# *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 Bear Creek,
Humboldt County, California

## September 9, 2011

**California Regional Water Quality Control Board, North Coast Region**
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## PROJECT DESCRIPTION

This Project consists of adoption of an Order by the California Regional Water Quality Control Board, North Coast Region (Regional Water Board) that if adopted would establish Waste Discharge Requirements (WDRs) for timber harvesting and related land management activities conducted by Humboldt Redwoods Company, LLC (HRC), in the Bear Creek watershed, Humboldt County, California.

The WDRs would establish a comprehensive plan for HRC's land management activities in the watershed. The proposed WDR is attached to this Initial Study. The WDRs would prescribe general and specific discharge requirements for management practices intended to implement applicable water quality standards from the Water Quality Control Plan for the North Coast Region (Basin Plan) (NCRWQCB, 2007).

It is the intent of the WDRs to cover discharges, or threatened discharges, of wastes (e.g., earthen materials such as soil, silt, sand, clay, and rock), organic materials (e.g., slash, sawdust, bark, nutrients, and manure), and temporary loss of shade resulting from timber harvesting and related land management activities on lands owned by HRC in Bear Creek, a tributary stream to the lower Eel River in Humboldt County, California. Most of the potential impacts are associated with erosion and sediment delivery and/or changes to riparian systems that may reduce shade and affect water temperatures.

On October 20, 2010, pursuant to Water Code section 13260(a), the Humboldt Redwood Company, LLC (HRC) submitted a report of waste discharges (ROWD) in application of waste discharge requirements for its timber harvesting and related management activities on lands in the Bear Creek watershed in Humboldt County. The ROWD describes HRC's management plan designed to prevent or minimize potential water quality impacts from their management activities in the Bear Creek watershed.

The WDRs establish requirements that HRC implement their management plan as described in their ROWD to conduct timber harvesting and associated management activities to reduce the potential for sediment and temperature impacts in the Bear Creek watershed to meet Basin Plan standards. The WDR regulates discharges from the management activities, which are also regulated by the California Department of Forestry and Fire Protection (CAL FIRE) and the Board of Forestry, the Californian Department of Fish and Game (DFG), the National Marine Fisheries Service (NMFS), and the U.S. Fish and Wildlife Service (USFW). Those activities include the following:

- timber harvesting;
- methods for road use, construction, reconstruction, decommissioning, and repair and maintenance;
- measures to prevent or minimize controllable sediment discharge from roads; skid trails, landslides, and other sources related to timberland management;
- treatment of controllable sediment discharge sources;
- retention of riparian vegetation to preserve to restore shade and prevent increases in solar radiation;

- In-stream and riparian zone habitat restoration by repositioning and stabilization of existing in-stream large wood and planting riparian zone conifers for habitat restoration;
- watershed trend monitoring.

The potential impacts of those activities included in this Project are described on pages 9 through 17 of this initial study. The specifics of the WDRs are described on pages 17 through 23. The draft WDR is attached to this Initial Study.

## PURPOSE OF AND NEED FOR PROJECT

Water Code section 13260 requires that any persons proposing to discharge waste that could affect the quality of waters of the state must file a report of the discharge (ROWD). The Regional Water Board may, pursuant to WCS 13263, prescribe requirements as to the nature of any proposed or existing discharge. WDR's generally include discharge specifications, effluent limits, and prohibitions to discharge. The WDR requirements implement any relevant water quality control plans that have been adopted, and take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, and the need to prevent nuisance.

The primary land use on the approximately 5,440 acre Bear Creek watershed is timber production. Approximately 95% of the watershed is owned by HRC, a timberland management company.

The Regional Water Board has identified timber harvesting and related land management activities in the Bear Creek watershed as having resulted in waste discharges in amounts that have caused persistent adverse impacts to water quality. The WDR focuses on correcting impacts from past harvesting and requiring management practices that implement Basin Plan water quality standards to minimize existing cumulative watershed effects and prevent or minimize impacts from future timber harvesting.

There is a strong association between land management practices that were used during the period between 1947 and 1997 and the impairment of beneficial uses of water in Bear Creek. Data from field observations and interpretation of aerial photographs show that short term sediment production rates greatly exceed long term natural background rates. In addition, reduction or elimination of riparian vegetation and accompanying loss of shade has contributed to elevated water temperature. Increases in sediment production rates were primarily due to landsliding and other erosional processes related to timber harvesting and use and construction of associated logging roads and skid trails. Loss of riparian vegetation was caused by harvesting trees up to the edge of streams and by debris torrents induced by large landslide that removed streamside vegetation from much of the main stem and major tributaries.

The management plan described in the ROWD, and required as enforceable provisions of the WDR, limits those activities that contributed to impairment. The following section

briefly describes those activities, how they adversely impact water quality, and how those impacts are mitigated under the WDRs.

At least 90% of the Bear Creek watershed was harvested between 1947 and 1966 (this estimate is based on interpretation of aerial photographs). Much of this area was intensively harvested, using clearcut or similar intensive harvesting method. Much of the vegetation remaining in logged area[6] was burned following harvest, resulting in post harvest hillslopes that were almost completely devoid of vegetation. Hillslopes lacking vegetation are typically more vulnerable to surface erosion than similar well vegetated slopes. In addition to vegetation removal, the majority of the watershed was harvested by tractors, resulting in a dense network of skid trails and roads, much of which were constructed on steep slopes. Construction of these roads and skid trails undermined slopes by cutting into them and also placed weak fill material on steep slopes, both of which contributed to landsliding. Many roads and skid trails intercept shallow groundwater, causing a substantial percentage of the precipitation that would previously have moved through the watershed through the subsurface to be transported as surface flow. Surface flow is more likely to become concentrated and increase in velocity, increasing its erosive power. Roads and skid trails crossed streams in numerous locations over poorly constructed earthen fill structures. Such structure commonly failed during storm events, discharging most of their earthen material into streams.

Interpretation of aerial photographs taken in the 1950s and 1960s reveal numerous landslides that occurred during that period, particularly at the base of steep slopes that were intensively harvested and along roads and skid trails. Many watercourse crossings had failed and many of the main stream reaches were filled in during harvest operations and then by erosion and sediment transport.

Many of the effects of ground disturbance from logging during the second half of the 20$^{th}$ century will likely persist for many decades, particularly those resulting from construction of roads and skid trails on steep and unstable slopes. This is because many slopes that were undermined and over steepened from cutting and filling continue to be vulnerable to landsliding, and hillslope hydrology remains altered.

Approximately 35% of the watershed was re-logged from 1966 to 1997. Logging methods during this 30 year period gradually became less disruptive during that period as new management practices were developed and new laws and regulations were established. Two of the most important legal/regulatory milestones were passage of the Porter-Cologne Water Quality Act in 1969[1] (water code) and the Z'Berg-Nejedly Forest Practice Act and Forest Practice Rules in 1973[2] (FPR). Ground-lead and high-lead cable yarding began to be commonly used on moderate to steep slopes, limiting ground

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[1] In 1969, the California Legislature enacted the Porter-Cologne Water Quality Control Act (the Act) to preserve, enhance, and restore the quality of the State's water resources. The Act established the State Water Resources Control Board and nine Regional Water Quality Control Boards as the principal state agencies with the responsibility for controlling water quality in California. Under the Act, water quality policy is established, water quality standards are enforced for both surface and ground water, and the discharges of pollutants from point and non-point sources are regulated.

[2] Title 14, California Code of Regulations Chapters 4, 4.5 and 10

disturbance compared to pre-1966 tractor logging. It is estimated that less than 10 percent of the area harvested between 1966 and 1997 was logged by tractor, with these tractor logged areas being limited to primarily low gradient ridge top locations.

The most recent large landslide triggering storm events occurred in December 1996 and severely impacted several miles of the mainstem and major tributaries of Bear Creek. Much of the landslides that occurred within the past 15 years consisted of reactivation or enlargement of existing landslides. No timber harvesting has occurred in the Bear Creek since 2005, pending development of watershed-wide WDRs by the Regional Water Board to address cumulative impacts.

## CONSISTENCY WITH PLANS AND POLICIES FOR WATER QUALITY PROTECTION

The WDR is a regulatory mechanism intended to ensure that waste discharges from timber harvesting and related activities conducted by HRC in the Bear Creek watershed comply with applicable state water quality regulations, primarily the Water Code §13000 et seq, and the Water Quality Control Plan for the North Coast Region (Basin Plan).

