HRC's timber harvest activities. The provisions entail an overall strategy that includes HRCs hillslope management mass wasting strategy from the ERSC WA, as well as additional measures deemed necessary by Regional Water Board to prevent management related landsliding. These are summarized below as follows:

- Harvest rates throughout HRC's ownership in the UER that are less than those allowed under the limits set by the landslide reduction model under the current WDRs;
- Use of partial harvesting methods that retain a significant component of post-harvest root strength;
- Temporary prohibition of harvesting in high risk subwatersheds;
- Riparian protection zones, which include no harvesting within 50 feet of Class I watercourses, 30 feet of Class II watercourses, 20 feet of Class III watercourses and significant tree retention up to 300, 200, and 150 feet of Class I, II and III watercourses respectively;
- Review by licensed geologist of all proposed activities, including harvesting and construction or reconstruction of roads and watercourse crossings; and

- Implementation of HRCs ERSC WA hillslope management prescriptions.

All of the mitigation measures described above are intended to prevent or minimize the potential increased management related landslides.

HRC's management activities covered by the Order will not expose people or structures to potential substantial adverse effects involving landslides. Proper implementation of the above conditions will minimize the potential impacts of the Order to expose people or structure to potential adverse effects to **less than significant with mitigation incorporation**.

b-c) Timber harvesting and related management activities have the potential to create large scale ground disturbance. Due to the weak underlying bedrock, relatively rapid rates of tectonic uplift, and high annual precipitation rates, hillslopes throughout much of the UER are naturally vulnerable to erosion as a result of this disturbance. There are limited area along the boundary of HRC's property where potentially unstable slopes could fail, resulting in the potential for displaced material being transported onto adjacent properties. However, that potential impact is significantly minimized by implementation of landslide prevention strategies required by the Order.

HRC predominantly utilizes partial harvesting methods such as uneven-aged single-tree and small group selection, which result in post-harvest conditions that are less susceptible to mass wasting and increased erosional processes as compared to clearcut harvesting by way of retaining a measureable part of the existing vegetation allowing for raindrop interception, evapotranspiration, and tempering of peak flows that would otherwise result from clearcutting or even-aged harvesting prescriptions. One of the primary goals of the Order is to establish requirements for HRC to implement those management practices that prevent or minimize sediment discharges from erosion. These are found in sections I(A) – I(G) of the Order and include the following mitigation measures:

- HRC shall utilize uneven-aged single-tree and small group selection silviculture as defined in California Code of Regulations, tit. 14, section 913.1 within their timberlands in the Elk River watershed. HRC shall not utilize clearcut harvesting. Variable retention may be used in some instances as an alternative silviculture to address certain stand conditions, such as high levels of whitewood or hardwood species, animal damage or general poor form and vigor due to past logging history.
- HRC shall not utilize the group selection harvest method as defined in California Code of Regulations, tit. 14, section 913.2 within areas defined as Riparian Reserves.

- HRC shall not harvest more than 1.5% per year, averaged over five year periods, throughout its total land holdings in the UER watershed. This percentage will be measured in clearcut equivalent acres.[5]
- Harvesting in high risk watersheds is prohibited until such time as impaired beneficial uses in lower Elk River are restored.
- Avoid timber harvesting practices that are likely to trigger new landslides or exacerbate existing landslides, as follows:
    - No harvest within 100 feet of fish bearing streams (Class I) or streams that support aquatic habitat for non-fish species (Class II) and limited harvest on steep streamside slopes up to 300 feet from watercourses,
    - Retention of 150 square feet of basal area per in headwall swales (steep convergent slopes above the headwaters of stream channel)
    - Use of a shallow landslide model (e.g. SHALSTAB) to identify relative landslide hazard and restrict or limit harvesting on high hazard areas,
    - A Professional Geologist must evaluate the potential for sediment discharge from proposed timber harvest and road construction on vulnerable ground,
    - plant conifers to stabilize potentially active landslide deposits,
    - Maintain and update a landslide inventory from field review and periodic new aerial photographs to evaluate the effectiveness of management practices and modify them as appropriate, track landslide related sediment discharge, and identify restoration opportunities.
  - Conduct an inventory to identify, prioritize, and treat existing sediment sources from past land use impacts
  - Maintain roads to prevent or minimize road related sediment discharge as follows:
    - Contour roads to minimize concentration of surface runoff,
    - Construct watercourse road crossings to minimize potential for watercourse failure or stream diversions,
    - minimize the length of road surface draining directly to watercourses and stabilize the surface of segments;
    - remove potentially unstable fill material to the extent feasible;
    - inspect and maintain roads annually;
    - restrict wet weather road use.
  - HRC must prepare erosion control plans to identify and treat existing controllable sediment discharge sources in the vicinity of timber harvesting areas.

HRC's management activities as part of the Project will be located on a geologic units or soils that are unstable, or that could potentially become unstable as a result of the project, and potentially result in on- or off-site

[5] Selection and Group Selection silviculture acres are converted to CCE acres by multiplying them by 0.5.

landslide. However, due to mitigation measures outlined above that combine characterization of landslide hazard, avoidance of the most vulnerable slope classes, and low intensity harvest, the potential for the Project to result in increased soil erosion, loss of topsoil, or landslides is less than significant. There is no reasonably foreseeable potential for the Project to result in lateral spreading, subsidence, liquefaction or collapse. Mitigation measures required under the Order are designed to prevent or minimize erosion, loss of topsoil, and therefore, the appropriate finding is **less than significant with mitigation incorporation.**

d) HRC's activities covered under the Order would not authorize projects such as building construction that are subject to the Uniform Building Code. Because the project does not involve this element, the appropriate finding is **no impact**.

e) HRC's activities covered under the Order would not involve septic tanks or alternative wastewater disposal systems. Because the project does not involve these elements, the appropriate finding is **no impact**.

