

3.10 HYDROLOGY AND WATER QUALITY

This section provides information regarding impacts of the proposed project on hydrology and water quality. The information used in this analysis is taken from:

- ▶ *Water Supply Assessment for the Humboldt Wind Energy Project* (Stantec 2019) (Appendix T);
- ▶ *Humboldt County General Plan* (Humboldt County 2017);
- ▶ *North Coast Integrated Water Resource Management Plan* (North Coast IRWMP) (North Coast Resource Partnership 2018);
- ▶ *Water Quality Control Plan for the North Coast Region* (Basin Plan) (North Coast RWQCB 2018);
- ▶ the Federal Emergency Management Agency (FEMA) National Flood Insurance Mapping Program (2018);
- ▶ National Oceanic and Atmospheric Administration data; and
- ▶ California Department of Water Resources (DWR) Bulletin 118, *California's Groundwater* (DWR 2003).

3.10.1 ENVIRONMENTAL SETTING

CLIMATE AND PRECIPITATION

Weather in the project area is characterized by temperate, dry summers and cool, wet winters. In winter, precipitation is heavy. Average annual rainfall can be up to 47 inches in Scotia (WRCC 2019). The rainy season, which generally begins in October and lasts through April, includes most of the precipitation (e.g., 90 percent of the mean annual runoff of the Eel River occurs during winter). Precipitation data from water years 1981–2010 for Eureka, approximately 20 miles north of the project area, show a mean annual precipitation of 40 inches (NOAA and CNRFC 2019). Mean annual precipitation in the project area is lowest in the coastal zone area (40 inches per year) and highest in the upper elevations of the Upper Cape Mendocino and Eel River hydrologic units to the east (85 inches per year) (Cal-Atlas 1996).

The dry season, generally May through September, is usually defined by morning fog and overcast conditions. When cool, north Pacific water contacts warmer air temperatures, especially in spring and summer, water vapor condenses into droplets that become fog and mist (H. T. Harvey & Associates 2009:22). On average, only about 78 days out of the year are clear; the remaining 287 days either are cloudy or partly cloudy. The average annual temperature is 53 degrees Fahrenheit (°F), and average temperatures range little throughout the year, from 48°F in January to 58°F in August (Downie and Gleason 2010).

SURFACE WATER HYDROLOGY

Surface water originates as precipitation in the form of rain or snow, and flows on the surface through streams or rivers or is stored in lakes and ponds. In the North Coast Hydrologic Region, the project area lies in the Lower Eel River and Van Duzen hydrologic areas within the Eel River Hydrologic Unit, as described in the North Coast IRWMP. The Eel River Hydrologic Unit includes seven major branches of the Eel River: the Upper Mainstem

Eel River, Middle Mainstem Eel River, Lower Mainstem Eel River, North Fork Eel River, Middle Fork Eel River, South Fork Eel River, and Van Duzen River (North Coast Resource Partnership 2018).

The Lower Eel River begins at the confluence of the Middle Main Eel and South Fork Eel. The Eel River flows through alluvial valleys and tidal plains before reaching the estuary to the Pacific Ocean, 14 miles south of Eureka. The Eel River drainage has a basin area of approximately 3,600 square miles. The Van Duzen River is a major tributary to the Eel River. The Van Duzen River begins in the North Coast Ranges and flows through Trinity and Humboldt counties, where it reaches its confluence at the Eel River approximately 14 miles upstream of the Pacific Ocean.

The project area is characterized by mountainous landscape and steep and highly erodible soils. Several named drainages traverse the site: Stitz Creek, Hoagland Creek, Fish Creek, Greenlow Creek, and Little Larabee Creek. A number of unnamed perennial and intermittent drainages traverse the proposed electrical interconnection areas, project access routes, staging areas, and related facilities of the proposed project. A portion of the existing drainages have been modified by placement of a culvert and covered with fill to permit crossing for logging equipment (Stantec 2018).