### Timber Harvesting Under the California Forest Practice Rules

Humboldt Redwood Company is a timber company whose primary business is growing and harvesting trees for commercial purposes. Timber harvesting regulation in California is authorized by the Forest Practice Rules. Among the stated goals of the Z'Berg-Nejedly Forest Practice Act and Forest Practice Rules is to harvest timber in a manner consistent with the California Water Code.

The California Department of Forestry and Fire Protection (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 Timber Harvesting Plan (THP) that is approved by CAL FIRE is considered the functional equivalent of an EIR under CEQA. All timber harvesting activities to be regulated by WDR in the Bear Creek watershed will first be certified by CAL FIRE and considered to have completed the CEQA Functional Equivalent process.

### Habitat Conservation Plan

All of HRC's ownership in the Bear Creek watershed is covered by a multi-species state and federal Habitat Conservation Plan, which was approved in 1999 by California Department of Fish and Game, National Marine Fisheries Service, and United States Fish and Wildlife Service. 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 Bear Creek. 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. Specific 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 WDR.

**California Water Code**
Water Code section 13260(a) requires that any person discharging waste or proposing to discharge waste within any region that could affect the quality of the waters of the state, other than into a community sewer system, must file with the appropriate Regional Water Board a Report of Waste Discharge (RWD) containing such information and data as may be required. Under Water Code section 13263, the Regional Water Board prescribes requirements as to the nature of any proposed or existing discharge with relation to the receiving water conditions. Requirements shall implement any relevant Basin Plan requirements and take into consideration beneficial uses and objectives reasonably required to protect such uses, and other relevant factors.

**Water Quality Control Plan (Basin Plan)**
The Basin Plan is the Regional Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality standards. The Basin Plan has been adopted and approved by the State Water Resources Control Board (State Board), as well as by the United States Environmental Protection Agency (USEPA) and the Office of Administrative Law (OAL) when required. The WDR requires compliance with the Basin Plan water quality objectives, prohibitions, action plans, and policies.

**California "Anti-degradation Policy"**
State Water Resources Control Board (State Board) Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California," while incorporating the federal Antidegradation Policy where the federal policy applies, is more comprehensive than the federal policy. In particular, the state policy applies to both groundwater and surface waters whose quality meets or exceeds (is better than) water quality objectives, and allows reduction of water quality to established Basin Plan objectives only if found to be to the maximum benefit to the people of the state and does not unreasonably affect present and anticipated beneficial uses of such water. The WDR is consistent with Resolution No. 68-16.

**California Nonpoint Source Policy**
The State Board adopted in 2004 the *Policy for the Implementation and Enforcement of the Nonpoint Source Pollution Control Program* ("NPS Policy") pursuant to Water Code section 13369 (a)(2)(B). The NPS Policy requires regulation of nonpoint source pollution through one of the following permitting authorities:

- Basin Plan prohibitions
- Waste Discharge Requirements
- Waivers of Waste Discharge Requirements

**Total Maximum Daily Loads (TMDL)**
Section 303(d) of the Clean Water Act (CWA) and associated regulations contain provisions for developing TMDLs impaired waterbodies. In 2007, the U.S.

Environmental Protection Agency established the Lower Eel River TMDL for Temperature and Sediment, which includes the Bear Creek watershed. It is anticipated that implementation of the management strategy detailed in the WDRs, with modifications as needed based on ongoing monitoring and assessment, will result in a reduction of anthropogenic sediment discharges from roads and landslides sufficient to achieve TMDL load allocations. In addition, riparian protection measures required by these WDRs will achieve temperature TMDL load allocations.

**Clean Water Act (CWA)**
The State Water Resources Control Board (State Board) and regional boards are a delegated federal agency with responsibility for implementing the CWA in California. .

**Federal Antidegradation Policy**
This policy applies to surface waters, regardless of the water quality. Where water quality is better than the minimum necessary to support instream uses, the federal policy requires that quality to be maintained and protected, unless the state finds, after ensuring public participation, that:

1. Such activity is necessary to accommodate important economic or social development in the area in which the waters are located,

2. Water quality is adequate to protect existing beneficial uses fully, and

3. The highest statutory and regulatory requirements for all new and existing point source discharges and all cost-effective and reasonable best management practices for nonpoint source control are achieved.

The WDR is consistent with the Federal Antidegradation Policy.

**ENVIRONMENTAL SETTING**
The Bear Creek watershed is located in coastal northern California (40°, 25‘, 52.7” N; 123°, 58‘, 54.9” W) approximately 7 miles southeast of Scotia in Humboldt County (Figure 1). It drains into the Eel River near the town of Shively.

The Bear Creek watershed encompasses approximately 5,440 acres (8.5 mi2). The Facility covered by this WDR includes only those lands under HRC management, which includes right-of-way for roads through lands owned by others totaling approximately 5,168 acres. HRC lands are bordered by Humboldt Redwood State Park along much of the southern watershed boundary of as well as in the vicinity of the downstream portions of the watershed near the confluence with the Eel River and the Highway 101 transportation corridor along the Avenue of the Giants. Approximately 95% of the land in the Bear Creek watershed 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.

Bear Creek has a dendritic drainage pattern deeply incised into steep hillslopes. Elevation ranges from 2800 feet in the southwest corner of the watershed to about 100

feet above sea level at its confluence with the Eel River. Ridge-top areas can be fairly gentle but slopes typically steepen to ≥ 40% approaching watercourses.

Rainfall data collected at nearby Scotia, CA, indicates an average annual rainfall of 47.33 inches. The majority of precipitation falls in the form of rain, with snowfall a rare event. The area has Mediterranean climate, with 79% of annual average rainfall occurring during the months of November through March. Two rain gages, one at a lower elevation and one at a higher elevation, have been operated in Bear Creek since 2004. Rainfall measurements recorded at these stations show that Bear Creek experiences the same storms as Scotia, but with greater rainfall, averaging from 57 to 72 inches annually depending upon location in the watershed. The lower elevation site at Bear Creek records 20% greater rainfall than at Scotia on average through the season. The upper elevation site records 53% greater than at Scotia. The increased rainfall over Scotia reflects the orographic effect caused by topography.

Sediments within Bear Creek derive primarily from the Coastal Belt of the Franciscan Complex with a small area of the lower portion of the watershed at the confluence with the Eel River underlain by the Wildcat Group. A detailed characterization of the Bear Creek geologic setting can be found in Appendix A of the ROWD, in a report titled *Landslide Inventory for the 2003 and 2006 Storm Seasons, Bear Creek, Humboldt County, California* (pages 4-9).