	Potentially Significant Impact	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
VII. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				X

a) Forest activities can result in emissions through harvesting, wildfire, pest mortality and other natural and anthropogenic events. However, forestry is a net sink for carbon, the primary greenhouse gas. Plants absorb CO_2 from the air, and use the carbon as a building block of plant tissue through the process of photosynthesis. An acre of mature redwood can store between 600-700 ton/ac of CO_2, which is the highest of any forest type on Earth. Though redwood forests can store the largest amounts of greenhouse gases (GHGs) per acre of any forest type, the expanse of this forest type is not significant on a global level.

The proposed project will result directly and indirectly in carbon sequestration and CO_2 emissions. Carbon sequestration is achieved through silviculture including planting and active management of forest stands insuring the growing of trees that remove CO_2 from the atmosphere and store carbon in tree fiber. When a tree is harvested, most of the carbon-filled tree fibers become lumber that is sequestered in buildings while non-harvested trees, along with newly planted trees, continue to grow, often at increased growth rates due to the benefit of selective harvesting. To the extent these wood building products replace the demand for new concrete or steel building components; they reduce substantial CO_2 emissions that are associated with the manufacture of cement and steel. Some of the tree fibers such as branches and tops are left in the forest where they are sometimes burned to reduce fire hazard. However, the vast majority of this material is left to decay and will emit CO_2 overtime; but, it also supplements the forest soils and forest duff layer which serves as a substrate for more tree growth. In addition, redwood is a dominant species on HRC's timberlands in the UER and redwood slash decays more slowly than slash from hardwood and whitewood species. Further, when CO_2 is released by decaying slash, it is offset by rapid regeneration of tree stands (including stump sprouts from redwood and some hardwood species) and other vegetation that sequesters carbon. Some of this carbon-filled tree fiber, such as bark, shavings, and chips are used in other engineered building products or as fuel used to generate electricity. When this wood fiber is burned to generate electricity the stored carbon is released into the atmosphere, but it is being done in a controlled setting, while filling society's demand for renewable energy sources. Another factor to consider is that when wood biomass is used to generate electricity it directly reduces the amount of fossil fuels required which are non-renewable energy sources and generate CO_2 in more substantial quantities. Another point worth mentioning is that if this wood fiber were left to decompose naturally its stored carbon emissions would still nonetheless occur.

Forestlands are, in general, a carbon sink where CO_2 is captured and fixed by the process of photosynthesis, which removes carbon from the atmosphere and sequesters carbon in wood fiber. (OFRI 2006, USEPA, 2005). In California, forests in the North Coast, Cascade Northeast, and North Sierra regions were estimated to produce a net benefit of 7.2 million metric tons of CO_2 equivalents removed from the atmosphere each year. (California Energy Commission, 2004). Growing forests sequester and store more carbon over time until growth stagnates as trees reach a mature age. Older trees sequester carbon through new growth at a declining rate, but they remain pools of stored carbon until they decay through decline, death, or consumptive use.

The proposed project is one of numerous past, present, and future timber harvest projects on HRC ownership that combine to produce substantial net carbon sequestration benefits over time. HRC's timberlands are sustainably

managed in accordance with the Order, its HCP, the FPRs, and Forest Stewardship Council (FSC) certification protocols which will help ensure sustained yield and strict environmental protection for wildlife and water quality. Timber harvests are scheduled across the ownership in management blocks, where timber stands are entered on intervals of every 20 years. Not all of HRC's timberland is dedicated to intensive forest management. Large areas of the ownership remain un-harvested or lightly harvested to provide various fish, wildlife, and ecosystem benefits. Under HRC's HCP for northern spotted owls and marbled murrelets, large areas of the property remain un-harvested for decades to provide long tern habitat for these and other species that required mid to late succession forest stands. In addition to these areas, the Order requires extensive riparian management zones (RMZ's) which extend like a web across the property. In the UER watershed, these RMZ consist of no or limited harvesting within 300 feet of Class I watercourses, 200 feet of Class II watercourses, and 100 feet of Class III watercourses. There are also numerous geologic features in the UER watershed, which will experience little or no timber harvesting. These wildlife, RMZ and geologic areas will be managed to develop into late succession forest stands, which will provide critical habitat for wildlife, protecting water quality and is a diversification of HRC's portfolio for carbon sequestration.

Following each THP, HRC manages slash to reduce fire risk and enhance forest soils that will host the next rotation of forest growth. Where necessary to facilitate site occupancy of desired tree species, Group-selection, Variable Retention or Rehabilitation areas are replanted and regenerated with healthy seedlings that combine with advanced regeneration and stump sprouts from harvested redwoods that immediately begin to fix carbon through photosynthesis. Because the seedlings require a substantial investment by HRC, there is a strong financial incentive to efficiently and effectively re-establish growing forests and timber production on harvested property. For the same reason, there is a strong incentive to protect growing tree stands from mortality that adds to forest fuels and to aggressively prevent and suppress wildfires before they can become catastrophic. HRC's management strategy as permitted by the Order will have the cumulative benefit of reducing the risk of catastrophic fire and related adverse impacts to GHG and carbon sequestration.