High seasonal rainfall combined with a rapid runoff rate on unstable soils deliver large amounts of sediments from these and other drainages that may discharge into the Eel River.

GROUNDWATER HYDROLOGY

The project area is located in the Pepperwood Town Area Groundwater Basin (Basin No. 1-30) as defined in DWR Bulletin 118 (2003) and DWR's *California Water Plan Update 2013, Volume 2: North Coast Hydrologic Region, North Coast Hydrologic Region* (DWR 2013). The Pepperwood Town Area Groundwater Basin occupies about 6,290 acres along the relatively narrow and rugged Eel River Valley in Humboldt County, between the unincorporated towns of Stafford on the north and Redcrest on the south. The groundwater basin is bounded on the south and southwest by Monument Ridge and on the north and northeast by the Scotia Bluffs.

The Eel River channel is underlain by unconsolidated river channel and younger alluvial deposits. Along the flanks of and at slightly higher elevations above the active stream channel are older alluvial and (lower) terrace deposits. The younger and older alluvial deposits including the (lower) terrace deposits constitute the principal water-bearing units in the groundwater basin. The thickness of the younger and older alluvial deposits has not been determined; however, farther northwest in the Eel River Valley Groundwater Basin, the thickness of alluvial deposits was estimated at up to 200 feet (Stantec 2019). Review of well completion logs indicates that most wells were drilled for domestic and agricultural use. Well yields ranged between 2 and 80 gallons per minute.

There are no known groundwater management plans, groundwater ordinances, or basin adjudications that apply to the Pepperwood Town Area Groundwater Basin. According to DWR's Basin Prioritization Dashboard (DWR 2019), groundwater production in the Pepperwood Town Area Groundwater Basin has been estimated to be 1,504 acre-feet per year (afy). Groundwater use is estimated to be 70 percent of total water use, suggesting that surface water accounts for the other 30 percent of water use, or 645 afy. Thus, the total water use in the groundwater basin is estimated to be 2,149 afy. A 1996 DWR survey estimated that groundwater production for agricultural use was 850 afy and groundwater production for municipal and industrial use was 97 afy. DWR estimated that deep percolation of applied water (i.e., return flow) was 230 afy. The estimate of applied water return flow is

equivalent to about 24 percent of total water use. If this percentage return flow is calculated for the most recent DWR water use estimate, deep percolation of applied water would be approximately 516 afy.

FLOODING

Periods of intensive or extensive rain often occur during winter in the project area, and damaging floods are a seasonal issue (North Coast RWQCB 2018:4-11). During months with heavy precipitation, flooding often occurs, and flash floods may occur (Downie and Gleason 2010). The FEMA 100-year flood zones and dam inundation areas in the project area are within the floodplains of the Eel and Van Duzen rivers (Figure 3.10-1). A dam is on the Eel River in Scotia.

SURFACE WATER QUALITY

Water quality within the North Coast Hydrologic Region generally meets or exceeds state and regional water quality objectives set forth in Section 3 of the Basin Plan (North Coast RWQCB 2018). In most cases the water quality is “sufficient to support, and in some cases, enhance the beneficial uses assigned to water bodies.” However, the Basin Plan does identify present and potential future water quality problems which may interfere with beneficial uses or create nuisances or health hazards.