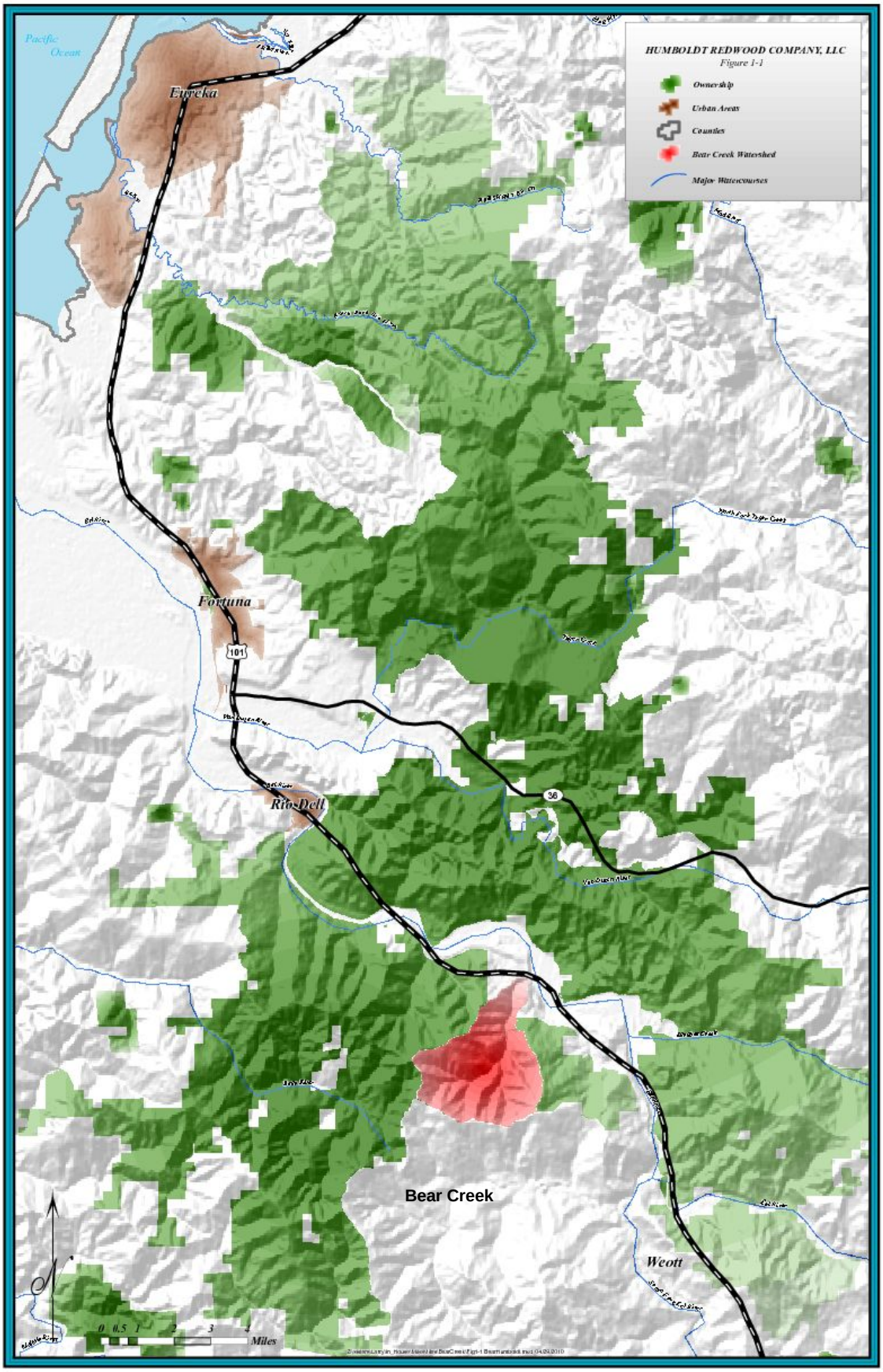


**Figure 1.** **Project Area, the Bear Creek watershed and surrounding area.**

## DISCUSSION OF POTENTIAL EFFECTS OF PROPOSED PROJECT

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

### General Effect of Timber harvesting

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 non-forest for a period of decades until trees grow back. When an old-growth forest is clearcut, as occurred in Bear Creek primarily during the period from 1947 to 1966, its inherent ecological integrity and unique characteristics may be lost for centuries. The majority of the timber in Bear Creek watershed, was heavily cut between 1947 and 1966, and is now in a condition of varying stages of second growth conifers and hardwood, with scattered residual old growth. Hardwoods such as tan oak that occur as a dominate species in some areas were previously conifer dominated prior to the initial harvest in the mid twentieth century.

In 2010, the Forest Stewardship Council[3] (FSC), certified Humboldt Redwoods Company as meeting international standards of forest stewardship throughout their land base, including Bear Creek watershed. As background, in 2009, Scientific Certification Systems (SCS), a certification body accredited by the FSC, was retained by the HRC to conduct a certification evaluation of its timberlands. Under the FSC/SCS certification system, forest management operations meeting international standards of forest stewardship can be certified as "well managed", thereby enabling use of the FSC endorsement.

HRC practices uneven-aged silvicultural techniques, such as selection and variable retention systems that result in 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 that present before 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;

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[3] FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests, established in 1993

- 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 (as measured by greater than 125 square feet conifer basal area);

Timber harvesting in Bear Creek will take place in steep, vulnerable slopes and therefore the potential for increased landslides exists. 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 arguably 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 is considered to be low.

**Effects of Timber Harvesting on Slope Stability**

Timber harvesting can result in increased rates of shallow landslides on vulnerable slopes due to decreases in root strength and increased soil moisture. 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 (Ziemer 1981a). As new roots grow into the space previously occupied by the older roots system, the support they provide gradually increases. Loss of root strength varies with species and intensity of harvest. Partial harvesting of resprouting species such as redwood or tanoak is thought to minimize the degree and duration of the period of diminished root strength. This is due the fact that a significant portion of trees remain after harvesting and that the roots of those remaining trees do not die back completely after the tree is cut down.

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. Various studies (Lewis, 2003) (Reid and Lewis, 2007) (Pearse and Rowe, 1979) have found reductions in effective rainfall (the part of precipitation that reaches stream channels as runoff) over 20%, in harvested stands compared to unharvested stands, due to interception and evaporation of precipitation before it reaches the ground and removal moisture from the soil through evapotranspiration in unharvested stands. Zeimer (1981b) found only minor changes in peak flows following partial harvesting. Vulnerability to shallow landsliding processes varies throughout a hillslope, primarily as a function of soil depth, slope gradient, contributing drainage area, subsurface hydrology, and soil characteristics.

HRC's management plan utilizes a combination of strategies to identify vulnerable portions of the watershed and implement management activities that minimize the potential to trigger landslides. The objectives of the landslide reduction strategies are to avoid or restrict harvesting on vulnerable slopes and limit the overall intensity and areal extent of harvesting. Taken together, this combination of strategies is designed to minimize the potential for increased sediment discharge from timber harvest related landslides. These are discussed in greater detail below and include:

- Use of partial harvesting methods that retain a significant component of post harvest root strength;
- Use of a shallow landslide model to identify high hazard areas and harvest restrictions based on hazard class;
- No harvesting on areas with high landslide hazard and within 100 feet of Class I and II streams, additional restrictions up to 300 feet from the stream or to the break in slope, and review by a licensed geologist;
- Review by licensed geologist before proposed harvesting on vulnerable slopes to characterize landslide hazards, assess the risk of sediment discharge, and develop mitigation measures to reduce the landslide risk;
- Maintain and update an inventory of landslides in the watershed to expand understanding of landslide patterns in the watershed and the effectiveness of management measures, and to revise them as necessary;
- Implement feasible stabilization measures to prevent or minimize ongoing sediment discharge from landslides;
- Establish a harvest rate limit of 30% of the watershed harvested in a ten year period in order to limit the area in post harvest condition of reduced root strength at any given time.

HRC has developed a shallow landslide hazard model, which is described in Appendix F of their ROWD. The model combines hillslope angle and topographic convergence from a digital elevation model (DEM) and incorporates a likely range of soil parameters to identify relative hazard classes, ranging from very high to unconditionally stable. HRC calculated landslide hazard for the entire Bear Creek watershed using the model and prepared a map showing landslide hazard, which is included in the ROWD. HRC developed management prescriptions for each hazard class designed to prevent or minimize harvest related landslides, which are presented as Table 1 in Appendix F of the ROWD. The management prescriptions included in Table 1 specify that a Professional Geologist (PG) must review and evaluate the potential impacts of any proposed harvesting on areas in high to moderate hazard classes. The prescriptions specify no harvesting on the highest hazard class, unless a PG concludes that there is no potential for sediment discharge. Regional Water Board staff reviewed the landslide hazard model, the resulting hazard map and prescriptions in Table 1, and determined that they provide an appropriate tool to help identify and restrict or limit harvesting on vulnerable hillslopes. The WDR requires that HRC identify hazard class of areas that will be harvested based on the landslide hazard map in the ROWD implement the applicable management prescriptions from Table 1. In addition prior to harvesting on areas shown as the highest hazard Class, HRC must prepare and submit to the

Regional Water Board for approval a report by a PG concluding that there is not potential for sediment discharge.

Appendix D of the ROWD describes hillslope prescriptions from HRC's HCP that were developed to minimize management related landsliding from steep streamside slopes as a result of watershed analysis for the Lower Eel River, which includes Bear Creek. The analysis identified landforms most commonly associated with landsliding, based on slope, geologic substrate, and land use history and provides prescriptions to either avoid or limit harvesting on high hazard areas.

Regional Water Board staff have reviewed the hillslope prescriptions and find that they are a reasonable approach to avoiding or limiting harvesting on vulnerable slopes and are an important component of overall strategy to minimize management related landsliding.

The WDR requires that HRC implement the hillslope prescriptions from the ROWD, including the following:

a. No harvesting within 100 feet of Class I and II watercourses,
b. Any harvesting within a headwall swale connected to a Class I, II, or III watercourse shall retain an adequate number of living trees equivalent to a minimum of 150 square feet of basal area per acre,
c. No ground based equipment, with the exception of at existing roads and equipment crossings, and permitted new road construction within:
    - 150 feet of a Class I watercourses,
    - 100 feet of a Class II watercourse,
    - 50 feet of a Class III watercourse, or to the closest hydrologic divide.