The project will also result in minimal impacts to the carbon stored in the duff layer and the soil. Because the harvesting conducted by HRC minimizes duff and soil disturbance, and HRC does very limited broadcast burning, primarily due to practicing un-evenaged management, the carbon stored in the duff layer is essentially intact following harvesting. HRC also has a policy to retain downed woody material for wildlife benefits, which also helps maintain soil productivity and is potentially a significant sink of carbon. Redwood/Douglas-fir forests that include sprouting species such as redwood

and tanoak are likely to have less fluctuation in soil carbon given that the root systems of these species continue to survive following harvest.

HRC's management activities covered under the Order will likely result in sequestration of more greenhouse gas emissions than they will generate, either directly or indirectly, and therefore, the appropriate finding is **less than significant impact**.

b) The California Global Warming Solutions Act of 2006 (AB 32) is California's legislative effort aimed at reducing GHG emissions. Pursuant to AB 32, California Air Resources Board (CARB) must develop an implementation program and adopt control measures to achieve the maximum technologically feasible and cost-effective GHG reductions. AB 32 requires CARB to prepare a Scoping Plan to achieve reductions in GHG emissions in California. On June 26, 2008 CARB staff presented the initial draft of the AB 32 Scoping Plan for Board review. The AB 32 Scoping Plan contains the key strategies California will use to reduce the GHG emissions that are thought to cause climate change. With respect to forestry practice, the Scoping Plan provides:

The 2020 target for California's forest lands is to achieve 5 million metric tons of CO_2 equivalents ($MMTCO_2E$) reduction through sustainable management practices, including reducing the risk of catastrophic wildfire, and the avoidance or mitigation of land-use changes that reduce carbon storage. California's Board of Forestry and Fire Protection has the regulatory authority to implement the Forest Practice Act to provide for sustainable management practices and, at a minimum, to maintain current carbon sequestration levels. The federal government must do the same for lands under its jurisdiction in California. California forests are now a net carbon sink. The 2020 target would provide a mechanism to help ensure that this carbon stock is not diminished over time. The 5 MMTCO2E emission reduction target is set equal to the current estimate of the net emission reduction from California forests. As technical data improve, the target can be recalibrated to reflect new information. The project's forestry activities are consistent with these objectives.

The proposed project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases Therefore, the appropriate finding is **no impact**.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?		X		
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		X		
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the				X

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
project area?				
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X

a-b) HRC forest management activities can involve the transport and use of materials that would qualify as hazardous pursuant to the California Health and Safety Code section 25501(o). These materials include gasoline and diesel to fuel equipment, hydraulic fluid associated with equipment operations and machinery, and herbicides. The presence and use of gasoline, diesel, and hydraulic fluid would be limited to the amounts needed to operate heavy equipment and motorized equipment associated with management activities. The Order requires HRC to comply with all water quality related HCP prescriptions and conditions included in an approved THP and any additional mitigation measures identified and required pursuant to CAL FIRE's CEQA-equivalent process, and within the FPRs. This includes implementing the following prescriptions from the HCP that all company employees and hired contractors must adhere to when using gasoline, diesel, hydraulic fluid and herbicides on HRC property:

- Refueling of equipment and vehicles will be done outside of RMZs and Water crossings. Adding, draining, or depositing lubricants, coolants, or hydraulic fluids will not be done in RMZs and Water crossings and all such fluids shall be properly disposed (HCP 6.3.3.4(5)).
- As outlined in HRC Water Drafting Plan, trucks shall be checked daily for oil and fluid leaks. A catchment pan shall be placed under the truck at any place the truck may potentially leak oil. If a leak is identified and cannot be contained no water drafting may occur.
- HRC also has a Hazardous Material Clean-up Plan, which requires all operators and contractors to be trained in spill clean-up and containment procedures before they can work on HRC property. In addition, it is required for all operators and contractors to have a fuel spill clean-up kit at each work site before work can commence. If a spill does occur, the

plan requires the operator to clean-up the site immediately. In the event that this cannot be achieved, the operator is required to contact their supervisor and proceed with spill containment efforts. At this point, the supervisor would assess the situation and contact the necessary personnel to aid in clean-up efforts. Another plan requirement is that the Regional Water Quality Control Board must be notified of the spill if it has delivered, or has the potential to deliver into waters of the state.

- Necessary permits must be obtained by the county before the application of any herbicide.
- Application of herbicides must be at the direction of a certified applicator, and is trained in proper chemical use and application.
- All chemical application must be in compliance with the OSHA regulations, as discussed in HCP section 3.4.1.4.

The proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Therefore, the appropriate finding is **less than significant with mitigation incorporation**.

c) The proposed project would not result in the emission or handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Therefore, the appropriate finding is **no impact**.

d) The proposed project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5. Therefore, the appropriate finding is **no impact**.

e-f) The proposed project would not result in a change over current conditions related to activities near an airport or airstrip that would result in a safety hazard. Therefore, the appropriate finding is **no impact**.

g) The proposed project would not interfere with an emergency evacuation or response plan; therefore, the appropriate finding is **no impact**.

h) The proposed project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. The appropriate finding is **no impact**.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY -- Would the project:				
a) Violate any water quality standards or waste discharge requirements?		X		
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?		X		
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?		X		

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?		X		
f) Otherwise substantially degrade water quality?		X		
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				X
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
j) Inundation by seiche, tsunami, or mudflow?				X

a) The purpose of the Order is to implement the California Water Code, State and Federal Policy and regulation, and to achieve protection of the beneficial uses of water and water quality objectives established in the Basin Plan. The Order establishes specific and general requirements to implement management practices to ensure that discharges, or potential discharges from HRC's timber harvesting and related activities in the UER watershed meet water quality standards. Potential impacts from HRC's management

activities in the UER Watershed would primarily consist of sediment discharges and increased water temperature.