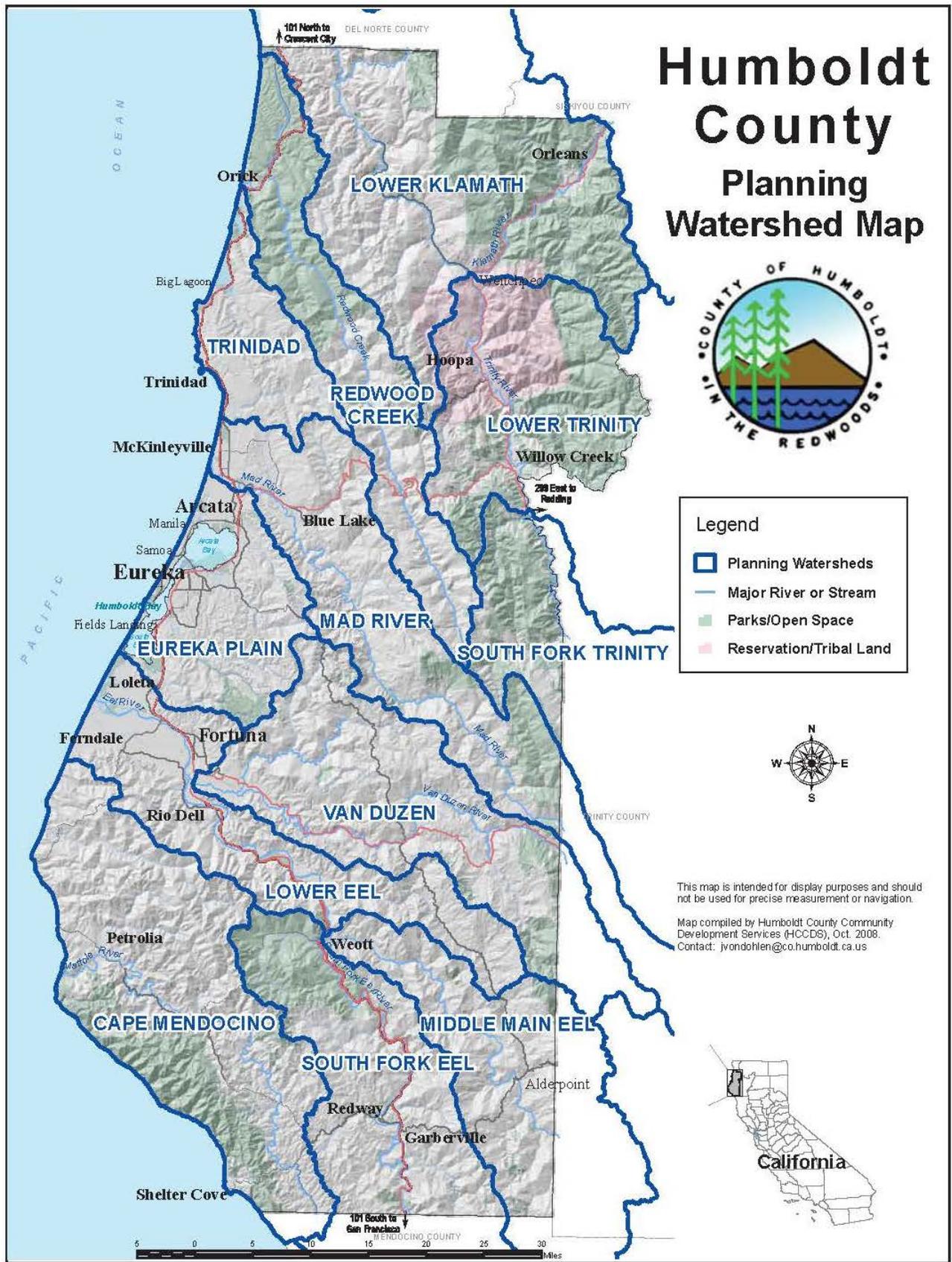
Soils along the southern part of the Lower Eel River and tributaries have high to extreme erosion potential. Surface water impairment in the North Coast Hydrologic Region is attributable mostly to nonpoint source pollution from a variety of sources, including stormwater runoff, erosion and sedimentation from roads, agricultural activities, the timber harvest, and channel modification activities. The heavy precipitation pattern in the project area, coupled with the area’s geology, creates conditions of high erosivity during the rainy season, which can result in high suspended sediment in local area streams (North Coast RWQCB 2018:33).