Landslide related sediment discharge from hillslopes disturbed by management activity can persist episodically for many years after the initial impact. Appendix A of the ROWD includes an inventory of active landslides observed after the 2003 and 2006 storm seasons prepared by a PG. Fifty three of the 58 landslides (91%) identified in the inventory in Appendix A were reactivations of older landslides. Understanding landslide patterns in the watershed and the effect of land management on slope stability can be used to minimize ongoing landslide related sediment discharge and identify restoration opportunities. Section 4.1.1 of the ROWD describes HRC's plan to conduct field evaluations and aerial photograph interpretation, update and maintain the landslide inventory, and identify new landsliding activity. The ROWD specifies that HRC will acquire and maintain updated, high-angle color stereo pair aerial photographs to update the landslide inventory at an interval of no greater than 5 years, or less if a triggering event occurs.

Section 4.1.2 of the ROWD describes HRC's plan to develop and submit a Landslide Restoration Plan to determine if feasible erosion control measures can be implemented to minimize future delivery. Potential erosion control measures may include, but are not limited to: re-vegetation (e.g. tree planting, seeding, willow waddles), excavation, drainage modification, and buttressing or armoring of unstable areas. The strategies

described above are designed to minimize the potential for harvest related landslides by avoiding or limiting harvesting on vulnerable areas.

Logging and associated activities, as described above, particularly construction and use of roads and skid trails, have the potential to impact water quality. The potential for impacts to occur is highest in the period following disturbance (with a delay of several years for the period of maximum vulnerability due to loss of root strength as discussed in above) and diminishes over time as vegetation grows back and disturbed soil stabilizes. This recovery period varies for different processes. In order to limit the potential for impacts to water quality, the WDR establishes an upper limit to the rate of harvesting within the watershed that can be harvested annually over a ten year period.

Many studies have been conducted to try to better understand the relationship between rate of harvesting and cumulative watershed effects, which result from a complex interaction of many different factors. Such factors include 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 of watershed area disturbed. The rate of harvest in a watershed is an important management variable. Several studies cite specific thresholds for the rate of harvest, above which, cumulative impacts are likely to occur. Studies have linked specific processes to watershed impact, such as increased peak flows (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 al, 2000), or clearcut equivalent acres (USDA Forest Service, 1974). Appropriate harvest rate thresholds presented in the scientific literature, expressed as watershed area harvested over time (typically percent per year or per decade), vary greatly. The report of the scientific review panel on California Forest Practice Rules and salmonid habitat (Ligon et al, 1999) recommended harvest rates between 30% and 50% per decade, depending on site specific variables, harvesting prescriptions, past watershed disturbance, and other factors.

Based on the proposed partial harvesting or selection silviculture methods, level of geologic review and hillslope protection measures, management practices designed to prevent or minimize sediment discharge, and specific requirements of the WDR, a rate of harvest of 30% per decade is considered protective of water quality standards within the Bear Creek watershed. As such, the WDR requires that HRC limit timber harvesting in the Bear Creek watershed to no more than 30% watershed area over the first ten year period following approval of the WDR.

**Water Temperature**

Timber harvesting can affect water temperature directly by removal of trees that provide shade to stream and riparian zones and indirectly by increasing sediment production from landsliding and other erosion processes that result in pool filling and shallower stream conditions, which are more prone to heating. The debris torrents that occurred in Bear Creek in the 1950s, 1960s, and 1990s filled portions of the mainstem channel with sediment and obliterated much of the riparian vegetation that had provided shade to the stream and riparian zone. It also resulted in a wider shallower channel, which is more susceptible to temperature changes than deeper narrower streams. Analysis from

TMDLs in temperature impaired waterbodies throughout the North Coast Region have consistently found elevated water temperatures to be the result of increased exposure to solar radiation due to loss of stream shade and alteration of stream channels in response to elevated sediment loads.

The WDR requires that HRC shall not harvest within 100 feet of Class I and II watercourses. Prohibiting all harvesting within 100 feet of Class I and II watercourses will promote regrowth of riparian canopy that was lost to earlier land activities and or destroyed by debris torrents. This level of protection is adequate to preserve and restore natural shade to these watercourses in the Bear Creek watershed.

Because of the link between elevated sediment loads and elevated water temperature, management practices to prevent or minimize sediment discharge from landslides and other harvest related erosion will also prevent increases in water temperature. Sediment impacts related to management activities are described above and implementation of management practices to control sediment are included as requirements of the WDR.

**Heavy Equipment Use**

Heavy equipment such as tractors, excavators, backhoes, and other large vehicles are used extensively for logging and construction. Such equipment has significant potential to cause ground disturbance resulting in loss of vegetation and erosion. Those potential impacts are widely recognized and numerous rules and regulations designed to mitigate these impacts are required under the WDRs. Most relevant to HRC's timber harvesting and related management activities in Bear Creek are those portions of the Forest Practice Rules and the Habitat Conservation Plan addressing use of heavy equipment. In general, management practices are designed to mitigate the impacts of heavy equipment use in timberland settings by limiting their use in riparian zones, on steep or unstable slopes, during wet weather, and stabilizing disturbed ground.

**Roads and Road Use**

Logging roads alter hillslope hydrologic processes, capture and divert surface flow and cause surface and gully erosion, effect mass wasting, reduce growing space, compact soil, and increase the area of low permeability surface. TMDLs throughout the North Coast Region have identified logging roads as one of the most significant sources of anthropogenic sediment discharge. Interpretation of aerial photographs of Bear Creek from 1947 through 2006 show that roads caused a many-fold increase in sediment discharge above natural rates.

Roads can contribute to landsliding in several ways. Roads are typically constructed by balanced cut and fill. Cutting into steep slopes undermines and oversteepens slopes, which frequently result in cutbank failure. The upslope extent of cutbank failures varies considerably. Such failures can be large enough to be transported over the road and continue down slope. Fill material placed on the outside edge of the road can also fail due to insufficient compaction, being placed on steep slopes, and may contain excess organic material that effectively weakens the fill material as it decays. Review of the aerial photographs show that many of the management related landslides in Bear Creek are associated with failure of road cutbanks and fill slopes. Roads also intercept and concentrate shallow groundwater and surface runoff, resulting in channelized flow

where none previously existed, essentially extending the drainage network in the watershed. This can cause gully erosion and saturate vulnerable slopes, increasing the potential for failure.

Road crossings of watercourses are one of the most common sources of erosion and sediment discharge which are controllable by changes to management practices. Watercourse crossings are subject to the force of high stream flows and failure usually results in direct delivery due to proximity to streams.

The majority of roads in Bear Creek were constructed in the 1950s and 1960s, before current practices and the potential for adverse impacts described above was understood. Since that time, improved practices and standards for road construction, reconstruction, and maintenance have been developed and have been implemented on roads in Bear Creek. The current practices are designed to minimize concentration of runoff, remove potentially unstable fills, and construct new and reconstruct existing watercourse crossings with adequate flow capacity with low risk of failure.

After large rain storms in December 1997, the road system in Bear Creek was evaluated for potential sediment sources. The evaluation identified 179 sites as controllable sediment sources and recommended treatment for 155 of them. To date, treatment to prevent or minimize sediment discharge has been implemented at 153 of those sites, the road system has been upgraded to current standards, 4.5 miles of road has been decommissioned, and HRC conducts regular inspection and maintenance to identify and correct potential problems before they can cause sediment discharge.

Appendix B of the ROWD contains the sediment source inventory prepared by Pacific Watershed Associates in 1998. Over 95% of the estimated volume of controllable sediment discharge sources associated with roads that were identified by PWA have been treated and are no longer considered to have the potential to discharge. This sediment control work was not conducted in response to a formal order from the Regional Water Board, but Regional Water Board staff have reviewed much of the work on an informal basis and consider the work to have contributed significantly towards recovery of the watershed.

The ROWD describes HRC's overall approach to preventing and minimizing controllable sediment discharge from roads from Section 6.3.3 of HRC's HCP. These prescriptions, included as specific requirements of the WDR, specify the following measures to prevent or minimize sediment discharge from roads:

- minimize concentration of surface runoff;
- minimize potential for watercourse diversion at crossings;
- minimize the length of road surface draining directly to watercourses;
- remove potentially unstable fill material to the extent feasible;
- inspect and maintain roads annually;
- restrict wet weather road use.