The existing and potential beneficial uses of waters potentially affected by the proposed Project include:

- Municipal and Domestic Supply (MUN)
- Cold Freshwater Habitat (COLD)
- Wildlife habitat (WILD)
- Rare, Threatened, or Endangered Species (RARE)
- Migration of Aquatic Organisms (MIGR)
- Spawning, Reproduction, and/or Early Development (SPWN)
- Flood Peak Attenuation/Flood Water Storage (FLD)
- Wetland Habitat (WET)

The following waste discharge prohibitions from the Water Quality Control Plan for the North Coast Region (Basin Plan) pertain to timber harvest activities, including logging, road construction, and associated activities in the North Coast Region:

1. The discharge of soil, silt, bark, slash, sawdust, or other organic and earthen material from any logging, construction, or associated activity of whatever nature into any stream or watercourse in the basin in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited.

2. The placing or disposal of soil, silt, bark, slash, sawdust, or other organic and earthen material from any logging, construction, or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in the basin in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited.

Applicable water quality objectives include the following:

Sediment
The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Turbidity
Turbidity shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.

Temperature
The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional

Water Board that such alteration in temperature does not adversely affect beneficial uses.

At no time or place shall the temperature of any COLD water be increased by more than 5°F above natural receiving water temperature.

At no time or place shall the temperature of WARM intrastate waters be increased more than 5°F above natural receiving water temperature.

Following a century of logging, and in particular, following the post-world war II era of intensive tractor logging, water quality conditions in Elk River were impaired for sediment. Further impairment occurred as a result of excessive and poorly-regulated logging and large storm events. The capacity of the UER for sediment is limited by the ongoing aggradation in the impacted reach and resulting nuisance conditions and compromised beneficial uses. Unless and until its capacity can be expanded through sediment remediation and channel restoration, nuisance conditions abated, and beneficial uses supported, any new discharges of sediment exacerbate and contribute to exceedances of water quality objectives. (See also Cumulative Impacts discussion below.)

For discharges associated with continued timber operations, combined measures required under the Order, as itemized below, are protective of water quality within the UER watershed: the transition from evenaged to unevenaged management under HRC's ownership; harvest rate limits throughout the UER and for each subwatershed that limit canopy reduction and anticipated peak flow changes; enhanced riparian protection; geologic review of all harvest activities; management practices designed to prevent or minimize sediment discharge; the temporary prohibition of timber harvest activities in high risk subwatersheds; ongoing oversight of HRC's management activities through participation in the THP review process; and the monitoring and reporting program. In addition to addressing existing, ongoing discharges, the Order attempts to address water quality impacts that have already occurred through the instream sediment feasibility study and voluntary restoration.

The Order authorizes discharges from certain cleanup and restoration activities as well as from ongoing timber harvesting and associated activities. Cleanup and restoration activities may result in small short term sediment discharges associated with placement of large wood into streams or excavation to stabilize or remove fill material stored in channels and adjacent riparian zones. The potential impacts of minor short term discharges provide benefits of long term sediment control derived by such projects. Compliance with the terms of the Order should result in continued improvement in water quality in the UER and impacted reach

The Elk River was identified in 1998 as impaired due to excessive sedimentation/siltation and was subsequently placed on the federal Clean Water Act section 303(d) list. At least five of the identified beneficial uses are considered impaired, including MUN, AGR, COLD, and to a lesser extent both REC-1 and REC-2. The primary beneficial uses of concern are domestic and agricultural water supplies and the cold freshwater habitat. For impaired water bodies, TMDLs must be established at levels necessary to attain and maintain water quality standards. A TMDL is the sum of individual waste load allocations (WLA) for point sources and load allocations (LA) for nonpoint sources and natural background. (40 CFR 130.2 (i).) Loading capacity is the greatest amount of loading that a waterbody can receive without violating water quality standards. (40 CFR 130.2(f).)

The Regional Water Board has developed a TMDL sediment source analysis that evaluated the historical, management, and physical factors associated with timber management in the UER watershed that have influenced sedimentation throughout the watershed. (Tetra Tech (2015) report.) In the UER watershed, all the land use-related sediment delivered to the stream channel is attributed to nonpoint source pollution and natural background. Due to the lack of assimilative capacity in the receiving water reach, the nonpoint source load allocation is defined as zero. A LA must be applied in the statutory context of the implementation mechanism, here Water Code section 13263. When water quality is already degraded, it may take time to achieve water quality objectives and immediate compliance may not be possible, even with complete cessation of a discharging activity. (See generally Nonpoint Source Policy at 13.) In the context of HRC's management activities and its impacts, the Order includes requirements designed to show measurable progress toward improving water quality over the short term and achieving water quality objectives in a meaningful timeframe. Additional efforts are needed and are being undertaken outside the scope of this Order to improve conditions in the impacted reach. Accordingly, the appropriate finding is **less than significant with mitigation incorporation.**

b) HRC's management activities covered under the Order will not deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. The appropriate finding is **no impact.**

c-d) HRC's management activities authorized under the Order will not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site. A substantial portion of the adverse impacts that occurred in the watershed since the mid-twentieth century as a result of logging and related activities was caused by increased erosion resulting from alteration of drainage patterns via hydrologically connected roads. Hydrologic connectivity increases the

potential for the road segment to deliver road-derived runoff and sediment to a watercourse. When a road is hydrologically connected to a watercourse, it effectively increases the drainage area of the watercourse, producing hydrologic changes that can alter the magnitude and frequency of runoff delivery to the watercourse. Section 923.2(a)(5) of the FPR requires that all logging roads and landings be hydrologically disconnected from watercourses and lakes to the extent feasible in order to minimize sediment delivery from road runoff to watercourses and to reduce the potential for hydrologic changes that can alter the magnitude and frequency of runoff delivery to watercourses. The goal of hydrologic disconnection is to minimize sediment delivery and hydrologic change derived from road runoff being routed to a watercourse. Hydrologic disconnection is achieved by creating a road surface and drainage configuration that directs water to discharge from the road in a location where it is unlikely to directly flow into a watercourse.