Surface water conditions are characterized by the Basin Plan according to individual watersheds.¹ The Eel River and water bodies tributary to it including the Van Duzen River are on the 303(d) list for sedimentation/siltation and temperature in the Lower Eel River Hydrologic Area, the subwatershed in the Eel River Hydrologic Unit encompassing the portion of the project area in that hydrologic unit. Sediment and temperature of the surface water in the Lower Eel River are associated with salmonid decline and impairment of beneficial uses (North Coast RWQCB 2018). Table 3.10-1 shows the beneficial uses for the project area.

The North Coast Regional Water Quality Control Board (RWQCB) developed the *Work Plan to Control Excess Sediment in Sediment-Impaired Watersheds* (North Coast RWQCB 2008). The work plan was developed to set priorities for addressing excess sediment at a watershed-specific scale, and describes how and when available authorities and permitting and enforcement tools will be used to improve water quality. In its current form, the proposed amendment will include a prohibition against the discharge or threatened discharge of excess sediment from human activities to waters of the state.²

¹ A watershed is an area of land within which all rain and snowfall drains or seeps into a particular stream, water body, or aquifer. The project site falls under the State Water Resources Control Board (SWRCB) Klamath–North Coast Hydrologic Basin Planning Area, which includes all watersheds draining into the Pacific Ocean from the Oregon border south through the Russian River Basin.

² Excess sediment is defined as soil, rock, and sediments discharged to waters of the state in an amount that could be deleterious to beneficial uses or cause a nuisance.



Source: Humboldt County 2019

Figure 3.10-1. Central Humboldt Flood Zones

Table 3.10-1. Beneficial Uses for Water Bodies in the Project Area

Beneficial Use	Hydrologic Unit Area	
	Eel River	Van Duzen
Municipal and Domestic	√	√
Agricultural	√	√
Industrial	√	√
Industrial Process Supply	P	P
Groundwater Recharge	√	√
Freshwater Replenishment	√	√
Navigation	√	√
Hydropower Generation	P	P
Water Contact Recreation	√	√
Noncontact Water Recreation	√	√
Commercial and Sport Fishing	√	√
Warm Freshwater Habitat		√
Cold Freshwater Habitat	√	√
Wildlife Habitat	√	√
Rare, Threatened, or Endangered Species	√	√
Marine Habitat	P	
Migration of Aquatic Organisms	√	√
Spawning, Reproduction	√	√
Shellfish Harvesting	√	
Estuarine Habitat	P	
Aquaculture	P	P
Native American Culture	√	√
Notes:		
√ = beneficial use		
P = potential beneficial use		
Source: North Coast RWQCB 2018		

GROUNDWATER QUALITY

Groundwater quality characteristics and specific local impairments vary with regional setting within the North Coast Hydrologic Region. In general, seawater intrusion and nitrates in shallow aquifers are problems in the coastal groundwater basins; high total dissolved solids (TDS) content and general alkalinity are problems in the lake sediments of the Modoc Plateau basins; and iron, boron, and manganese can be problems in the inland basins of Mendocino and Sonoma counties. A review of more than 500 public water supply wells in 32 of the 63 groundwater basins in the North Coast Hydrologic Region indicates that water quality at 95 percent of the wells tested met the standards for maximum contaminant levels for drinking water (DWR 2003).

3.10.2 REGULATORY SETTING

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Federal Clean Water Act

The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for managing water quality. The Clean Water Act (CWA) of 1972 is the primary federal law that governs and authorizes EPA to implement activities to control water quality. EPA has delegated authority to the State of California to implement and oversee most of the programs authorized or adopted for CWA compliance, through the state's Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act). The various elements of the CWA that address water quality and are applicable to the project are discussed below.

Section 404

In accordance with CWA Section 404, the U.S. Army Corps of Engineers regulates and issues permits for activities that involve the discharge of dredged or fill materials into waters of the United States, which include navigable waters of the United States, interstate waters, all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries.

Although important to water quality, the Section 404 program also addresses overall aquatic habitat functions. Therefore, this program is addressed in more detail in Section 3.5, "Biological Resources."