The WDR also includes the following specific requirements to address potential impacts from roads:

- HRC must upgrade all roads that currently do not meet the standards described above by October 15, 2013;
- HRC must maintain and update the inventory of controllable sediment discharge sources from roads;
- HRC must inspect all roads within their Bear Creek ownership at least annually and following triggering storm events. New road-related sediment sources that are identified during the inspections will be treated within one year of being identified.

**Legacy Sediment Sources – Erosion Control Plans**
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, which should be treated as controllable sediment discharge sources (CSDS), 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.

Controllable sediment discharge sources are those sites that meet all of the following conditions:

- is discharging or has the potential to discharge sediment to waters of the state in violation of water quality standards or other provisions established herein;
- was caused or affected by human activity; and
- may feasibly and reasonably, respond to prevention and minimization management measures.

Erosion Control Plans (ECPs), in which landowners identify, evaluate, and treat CSDS, are an important component of a strategy to prevent or minimize ongoing sediment discharge and also contribute towards achieving sediment TMDL load allocations. Section 4 of the ROWD describes HRC's strategy to develop and implement ECPs for their timberland in the Bear Creek watershed.

The WDR requires that HRC prepare and submit ECPs to address any CSDS not on a road or inventoried and treated under the Landslide Restoration Plan or the road management activities. These sites shall be inventoried and scheduled for treatment during timber harvest plan development and treated concurrently with timber harvesting in the vicinity.

**Stream and Riparian Zone Restoration**
Channel conditions in much of Bear Creek have improved greatly since 1997; however, excess sediment persists in the channel of much of Bear Creek, and riparian vegetation does not provide shade at levels approximating natural conditions.

Section 8 of the ROWD describes HRC's approach to reposition and stabilize large wood in the main channel of Bear Creek as well as to plant conifer trees in the riparian zone to enhance pool formation and sediment sorting and restore riparian vegetation along mainstem reaches of Bear Creek. 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 scour sediment stored in the channel and banks. These are natural processes that are necessary for properly functioning streams.

HRC's work stabilizing and repositioning large wood in the channel will be conducted by field crews using portable tools. Motorized vehicles will not be used in the stream zone to access sites or to move logs. The stabilization work will be conducted according to standard practices as described in references such as the California Department of Fish and Game *Habitat Restoration Manual* or the Natural Resources Conservation Service *Stream Restoration Design: National Engineering Handbook, Part 654.*

The WDR requires HRC to submit the plan to the Regional Water Board Executive Officer for approval by October 29, 2012 a plan to reposition and stabilize large wood in channel reaches with excess sediment and plant conifer trees in the riparian zone. The plan shall include the following components:

- Goals, describing the desired outcome of the restoration plan to address identified problems;
- Objectives, describing specific actions that can reasonably be expected to achieve the stated goals;
- A projected timeline for implementation of restoration activities;
- Monitoring to evaluate the effectiveness of the plan towards achieving the stated goals.

## SPECIFICS OF THE PROPOSED PROJECT

The WDR is a Regional Water Board Order that regulates the discharge of non-point source waste in the Bear Creek watershed by establishing enforceable specifications, provisions, standards, and prohibition to achieve and maintain Basin Plan water quality standards. Section I of the WDR establishes Specific Requirements that HRC conduct their management activities according to the management plan described in their ROWD. Section II of the WDR establishes General Requirements to ensure compliance with the Basin Plan, ensure right of access for Regional Water Board staff to inspect the facility, make water quality protection measures from the Forest Practice Rules enforceable conditions of the WDR, and other general provisions that are necessary to ensure compliance with water quality standards but are not specific to HRC management plan for Bear Creek. Section III of the WDR includes Basin Plan waste discharge prohibitions.

**Specific Requirements**
The WDR requires that HRC conduct timber harvesting and related management activities in the Bear Creek watershed according to the management plan described in their ROWD. Section I of the WDR includes the following key components of their management plan as enforceable provisions:

Timber Harvesting

- HRC will not utilize clearcut harvesting;
- HRC will not harvest over 30 percent (1,500 acres) of the watershed area over the ten year period between 2012 and 2022;
- Of this harvest area, up to 1,300 acres shall be harvested using single tree and group selection silviculture;
- Up to 200 acres currently dominated by hardwoods will be harvested using Variable Retention or Rehabilitation of Understocked Area silvicultural methods.

Riparian Protection and Landslide Prevention

- HRC must harvest in accordance with the prescriptions for each landslide hazard class as described in Table 1 of Appendix F. The prescriptions specify no harvesting on areas of very high hazard unless a Professional Geologist determines that there is no potential for sediment discharge.

- HRC will conduct timber harvesting activities in accordance with the prescriptions for riparian and hillslope protection measures from Section 6.3 of their HCP and as described in the Appendix D of the ROWD, including the following:

    i. No harvesting within 100 feet of Class I and II watercourses;
    ii. Any harvesting within a headwall swale connected to a Class I, II, or III watercourse shall retain an adequate number of living trees equivalent to a minimum of 150 square feet of basal area per acre;
    iii. No ground based equipment, with the exception of at existing roads and equipment crossings, and permitted new road construction within:
        - 150 feet of a Class I watercourses,
        - 100 feet of a Class II watercourse,
        - 50 feet of a Class III watercourse, or to the closest hydrologic divide.

- HRC shall prepare and submit an engineering geologic report to the Regional Water Board Executive Officer prior to conducting timber harvesting activities when any of the management activities and landscape conditions described below are present. At a minimum, the geologic report shall characterize geologic hazards, evaluate the risk posed to the beneficial uses of water by the management activity, and develop appropriate mitigations. Conditions requiring a geologic report are as follows:

    i. harvest within a distance of up to 300 feet from a watercourse, dependent upon watercourse classification and slope condition as described in Appendix D of the ROWD;

ii. harvest, road construction, or reconstruction within an inner gorge, headwall swale connected to a Class I, II, or III watercourse, earthflow, debris slide slope, or slopes exceeding 60%;
iii. when required by the prescriptions based on the landslide hazard class,
iv. Regional Water Board Executive Officer request an engineering geologic report to evaluate whether a proposed timber harvesting, road, or restoration activity has the potential to result in sediment discharge from landsliding.

- HRC must maintain and update a landslide inventory, as specified in Appendix A of the ROWD.

- HRC must prepare a Landslide Restoration Plan to prevent and minimize ongoing sediment discharge from landslides. The plan must be designed to evaluate, prioritize, implement, and monitor measures to prevent or minimize sediment discharge from active landslides and at a minimum must include the following components:
    i. Identify landslides that have the potential to discharge sediment to waters of the state in violation of the water quality standards;
    ii. Evaluate the feasibility of measures to prevent or minimize sediment discharge from these landslides, that may include, but are not limited to; re-vegetation (e.g. tree planting, seeding, willow waddles), excavation, drainage modification, and buttressing or armoring of unstable areas;
    iii. A projected timeline for implementation of site specific prevention and minimization measures; and
    iv. A plan to track and monitor the effectiveness of prevention and minimization measures.

Road Management

- HRC must implement management practices and specifications described in the ROWD to prevent and minimize sediment discharge from active roads;

- By October 15, 2013, HRC must upgrade all roads to meet the storm-proofed standard as described in the ROWD;

- HRC must maintain and update the inventory of controllable sediment discharge sources from roads in accordance with the methods described in the ROWD;

- By October 15, 2013, HRC must treat those road related controllable sediment discharge sources currently identified in the inventory included in the ROWD;

- HRC must inspect all roads within their Bear Creek ownership at least annually between May 1 and October 15 and inspect 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;

- Within one year of identifying new sediment discharge sources from roads HRC must implement measures to prevent or minimize sediment discharge at any new controllable sediment discharge sources identified during the road inspections.

Erosion Control Plans

- Any controllable sediment discharge sources not on a road or inventoried and treated as part of the Road Management activities or the Landslide Restoration plan described above must be inventoried and scheduled for treatment during timber harvest plan development and treated concurrently with timber harvesting in the vicinity. Such sites will be subject to the following:
    i. Each site must be inventoried in an ECP, which will include: a description of the current condition of each site, an estimate of the potential sediment volume that could discharge from the site, a narrative description of the proposed management measures, and a schedule for implementation.
    ii. Inventoried sites must be treated within one year of discovery.
    iii. HRC must submit the ECP to the Regional Water Board for review with the timber harvest plan it is associated with.