In addition to the requirements of the FPRs, many of HRC's practices are designed specifically to prevent or minimize the potential to alter existing drainage patterns. Such practices are described in detail in section 6.3.3 of their HCP, *Control of Sediment from Roads and Other Sources* and are summarized as follows:

- Water crossings and associated fills and approaches shall be constructed or maintained to prevent diversion of flow down the road and to minimize erosion should the drainage structure become obstructed.
- The length of each hydrologically connected road segment is minimized, to the extent feasible,
- Drainage facilities and structures shall be installed at intervals along the road frequent enough to disperse road surface runoff so as to avoid gully formation and minimize erosion of the road surface, erosion of inside ditches and other drainage facilities, and erosion at the outfalls of drainage facilities and structures,
- Water captured by the road shall be diverted onto stable portions of the forest floor to dissipate energy and facilitate percolation to avoid creating channelized flow or erosion of mineral soil that discharges to waters of the State,
- Upon removal, temporary crossings shall be excavated to form a channel that is as close as feasible to the natural channel grade and orientation, and that is wider than the natural channel to minimize bank and channel erosion. Excavated side slopes shall be laid back to a 2:1 (50%) or natural slope.

The Order requires that HRC complies with all water quality related HCP prescriptions, including those above, and conditions included in an approved THP, and any additional mitigation measures identified and required pursuant to CAL FIRE's CEQA-equivalent process. In addition, and as discussed in more detail below, the Order includes additional requirements designed to eliminate or minimize additional sediment contributions that might exacerbate the flooding conditions in the downstream reach. The

above-summarized mitigation measures required by the Order will ensure that HRC's management activities will not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site. Therefore, the appropriate finding is **less than significant with mitigation incorporation.**

e) HRC's management activities have the potential to alter hydrologic processes in the watershed, including increasing runoff rates. However, the entire project area is in a forested setting and no storm water drainage systems are present. The only pollutant that could potentially be conveyed by runoff from HRC's activities in concentrations high enough to be considered potentially significant is sediment. Mobilization and entrainment of sediment by flowing water are functions of the velocity, which is a function of discharge, slope and channel configuration. Due to increases in flow velocity and erosion potential, concentration of runoff in forested setting such as the UER can be considered to also result in runoff being polluted by sediment. Increased runoff and erosion are among the most common and widespread impacts of timber harvesting in watersheds throughout the North Coast, including in the UER watershed. As discussed in detail in section H, increased runoff rates from timber harvesting and related ground disturbance can result from the following processes:

- removal of forest canopy reduces the amount of precipitation that is intercepted and evaporated or removed from shallow soil by evapotranspiration;
- compaction or removal of permeable topsoil layers by heavy equipment use and road construction, decreases the amount of precipitation that infiltrates into soil;
- interception of shallow groundwater by cutting into hillslopes to construct roads;
- concentration of runoff on road surfaces.

The Order includes requirements designed specifically to prevent or minimize impacts such as those resulting from increased runoff and erosion. Implementation of the Specific Requirements of the Order will reduce the potential for increased runoff and erosion:

- Limits on the harvesting intensity and areal extent of timber harvesting;
- Methods to prevent sediment discharge from road use, construction, reconstruction, decommissioning, repair and maintenance;
- Methods to prevent sediment discharge from landslides by implementation of hillslope prescriptions designed to minimize impacts to slope stability and review by Professional Geologist of all proposed harvesting and road construction or reconstruction;
- Inventory and treatment of controllable sediment discharge sources from roads, skid trails, landslides, and other sources related to timberland management;

- Retention and protection of riparian vegetation to preserve and restore shade, prevent increases in solar radiation, and meet the temperature objective;
- In-stream and riparian zone restoration;
- A monitoring and reporting program that includes watershed trend monitoring, annual work plans describing HRC's planned activities for each upcoming year, and an annual summary report of activities conducted during the previous year.

The mitigation measures required by the Order and summarized above will ensure that HRC's management activities will not create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. Therefore, the appropriate finding is **less than significant with mitigation incorporation.**

f) Section H of this Initial Study provide a discussion of the potential impacts to water quality from HRC's management activities in the UER watershed as well as management measures designed to mitigate those impacts. Management measures described in this Initial Study and implemented by Specific Requirements in Section I of the Order are adequate to mitigate all reasonably foreseeable impacts from excess sediment and elevated water temperature.

- Limits on the harvesting intensity and areal extent of timber harvesting;
- Methods to prevent sediment discharge from road use, construction, reconstruction, decommissioning, repair and maintenance;
- Methods to prevent sediment discharge from landslides by implementation of hillslope prescriptions designed to minimize impacts to slope stability and review by Professional Geologist of all proposed harvesting and road construction or reconstruction;
- Inventory and treatment of controllable sediment discharge sources from roads, skid trails, landslides, and other sources related to timberland management;
- Retention and protection of riparian vegetation to preserve and restore shade, prevent increases in solar radiation, and meet the temperature objective;
- In-stream and riparian zone restoration;
- A monitoring and reporting program that includes watershed trend monitoring, annual work plans describing HRC's planned activities for each upcoming year, and an annual summary report of activities conducted during the previous year.