Section 401 Water Quality Certification or Waiver

Under Section 401 of the CWA, an applicant for a Section 404 permit (to discharge dredged or fill material into waters of the United States) first must obtain a certificate from the appropriate state agency, stating that the fill is consistent with the state's water quality criteria and standards.

Water Quality Criteria and Standards

Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the CWA, water quality standards consist of two elements: designated beneficial uses of the water body in question; and criteria that protect the designated uses. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use.

Under Section 303(d) of the CWA (Impaired Waters List), states are required to develop lists of water bodies that would not attain water quality objectives after implementation of required levels of treatment by point-source dischargers (municipalities and industries). Section 303(d) requires that the state develop a total maximum daily load (TMDL) for each listed pollutant. The TMDL is the amount of loading that the water body can receive and still be in compliance with water quality objectives. It also can act as a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. The TMDL prepared by the state must include an allocation of allowable loadings to point and nonpoint sources, with consideration of background loadings and a margin of safety. It also must include an analysis that shows links between loading

reductions and the attainment of water quality objectives. EPA either must approve a TMDL prepared by the state or, if it does not approve the state's TMDL, must issue its own. The National Pollutant Discharge Elimination System (NPDES) permit limits for listed pollutants must be consistent with the waste load allocation prescribed in the TMDL. After implementation of the TMDL, the problems that led to placement of a given pollutant on the Section 303(d) list are anticipated to be remediated.

Safe Drinking Water Act

Under the Safe Drinking Water Act (Public Law 93-523), enacted in 1974, EPA regulates contaminants of concern to domestic water supply from surface and groundwater. Contaminants of concern relevant to domestic water supply are defined as those that pose a public health threat or alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA's primary and secondary maximum contaminant levels (MCLs), which are applicable to treated water supplies delivered to the distribution system.

EPA has delegated to the California Department of Public Health (CDPH) the responsibility for administering California's drinking water program. CDPH is accountable to EPA for program implementation, and for adopting standards and regulations that are at least as stringent as those developed by EPA. The applicable state primary and secondary MCLs are set forth in California Code of Regulations (CCR) Title 22, Division 4, Chapter 15, Article 4 and are described under "Title 22," below.

National Flood Insurance Program and Flood Insurance Rate Maps

FEMA administers the National Flood Insurance Program to provide subsidized flood insurance to communities that comply with FEMA regulations that limit development in floodplains. FEMA also issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection covered by the FIRMs is established by FEMA, with the minimum level of flood protection for new development determined to be the 1-in-100 annual exceedance probability (i.e., the 100-year flood event). As developments are proposed and constructed, FEMA is also responsible for issuing revisions to FIRMs, such as Conditional Letters of Map Revision and Letters of Map Revision, through the local agencies that work with the National Flood Insurance Program. Figure 3.10-1 shows the FEMA 100-year flood zone areas in the project area.

State Plans, Policies, Regulations, and Laws

Porter-Cologne Water Quality Control Act of 1969

The Porter-Cologne Act is California's statutory authority for the protection of water quality. In establishing the California Water Code, the California Legislature assigned primary responsibility for the protection and enhancement of water quality to the SWRCB and the nine RWQCBs. The project area is within the jurisdiction of the North Coast RWQCB.

The SWRCB sets statewide policies and plans for the implementation of federal and state laws and regulations. Under the act, the state must adopt water quality policies, plans, and objectives that protect the state's waters for the use and enjoyment of the people. The Porter-Cologne Act sets forth the obligations of the SWRCB and

RWQCBs to adopt and periodically update their basin plans.³ The Porter-Cologne Act also requires waste dischargers to notify the RWQCBs of any discharges by filing reports of waste discharge and authorizes the SWRCB and the RWQCBs to issue and enforce waste discharge requirements, NPDES permits, Section 401 water quality certifications, and other approvals. The RWQCBs also have authority to issue waivers to reports of waste discharge and waste discharge requirements for broad categories of “low-threat” discharge activities that have minimal potential for adverse water quality effects, when implemented according to prescribed terms and conditions.