In-Stream Large Wood Stabilization and Riparian Zone Planting

- By October 29, 2012, HRC must submit to the Regional Water Board Executive Officer, a plan to reposition and stabilize large wood in channel reaches with excess sediment and plant conifer trees in the riparian zone. The goal of the plan must be to enhance pool formation and sediment sorting and restore the conifer component of the riparian vegetation along mainstem reaches of Bear Creek and shall be developed with input from Regional Water Board staff. Upon approval of the plan, HRC must implement the plan according to the schedule approved by the Executive Officer.

**General Requirements**

Section II of the WDR establishes the following general requirements:

- HRC must comply with all applicable water quality standards, requirements, and prohibitions specified in the Basin Plan as modified, and policies adopted by the State Water Board.

- HRC must allow Regional Water Board staff entry onto all land within the Bear Creek watershed covered by the WDR including appurtenant roads for the purposes of observing, inspecting, photographing, video taping, measuring, and/or collecting samples or other monitoring information to document compliance or non-compliance with the WDRs. If entry is unreasonably withheld, the Executive Officer may terminate the applicability of the WDR and may result in enforcement action.

- HRC must comply with all water quality-related HCP prescriptions, conditions included in an approved THP, and any additional mitigation measures identified and required pursuant to CAL FIRE CEQA process.

- HRC must comply with the monitoring and reporting requirements included as a requirement of the WDR.

- HRC must comply with all mitigation measures identified in the environmental assessment and Mitigated Negative Declaration prepared to comply with CEQA.

- HRC must notify the Regional Water Board in writing at least 30 days prior to any proposed aerial application of pesticides or ground-based application of pesticides within 100 feet of a Class I or Class II stream. The notification must include the type of pesticide(s), method and area of application, projected date of application, and measures that will be employed to assure compliance with applicable water quality requirements.

- Water quality issues identified on any particular THP and not resolved prior to THP approval by CALFIRE, shall be resolved to the satisfaction of Regional Water Board Executive Officer, prior to commencement of that THP.

- The Regional Water Board may add to or modify the conditions of the WDRs, with notice and as appropriate, to implement any new or revised water quality standards, and implementation plans adopted and approved pursuant to the Porter-Cologne Water Quality Control Act or the Clean Water Act.

- These WDRs may be modified, revoked and reissued, or terminated if the Executive Officer makes any of the following determinations:

    i. HRC is conducting activities that do not comply with any condition or provision of the WDRs;
    ii. HRC is conducting activities that are reasonably likely to result, or has resulted in a violation or exceedence of any applicable water quality requirement;
    iii. HRC is conducting activities that vary from the provisions of the WDRs such that those activities could adversely affect water quality;
    iv. When requested by HRC, another state agency, or a subdivision of the state (county), or a federal agency, upon a demonstration that the project or activity would cause a violation of water quality standards or otherwise violate these WDRs.

- In the event of any violation or threatened violation of the conditions of the WDRs, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under applicable state law.

- Should it be determined by the HRC or the Regional Water Board that unauthorized discharge of waste are causing or contributing to a violation or an exceedence of an applicable water quality requirement or a violation of a WDR prohibition, the HRC shall:

    Implement corrective measures immediately following discovery that applicable water quality requirements were exceeded or a prohibition violated, followed by notification to the Regional Water Board by telephone or email as

soon as possible, but no later than 48 hours after the discharge has been discovered. This notification shall be followed by a report within 14 days to the Regional Board, unless otherwise directed by the Executive Officer that includes:

i. the date the violation was discovered;
ii. the name and title of the person(s) discovering the violation;
iii. a map showing the location of the violation site;
iv. a description of recent weather conditions prior to discovering the violation;
v. the nature and cause of the water quality requirement violation or exceedence or WDR prohibition violation;
vi. photos of the site documenting the violation;
vii. a description of the management measure(s) currently being implemented to address the violation;
viii. any necessary maintenance or repair of management measures;
ix. any additional management measures which will be implemented to prevent or reduce discharges that are causing or contributing to the violation or exceedence of applicable water quality requirements or WDR prohibition violation;
x. an implementation schedule for corrective actions; and,
xi. the signature and title of the person preparing the report.

- HRC shall revise all appropriate technical reports (ie. ECP, geologic report, Landslide Restoration Plan, or other required information as applicable) immediately after the report to the Regional Board to incorporate the additional management measures that have been and will be implemented, the implementation schedule, and any additional inspections or monitoring that is needed.

**Discharge Prohibitions**

The following waste discharge prohibitions pertain to all logging, 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 which could be deleterious to fish, wildlife, or other beneficial uses is prohibited.

In addition, the following prohibitions also apply to the Bear Creek WDR:

Discharges of waste, which are not otherwise authorized by waste discharge requirements or other Order issued by this Regional Water Board or the State Water Resources Control Board, to waters of the state are prohibited, except as allowed below.

Discharges must not cause or threaten to cause pollution, contamination, or nuisance.

Discharges must not adversely impact human health or the environment or the beneficial uses of water set out in the Basin Plan.

## 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 (California Code of Regulations, (CCR) title 14, section 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 (CCR 14, section 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 (CCR title 14, section 15070).

Proposed requirements to be established in the WDR, would regulate timber harvesting and related management activities to protect, maintain, and restore water quality to meet Basin Plan objectives, avoid violations of prohibitions, and achieve compliance with TMDL action plans. The proposed WDR are 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 WDR rely, in part, on existing prescriptive standards imposed by the Forest Practice rules 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 WDR and would become enforceable requirements of the WDR.

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, and site preparation.

Some of the requirements of the WDR 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 evaluating and improving management practices. Another example is the requirement that HRC develop a plan to prevent or minimize sediment discharge from recently active landslides by planting trees where feasible. This is an on-the-ground activity conducted for the purpose of mitigating existing impacts that has no reasonably foreseeable potential for causing significant adverse impacts.

The WDR would not limit or change the land owners responsibility to comply with existing requirements, authorities, or responsibilities imposed by other agencies, nor does it authorize discharges which would result in Basin Plan violations, or the creation

of a pollution or nuisance. 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 proposed WDR. The following checklist describes the Specific and General requirements included in the proposed WDR to reduce potential impacts to less than significant levels.

1. **Project title:**
   Waste Discharge Requirements for Timber Harvesting and Related Related Management Activities Conducted by Humboldt Redwood Company, LLC
   In the Bear Creek Watershed Humboldt County

2. **Lead agency name and address:**
   California Regional Water Quality Control Board, North Coast Region
   5550 Skylane Blvd.
   Santa Rosa, CA 95403

3. **Preparer and phone number:**
   Jim Burke, (707) 576-2289

4. **Project location:** Bear Creek Watershed, tributary to the Lower Eel River in Humboldt County, California.

5. **Project sponsor's name and address:**
   North Coast Regional Water Board
   5550 Skylane Blvd.
   Santa Rosa, CA 95403
   Attn: Jim Burke

8. **Brief Description of project:**
   This Project consists of development of waste discharge requirements for timber harvesting and related land management activities conducted by Humboldt Redwoods Company, LLC (HRC), in the Bear Creek watershed, Humboldt County, California.

   If adopted, the Regional Board would prescribe Waste Discharge Requirements (WDRs) for discharges, or threatened discharges, of wastes (e.g., earthen materials such as soil, silt, sand, clay, and rock), organic materials (e.g., slash, sawdust, bark, nutrients, and manure), and temporary loss of shade resulting from timber harvesting and related land management activities on lands owned by HRC in Bear Creek, a tributary stream to the lower Eel River in Humboldt County, California. Activities covered by the WDRs include timber harvesting, road use, maintenance, construction, reconstruction, decommissioning, erosion control activities, stream restoration, and water quality monitoring.

9. **Surrounding land uses and setting:**
   State park, recreation, timber harvest, open space, and State Highway 101.

10. **Other public agencies whose approval is required** (e.g., permits, financing approval, or participation agreement.)
The California Department of Forestry and Fire Protection (CAL FIRE) is lead agency for review of timber harvest plans. Before a landowner can commence operations on a timber harvest plan, CAL FIRE must approve the plan.