In addition, as discussed in the sections on *Inventory and Treatment of Controllable Sediment Discharge Sources*, implementation of corrective action on a CSDS and restoration projects often entail substantial excavation of

near-stream areas as well as channels and banks, installation of new drainage structures, disturbance of soil and loss of vegetation in riparian areas. These activities have the potential to result in some short term impacts to riparian area as well as short term increase in sediment discharge. However, the desired outcome of this work is in improve long-term site stability and decrease sediment discharge. Therefore, the net result is typically going to be long term environmental benefit. In addition, short term impacts can be minimized by implementation of appropriate management practices as summarized below and described fully in Attachment A.

No other pollutant sources or impacts to water quality are expected, and with implementation of the mitigation measures required under the Order HRC's management activities will not substantially degrade water quality. Therefore, the appropriate finding is **less than significant with mitigation incorporation.**

g - j) HRC activities covered under the Order do not authorize placing housing or structures within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. The covered activities will not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam, or inundation by seiche, tsunami, or mudflow. Because the project does not involve this element, the appropriate finding is **no impact.**

There are several residents living at or below the confluence of the South Fork and North Fork Elk River within the 100-year flood plain. As discussed in previous sections of this initial study, nuisance flooding conditions exist in the impacted reach of the Elk River watershed. Discharges of sediment from past logging in the watershed have aggraded stream channels in the low gradient reaches of Elk River, significantly reducing channel capacity. Flooding of roads, fields, fences, and homes occurs at intervals that are much more frequent than occurred historically. The cross-sectional area of the stream channel has been significantly reduced by deposits of fine sediment. Cross-section data indicates there are over 280,000 yd^3 of instream stored sediment in the lower North Fork, nearly 100,000 yd^3 in the lower South Fork and nearly 260,000 yd^3 in the upper mainstem. The fine sediment deposits in the impacted reach of the UER have become rooted in place by the encroachment of vegetation, further slowing winter floodwaters, causing streams to spill over their banks at elevated frequency and magnitude. One of the results of increased flood magnitude is that for a flood of a given return interval, the water surface would potentially be higher and flood waters extend out further from top of bank, therefore placing structures inside of the 100-year flood zone that were previously outside it. However, elevated flood heights already exist. The Order is designed to reduce sediment discharges and minimize increases in peak flows from canopy removal that caused

increased flooding and encourage participation in efforts to remediate flooding.

- Limits on the harvesting intensity and areal extent of timber harvesting;
- Prohibition on harvesting in high risk subwatersheds;
- Enhanced stream and riparian zone protection;
- Methods to prevent sediment discharge from road use, construction, reconstruction, decommissioning, repair and maintenance;
- Methods to prevent sediment discharge from landslides by implementation of hillslope prescriptions designed to minimize impacts to slope stability and review by Professional Geologist of all proposed harvesting and road construction or reconstruction;
- Inventory and treatment of controllable sediment discharge sources from roads, skid trails, landslides, and other sources related to timberland management;
- In-stream and riparian zone restoration;
- A monitoring and reporting program that includes watershed trend monitoring, annual work plans describing HRC's planned activities for each upcoming year, and an annual summary report of activities conducted during the previous year.

In particular, the permit requirement prohibiting harvesting in high risk subwatersheds can be lifted by HRC conducting a project, or projects, designed to improve flooding conditions or reduce conditions exacerbating flooding.

The activities covered by the Order are designed, through use of extensive BMPs and mitigations, to have less than significant impact to the beneficial uses of Elk River. With proper implementation, HRCs management and restoration activities should, over time, improve the conditions within the UER, thus having a positive impact.

	Potentially Significant Impact	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
X. LAND USE AND PLANNING - Would the project:				
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an				

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X

a) Activities covered under the Order would not divide an established community. Any land use planning associated with the Order is not urban, but rather intended for management and utilization of HRC's timberlands. Because the project does not involve these elements, the appropriate finding is **no impact**.

b) Activities covered under the Order must comply with all applicable local, state and federal regulations, which include land use plans, policies, or regulations of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance). Because of the fact that all of the activities covered under this Order will occur on private land zoned as timber production zone, and will be conducted pursuant to State and Federal regulations which are intended for the purpose of avoiding or mitigating environmental effects. There will not, therefore, be any conflict and there is **no impact**.

c) All of HRC ownership in the UER watershed is covered by a multi-species state and federal Habitat Conservation Plan approved in 1999. The state and federal Incidental Take Permits (ITP) issued for aquatic species including Chinook salmon, Coho salmon, cutthroat trout, steelhead trout, southern torrent salamander, tailed-frog, red-legged frog, foothill-yellow legged frog, and the northwestern pond turtle are most relevant to protection of the Beneficial Uses of the UER. The management measures for water quality protection of the HCP were the subject of the federal Environmental Impact Statement and state Environmental Impact Report which led to the issuance of the ITPs in conformance with the state and federal Endangered Species Acts. The adoption and implementation of the Order will not conflict with any applicable conservation plan that may apply to HRC's activities. The appropriate finding is **no impact**.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XI. MINERAL RESOURCES -- Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

a-b) The Order do not authorize mining activities or other activities that could affect mineral resources. Therefore, HRC's activities covered under the Order will not result in loss of availability of mineral resources; therefore, the appropriate finding is **no impact**.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XII. NOISE: Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?				X
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?				X
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				X

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				X

a-f) Implementation of some HRC's activities may result in localized increases in noise levels. Such increased noise levels would likely be associated with heavy equipment operation associated with harvesting, yarding, road construction and/or restoration activities. These impacts would be temporary, associated with the use of heavy equipment and would, therefore, not considered to be a significant impact. The proposed project does not change the exposure of people to potential adverse effects involving noise due to vegetation management and other HRC's activities over current conditions. Noise levels due to HRC's activities will remain the same whether or not the Order is adopted and implemented. Activities covered under the Order do not impact noise levels. Because no change is foreseeable, the appropriate finding is **no impact**.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XIII. POPULATION AND HOUSING -- Would the project:				
a) Induce substantial population				X

growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

a-c) The proposed project does not involve construction of new homes, businesses, or infrastructure. Any new road construction would not be for the purpose of urban or residential development, but would be intended to facilitate HRC activities such as timber harvest and related management activities. The project would also not displace people or existing housing. Because the proposed project does not involve these elements, the appropriate finding is **no impact**.