All of HRC timberland in the Bear Creek watershed is covered by a multi-species state and federal Habitat Conservation Plan approved in 1999. A primary purpose of the HCP is to provide the basis for the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and the California Department of Fish and Game (CDFG) to authorize incidental take of certain listed species, including some species that currently are not, but may be, listed during the life of the HCP.

If an activity will is likely to substantially modify a river, steam or lake, HRC must also obtain a Streambed Alteration Agreement with CDFG pursuant to Section 1603 of the FGC. The 1603 Agreement identifies measures for activities that are covered under the 1603 Agreement that HRC must implement to avoid, minimize, and mitigate potential impacts.

## 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 Section 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. (California Code of Regulations, title 14 Section 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 HCP has been and will be managed consistent with the management of the surrounding lands. 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, or fishing boats and freighters in our harbors, or residences in suburban areas, or office buildings and industrial parks in urban areas. Many are interested in how and where we produce the material used by our society. The juxtaposition of the preserved redwood groves within Humboldt Redwoods State Park and these timber production zones is striking and interesting and exemplifies competing and incompatible land and resource uses. That our society values both commodity production and resource preservation is apparent. 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. This is evidenced in the history of the watershed, where approximately 90% was logged in approximately 20 years (the mid-1940s-1966) leading to development of stands such as those where harvest is currently being proposed.

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. 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 |
| 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 Bear Creek 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 WDR; 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 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)? | | | X | |
| d) Expose sensitive receptors to substantial pollutant concentrations? | | | X | |
| e) Create objectionable odors affecting a substantial number of people? | | | X | |

a-e) HRC activities covered by the WDR may generate emissions from the following distinct categories: fugitive dust from paved and unpaved roads, emissions from road construction, emissions from slash burning and gaseous emissions from fuel combustion. According to the EIR report (Section 3.3.5.1) prepared for the PALCO Habitat Conservation Plan (HCP), the greatest source of emissions inventory was vehicle travel on unpaved roads, which accounted for 77 percent of estimated tons per day of fugitive dust emissions. Mitigation measures used to reduce the amount of fugitive dust emissions from roads include: rocking dirt roads, treating highly use road surfaces during extended dry periods by watering, or application of calcium chloride.

Additional sources of emissions covered by the WDR would be emissions from slash burning and the combustion of fossil fuels. HRC uses controlled fires for waste disposal, which creates smoke and carbon monoxide. Fossil fuels are consumed by logging equipment, vehicles used to transport logs, equipment and workers to active job sites. Mitigation measures used to reduce the amount of

emissions from slash burning include: only igniting slash on Air Quality approved burn days, burning slash only when it has a low moisture content to ensure a clean burn, no burning of slash piles on days when surface inversions are forecast, or when the wind will push smoke into sensitive or highly populated areas. Mitigation measures used to reduce emission from fossil fuel consumption include: limit vehicle and equipment idle times, perform manufacturers recommended maintenance on equipment and promote carpooling.

Timber harvest activities have the potential for localized, short-term effects associated with vehicular movement or waste burning, but based on the temporary and geographically dispersed nature of emissions from the various alternatives, 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 (PALCO HCP EIR 3.3.5.6). Further discussion and analysis on emissions from fugitive dust, slash or fossil fuel burning is presented in the PALCO HCP EIR 3.3 (Air Quality).

Because potential impacts to air quality are short-term and the WDR requires compliance with all local, state, and federal regulations, including the Clean Air Act and applicable state air quality standards, activities covered by the WDR 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 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 Game or U.S. Fish and Wildlife Service? | | X | | |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service? | | X | | |
| c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act | | X | | |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | | | | |
| 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 |
| 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 WDR is to establish requirements for HRC carry out a land management plan and to conduct timber harvest and related activities in compliance with applicable water quality standards and regulations. Therefore, requirements of the WDR 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. As stated in the Discussion of Potential Effect, section there are same particularly adverse impacts to such habitat could potentially result activities covered by the WDR either directly from disruption of stream banks, channel, or riparian zone or indirectly from up stream or hillslope disturbance sediment discharge or channel disturbance. The WDR's 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 adoption of Riparian Management Zone (RMZ) prescriptions of the HCP as described in the ROWD. In addition to requiring implementation of management practices designed to minimize impacts to aquatic species, Section I(E) of the WDR requires that HRC develop a plan to enhance pool formation and sediment sorting and restore riparian vegetation along mainstem reaches of Bear Creek enhance aquatic and riparian habitat components. The plan will consist of repositioning and stabilizing

existing large wood in channel reaches with excess sediment and planting conifer trees in the riparian zone.

While the WDR is not explicitly designed to mitigate potential impacts to terrestrial species, approval of the WDR 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) that may affect habitat
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:

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 during future projects as required by HRC's HCP. 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.

Birds Summary
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 WDR, 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 significant amount of mid- to late-seral habitat that will be maintained within the Project area throughout the life of the project due to HRC's sustainable silviculture practices and requirements under their HCP, no significant adverse individual or cumulative effects to bird species are anticipated.

Mammals Summary

Maintenance of a variety of seral stages is necessary to provide habitat for the various mammal species that may occur within the assessment 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 forest practice rules. Because of the significant amount of mid- to late-seral habitat that will be maintained within the assessment 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 Summary

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.

HRC's management strategy provides protection to 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. 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 WDR are subject to site-specific botanical surveys designed to locate rare and uncommon flora. Pre-determined protection measures are implemented where necessary to avoid adverse impact.

Because a variety of seral stages are being maintained over time, and pre-project botanical surveys are conducted for this project and future projects, no significant adverse individual or cumulative effects to plant species are anticipated.

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 California Department of Fish and Game, National Marine Fisheries Service or U. S. Fish and Wildlife Service. 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) 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. The WDR includes enforceable requirements the HRC identify and remove any barriers to passage of all life stages of fish. Therefore, the project will enhance the movement of anadromous fish by the replacement or removal of culverts and bridges that are barriers to fish migration. Therefore, the appropriate finding is **less than significant with mitigation incorporation**.

e) The WDR does not preclude the HRC from the need to comply with applicable local, state, or federal laws and regulations. However, HRC lands in Bear Creek are not within the jurisdiction of local policies and ordinances, therefore, the WDR 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 Bear Creek 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 form logging, road construction and borrow pit extraction; all component activities provided for in the HCP. Development of THP's requiring evaluation of archeological resources, and a confidential archaeological addendum (CAA) is

required by and enforced by the CALFIRE 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.

Cultural sites that would potentially be impacted will be identified and protected as required by State regulations. 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 project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | | X | | |
| 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 | | | | X |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| where sewers are not available for the disposal of wastewater? | | | | |

a i-iii) HRCs management activities conducted under the WDR 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**.

a iv) HRC's management activities covered by the WDR will not expose people or structures to potential substantial adverse effects involving landslides. Because no structures are located in areas that can be affected by the project, there will be **no impact.**

b - c) HRC's management activities covered under the WDR will be conducted in the Bear Creek watershed, which is highly vulnerable to soil erosion and shallow landslides due to the presence of steep slopes, high rainfall rates, and tectonically sheared bedrock geology. The WDRs are developed in response to widespread erosion and landsliding that occurred historically after large storm events following intensive harvesting in the watershed. Timber harvesting and related management activities have the potential to create large scale ground disturbance. One of the primary goals of the WDR is to establish requirements for HRC to implement management practices that prevent or minimize sediment discharges from erosion and landsliding resulting. The specific mitigation measures that are designed to prevent or minimize erosion or loss of topsoil are described on pages 16 through 20 of this Initial Study and are summarized below:

The intensity and extent of area harvested in a ten year period is limited as follows:

- Harvest no more than 30% (approximately 1500 acres) of the total watershed area in a ten year period;
- Using predominantly partial harvesting methods that retain approximately half of the standing timber present prior to harvesting;
- Limit use of ground based equipment for logging to areas with slope gradient less than 40% (~21 degrees) and cable yarding on slopes greater than 40% to minimize ground disturbance.

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 to identify relative hazard classes 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 unit or soil that is unstable, or that could potentially become unstable as a result of the project, and potentially result in on- or off-site 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 WDR 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 WDR 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 WDR 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 where carbon is stored that serves as a substrate for more tree growth. In addition, redwood is a dominant species on HRC's timberlands in Bear Creek 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 sprouts from redwood and 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 CO2 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 CO2 is captured and fixed by the process of photosynthesis, which removes carbon from the atmosphere and sequesters carbon in wood fiber. (OFRI 2006, U.S.E.P.A. 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 CO2 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 their HCP, the Forest Practice Rules 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 15-20 years. Not all of the 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, HRC's HCP requires extensive riparian management zones (RMZ's) which extend like a web across the property. In the Bear Creek watershed, these RMZ consist of no harvesting within 100 feet of Class I and II watercourses. There are also numerous geologic features in the Bear Creek 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.