	Potentially Significant Impact	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
XIV. PUBLIC SERVICES				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?				X
Police protection?				X
Schools?				X

Parks?				X
Other public facilities?				X

a) The proposed project does not involve new or physically altered government facilities. Because the proposed project does not involve these elements, the appropriate finding is **no impact.**

	Potentially Significant Impact	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
XV. RECREATION --				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

a-b) This area is private property and is zoned as a Timber Production Zone. This land is not open to the public for recreational use. Conventional logging operations are not known to have caused significant adverse impacts to recreation resources in the area in the past therefore, none are anticipated for this THP, either singly or cumulatively.

Because the proposed project does not involve increasing the use of recreational facilities or construction of new recreational facilities, the appropriate finding is **no impact.**

	Potentially Significant Impact	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
XVI. TRANSPORTATION/TRAFFIC -- Would the project:				

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?			X	
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?			X	
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
e) Result in inadequate emergency access?				X
f) Result in inadequate parking capacity?				X
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				X

a-b) Log truck traffic has historically occurred on roads within the UER. Main-line haul routes include the use of HRC's private road system in the UER as well as Humboldt County roads in the lower portion of the UER and in the Lower Elk River valley. Continuation of hauling operations at historical or current levels is not expected to cause a significant adverse impact to traffic on these roads. Work performed during timber operations would occur on private

property and would not affect the existing traffic load of the road system. Mobilization of heavy equipment to conduct restoration activities may contribute temporary amounts of minor traffic to the road system, but such traffic volumes are not anticipated to be significant. Therefore, the appropriate finding is **less than significant impact.**

c) The proposed project does not involve air traffic. Because the proposed project does not involve this element, the appropriate finding is **no impact.**

d) The proposed project does not involve installation of hazardous design features. Because the proposed project does not involve this element, the appropriate finding is **no impact**.

e-f) The proposed project does not affect emergency access or parking capacity; therefore, the appropriate finding is **no impact**.

g) The proposed project does not involve alternative transportation. Because the proposed project does not involve this element, the appropriate finding is **no impact**.

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	Potentially Significant Impact	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
XVII. UTILITIES AND SERVICE SYSTEMS Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or			X	

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
are new or expanded entitlements needed?				
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the projects projected demand in addition to the providers existing commitments?				X
f) Be served by a landfill with sufficient permitted capacity to accommodate the projects solid waste disposal needs?				X
g) Comply with federal, state, and local statutes and regulations related to solid waste?				X

a-c) The proposed project does not involve the expansion or construction of wastewater or storm water treatment facilities. Such projects would not be eligible for coverage under the Order, and would have to be regulated by either a Waste Discharge Requirement or NPDES permit. Because the proposed project does not involve expansion or construction of wastewater or storm water treatment facilities, the appropriate finding is **no impact**.

d) The proposed project does not authorize the development of new water supplies or change the need for existing water supplies. Water supplies may be used to serve vegetation removal or construction activities (e.g., for dust abatement) in the project area. Such use will be short term in duration and relatively minor in scope. Water supplies would come from existing developed sources with existing water rights on HRC's lands. If short-term water drafting from streams in the vicinity of the project area is required for a project, HRC would be required to comply with all applicable current regulations. Because no change is foreseeable, the appropriate finding is **less than significant impact.**

e) HRC's activities covered under the Order would not require service by wastewater treatment facilities. Because the proposed project does not involve this element, the appropriate finding is **no impact.**

f) The proposed project would not affect solid waste generation or landfill capacities over current conditions. Because no change is foreseeable, the appropriate finding is **no impact**.

g) The proposed project will not involve solid waste and is not subject to federal, state, and local statutes and regulations related to solid waste, therefore the appropriate finding is **no impact**.

	Potentially Significant Impact	**Less Than Significant with Mitigation Incorporation**	**Less Than Significant Impact**	**No Impact**
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE --				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X		
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?		X		

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

a) The Order is a permit developed under the authority of the California Water Code, for the specific purpose of implementing the Basin Plan standards, protecting the beneficial uses of water and the water quality objectives required for that purpose, and to prevent nuisance and pollution. The Regional Water Board developed the Specific and General requirements of the Order to regulate HRC's management activities so that they can derive the economic benefits from their timberlands in the UER watershed while still protecting and restoring the environmental values related to water quality. The requirements of the Order are designed specifically to mitigate potential impacts to water quality from HRC's management activities. As discussed in more detail in the Hydrology and Water Quality section above, the UER watershed is sediment impaired, and additional discharges may further exacerbate this condition. The Order includes requirements designed to show measurable progress toward improving water quality over the short term and achieving water quality objectives in a meaningful timeframe.

Requirements of the Order do not address those potential environmental impacts that are not related to water quality, such as terrestrial plants or animals. As described in more detail in section G above, timber management and associated activities are regulated by other state and federal laws and policies. All of HRC's activities regulated by the Order must also comply with their multi species habitat conservation plan (HCP). The majority of their activities will be conducted under a THP that has gone through the multi-agency CEQA functional equivalent review process as required by the FPRs. In addition, any activities that is likely to substantially modify a river, steam or lake must be covered under the MATO issued by CDFW to avoid, minimize, and mitigate potential impacts.

The continuation of HRC's timber harvesting and related management activities in the UER watershed with mitigation measures required by the Order and applicable state and federal regulations does not, therefore, have the potential to degrade the quality of the environment, reduce the habitat of fish or wildlife species or cause their population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce

the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or pre-history. Therefore, the appropriate finding is **less than significant with mitigation incorporation.**

b) The UER watershed is already cumulatively impaired for sediment. Water quality impacts from historic timber management activities are mostly associated with increased sedimentation resulting in impaired domestic and agricultural water quality, impaired spawning habitat, and increased rate and depth of flooding due to channel in-filling by sediment. These impacts result from a complex interaction between inherent watershed characteristics, such as geology and geomorphology, external natural processes such as climate and timing of stochastic events (i.e. large storms, earthquakes, fires) and type of management practices and extent and rate of watershed area disturbed. In spite of all of the efforts to control sediment discharge, conditions in downstream impacted reaches remain impaired and the stream channel continues to aggrade. Even with implementation of greatly improved management practices, ongoing timber harvesting and associated activities will result in some increased sediment discharge, further exacerbating the already impaired condition. When water quality is already degraded, it may take time to achieve water quality objectives and immediate compliance may not be possible, even with complete cessation of a discharging activity. The Order includes stringent waste discharge requirements designed to minimize new sediment production and to control and remediate existing sediment inputs to the extent feasible. HRC's projected harvest rates are generally reasonable, and the Order provides that the rate of harvest in any subwatershed shown in the UER not exceed 2% equivalent clearcut acres per year averaged over any 10 year period. This is to ensure that proposed harvest rates are generally below a threshold that would cause concern for contributing to ongoing cumulative impacts on water quality. In addition, a temporary prohibition on activities that are likely to generate additional sediment production in high risk areas is appropriate while active measures are taken to improve downstream beneficial uses. Monitoring will be required to determine whether implementation is leading to measurable improvements.

Sediment control activities such as inventory, prioritization, and treatment of controllable sediment discharge sources and development of feasible projects to trap, meter, or remove sediment in tributary streams, in combination with potential restoration actions downstream, could produce a cumulative impact in the UER watershed. The Order requires annual reporting that will provide a mechanism for watershed-wide project planning by documenting activities conducted in the previous year and activities planned for the following year. The annual work plans allow Regional Water Board staff the opportunity to evaluate and comment on restoration work planned for the year ahead and request that projects with the potential to cause short term impacts be more broadly dispersed

throughout the watersheds or staggered in time. In addition, the five year summary reports provide a longer term evaluation of the effectiveness of the provisions of the Order. Water quality monitoring is to be conducted independently by HRC as well as in coordination with the watershed stewardship process to evaluate trends and ensure that projects are conducted in a manner that does not create a cumulatively considerable impact. HRC will also continue to conduct effectiveness monitoring to evaluate the impacts from restoration and sediment control projects. Post project monitoring is useful to inform project proponents and agency staff with respect to the effectiveness of methods, and improve them as warranted.

HRC's activities conducted in compliance with the Order will not adversely individually or cumulatively affect the quality or the beneficial uses of the waters of the State. The environmental protection afforded by the adoption of the Order, including the implementation of the management plan described in the ROWD and requirements of the Order, will provide sufficient controls on any potential impacts. Therefore, the appropriate finding is **less than significant with mitigation incorporation.**

c) HRC's management activities conducted pursuant to the requirements of the Order will not have effects that will cause substantial adverse effects on human beings, directly or indirectly. With the exception of vehicles traveling on public highways to access the Project area and transport equipment and timber products, HRC's management activities will take place exclusively on privately owned timberlands, which is removed from large population centers. Private individuals live, work, and travel in close proximity to areas affected by HRC's management activities. A small segment of people and communities in areas surrounding UER are likely to be directly or indirectly involved in HRC's activities and therefore derive an economic benefit from them. Timber harvesting and related activities, both those covered under the Order such as road construction and reconstruction, as well as activities not covered, such as processing logs at a mill, is important components of the local economy. Therefore, timber harvesting in the UER watershed will result in a small but significant economic benefit to nearby communities.

Property owners, mainly residential, living downstream from HRC's timberlands have been significantly harmed by impacts from excess sediment deposition, the vast bulk of which was produced by past logging activities. The impacts include damage to property by increased flooding magnitude and frequency, financial impacts due to decreased property values and increased flood insurance rates, loss or impairment of domestic water supplies, and threats to public safety by restricted access into or out of neighborhoods due to increased flooding of roadways. Due to the current impaired condition and lack of assimilative capacity in the impacted reach, the nonpoint source load allocation is defined as zero. As such, the Order establishes stringent requirements for control of sediment from ongoing

timber harvesting. In addition to sediment control, all feasible measures to stabilize or remove sediment already are being evaluated; both pursuant to the feasibility study required under the Order and as part of the watershed stewardship program. Significant public and private resources are currently committed, or anticipated to be committed, to restoration and remediation efforts to improve water quality conditions and relieve effected residents. It is the expectation that HRC will continue to participate in these restoration and remediation efforts. Restoration and remediation efforts in the UER as well as the impacted reach combined with the additional layer of environmental protection provided by the Order is expected to ensure that adverse impacts to the water resources of local communities from HRC's activities improve over time.

The Regional Water Board determines that the project will not have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly. Therefore, the appropriate finding is **less than significant.**

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