HRC's timberland in the Bear Creek watershed lies within timber production zones (TPZ). This is a state zoning designation that is automatically renewed

every 10 years, and requires approval by the Board of Supervisors for a zone reclassification. To the extent that HRC is successful in maintaining an economically viable timber production business, timber production will remain the dominant land use and there will be less demand or need for conversion of the property to other land uses. Conversion of forest lands to other uses may result in adverse impacts to GHG emissions and carbon sequestration because they may lead to CO2 emissions from more extensive development and to reduced carbon fixing tree growth.

Following each timber harvest plan, 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 WDR 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-enevaged 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 WDR 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 a 5 million metric tons of CO2 equivalents (MMTCO2E) 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 Section 65962.5 and, as a result, would | | | | X |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| it create a significant hazard to the public or the environment? | | | | |
| 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 project area? | | | | X |
| 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. HRC has established the following policies 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 the 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 Section 3.4.1.4 of HRC's HCP.

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 | | |
| 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 |
| | | | | X |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? | | | | |
| 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 Project consists of establishment of Waste Discharge Requirements by a Regional Water Board and therefore by definition, would not violate waste discharge requirements. The purpose of the WDR is to implement the 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 WDR 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 Bear Creek watershed meet water quality standards. Potential impacts from HRC's management activities in the Bear Creek 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:

- 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:

> 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.

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.

Measures to prevent or minimize sediment discharge and protect or restore natural levels of riparian shade required by the WDR will implement the water quality standards described above. The Regional Water Board finds that HRC's management activities conducted according to the management plan according to the Specific and General requirements of the WDR as described on pages 16 – 20 of the initial study implement all applicable water quality standards contained in the Basin Plan, and therefore, the appropriate finding is **less than significant with mitigation incorporation.**

b) HRC's management activities covered under the WDR will not 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. The appropriate finding is **less than significant impact.**

c-d) HRC's management activities authorized under the WDR 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. In particular, much of the damage was caused by stream diversion or blockage by earthen material and organic debris from constructing roads across, adjacent to, and in many cases, within streams, often displacing the existing channel. Many of HRC's practices described in their management plan are designed specifically to prevent or minimize the potential to alter existing drainage patterns. Such practices are described in detail in the ROWD and 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,
- 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 are laid back to a 2:1(50%) or natural slope.

The mitigation measures required by the WDR and summarized above 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 steep forested setting such as a Bear Creek 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 Bear Creek watershed. As discussed in detail on pages 12 through 19 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

HRC has developed the management plan for their activities in Bear Creek specifically to prevent or minimize impacts such as those resulting from increase runoff and erosion. Implementation of the following Specific Requirements of the WDR will reduce the potential for increased runoff and erosion:

- Utilizing partial harvesting methods,
- Limiting the watershed area harvested in ten years to no more than 30%,
- Utilizing mostly cable yarding and limiting ground based yarding,
- Utilizing road construction and reconstruction methods that disperse runoff.

The mitigation measures required by the WDR 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) Pages 11 through 19 of this Initial Study provide a discussion of the potential impacts to water quality from HRC's management activities in the Bear Creek watershed as well as management measures designed to mitigate those impacts. Management measures described on pages 5 through 9 of this Initial Study and implemented by Specific Requirements in Section I of the WDR, are adequate to mitigate all reasonably foreseeable impacts from excess sediment and elevated water temperature. No other pollutant sources or impacts to water quality are expected, and with implementation of the mitigation measures required under the WDR, HRC's management activities will not substantially degrade water quality. Therefore, the appropriate finding is **less than significant with mitigation incorporation.**

g, h) HRC activities covered under the WDR 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. Because the project does not involve this element, the appropriate finding is **no impact.**

i, j) The Project 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 Inundation by seiche, tsunami, or mudflow, therefore, the appropriate finding is **no 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 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 WDR would not divide an established community. Any land use planning associated with the WDR 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 WDR 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 WDR 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 Bear Creek 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 Bear Creek. 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 WDR 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 WDR does not authorize mining activities or other activities that could affect mineral resources. Therefore, HRC's activities covered under the WDR 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 | | | | X |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| of excessive groundborne vibration or groundborne noise levels? | | | | |
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | | | | X |
| 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 increased noise levels. Such increased noise levels would likely be associated with heavy equipment operation associated with construction 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 WDR is adopted and implemented. Activities covered under the WDR 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 growth | | | | X |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| 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 |
| | | | | X |

| | | | | |
|---|---|---|---|---|
| Parks? | | | | |
| 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: | | | | |
| 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 | | | X | |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)? | | | | |
| 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 these roads. Continuation of hauling operations at historical or current levels is not expected to cause a significant adverse impact to traffic on these roads. There are no existing traffic or maintenance problems along these routes during the summer tourist season. There have been no major problems causing significant traffic involving log trucks. Operations will add relatively few vehicles to roads that are designed for similar traffic, and 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 are new or expanded entitlements needed? | | | X | |
| 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 Waiver, 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 WDR 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 | | X | | |

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

a-b) The WDR is a permit developed under to 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 WDR to regulate HRC's management activities so that they can derive the economic benefits from their timberlands in the Bear Creek watershed while still protecting and restoring the environmental values related to water quality. The requirements of the WDR are designed specifically to mitigate potential impacts to water quality from HRC's management activities. It is beyond the authority of the Regional Water Board to mitigate potential impacts to the environment that are not related to the beneficial uses of water or water quality, and therefore, the requirements of the WDR address only those aspects of the permitted activities that could potentially affect water quality, including cumulative watershed effects.

Requirements of the WDR do not address those potential environmental impacts that are not related to water quality, such as terrestrial plants or animals. In addition to WDRs, timber management activities are regulated by other state and federal laws and policies, including: Habitat conservation plan (federal), Timber harvest review process (CALFIRE), and Streambed Alteration Agreements (CDFG). Together this regulatory framework mitigates all potential environmental impacts of HRC's activities to the extent feasible. All of HRC's activities regulated by the WDR must also comply with their multi species habitat conservation plan. The majority of their activities will be conducted under a timber harvest plan that has gone through the multi-agency CEQA functional equivalent review process as required by the Forest Practice Rules. In addition, any activities that is likely to substantially modify a river, steam or lake must be covered under a 1603 Agreement issued by CDFG to avoid, minimize, and mitigate potential impacts.

The regulatory framework described above was developed to mitigate environmental impacts from timber harvesting and related management activities

implanted in response to recognition of impacts that occurred from past management activities. The current regulatory structure prescribes management practices that are considered to be protective of the environment and site specific environmental review and analysis, including a cumulative watershed effects analysis, designed to recognize and protect environmental values present in the project area.

The cumulative impacts assessment required by the Forest Practice Rules (14 CCR 898) must evaluate and disclose potential impacts to watershed and biological resources and soil productivity, and must include a confidential archeological survey to ensure that significant archeological and historical sites are identified and protected.

The resumption of HRC's timber harvesting and related management activities in the Bear Creek watershed with mitigation measures required by the WDR 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; threat to eliminate a plant or animal community; reduce the number or restrict the range of a rare or endangered plan or animal or eliminate important examples of the major periods of California history or pre-history.

In addition, restoration activities such as inventory, prioritization, and treatment of controllable sediment discharge sites and stream restoration activities, are likely to result in net improvements to water quality in the Bear Creek watershed. HRC's activities conducted in compliance with the WDR 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 WDR, including the implementation of the management plan described in the ROWD and the WDR, 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 WDR 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 Bear Creek are likely to be directly or indirectly involved in HRC's activities and therefore derive an economic benefit from them. Timber harvesting activities in the Bear Creek watershed have been suspended since 2005 pending development of the WDR. Timber harvesting and related activities, both those covered under the WDR such as road construction and reconstruction, as well as activities not covered, such as processing logs at a mill, are important components of the local economy. Therefore, resumption of timber harvesting in the Bear Creek watershed will result in a small but significant economic benefit to

nearby communities. The additional layer of environmental protection provided by the WDR is expected to ensure that adverse impacts to the water resources of local communities from HRC's activities do not occur.

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 impact.**

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