Title 22

Water quality standards are enforceable limits composed of two parts: the designated beneficial uses of water, and criteria (i.e., numeric or narrative limits) to protect those beneficial uses. Municipal and domestic supply are among the beneficial uses, as defined in Section 13050(f) of the Porter-Cologne Act, which defines them as uses of surface water and groundwater that must be protected against water quality degradation. MCLs are components of the drinking water standards adopted by CDPH pursuant to the California Safe Drinking Water Act. California MCLs are defined in CCR Title 22, Division 4, Chapter 15, Domestic Water Quality and Monitoring. CDPH is responsible for regulating public drinking water systems, including enforcing Title 22 standards, which also define secondary drinking water standards, established primarily for reasons of consumer acceptance (i.e., taste) rather than for addressing health issues.

Drinking water MCLs are directly applicable to water supply systems “at the tap” (i.e., at the point of use by consumers in their homes, offices, or other locations), and are enforceable by CDPH. California MCLs, both primary and secondary, are directly applicable to groundwater and surface water resources when they are specifically referenced as water quality objectives in the pertinent basin plan. In such cases, MCLs become enforceable limits by the SWRCB and the RWQCBs. When fully health protective, MCLs also may be used to interpret narrative water quality objectives, prohibiting toxicity to humans in water designated as a source of drinking water in the basin plan.

Water Quality Control Plan for the North Coast Region

The North Coast RWQCB is responsible for preparing and implementing the *Water Quality Control Plan for the North Coast Region* or Basin Plan, adopted in 1998 and most recently updated in June 2018 (North Coast RWQCB 2018). The Basin Plan identifies the beneficial uses of water bodies and identifies the water quality objectives and standards for waters of the North Coast Hydrologic Region. As discussed above, federal and state laws mandate the protection of designated beneficial uses of water bodies. State law defines “beneficial uses” as “domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves” (Water Code Section 13050[f]). Table 3.10-1 shows the beneficial uses of the water bodies in the project area.

The North Coast RWQCB applies the Basin Plan’s “tributary rule” and assigns to creeks the beneficial uses designated for the nearest downstream location. It also regulates waste discharges in undesignated streams, so that downstream water quality conditions and beneficial uses are not degraded. Thus, these creeks are subject to regulation for the existing designated uses in their receiving water bodies.

³ Basin plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California.

The Basin Plan contains specific narrative and numeric water quality objectives for a number of physical properties (e.g., temperature, dissolved oxygen, turbidity, suspended solids); biological constituents (e.g., coliform bacteria); and chemical constituents of concern, including inorganic parameters, trace metals, and organic compounds. Water quality objectives for toxic priority pollutants (i.e., select trace metals and synthetic organic compounds) also are identified in the Basin Plan.

Action Plan for Elevated Water Temperatures in the Eel River Watershed

The goal of the Eel River Watershed Elevated Temperature Action Plan is to establish actions that achieve the Eel River watershed temperature TMDLs and are consistent with the Policy for the Implementation of the Water Quality Objectives for Temperature. Actions pertinent to project-related activities are described below.

- ▶ **Road construction and maintenance:** This action applies to newly constructed roads or road maintenance on Humboldt County (County) land. As part of that activity, the project applicant must comply with Order No. R1-2013-0004, *Waiver of Waste Discharge Requirements and General Water Quality Certification for County Road Management and Activities Conducted Under the Five Counties Salmonid Conservation Program In the Counties of Del Norte, Humboldt, Mendocino, Siskiyou, and Trinity in The North Coast Region*, and any future revisions. This action requires that road construction and maintenance be conducted in compliance with this order.
- ▶ **Dredge or fill in waters of the state:** This action applies to activities that would disturb the bed, bank, or channel of a drainage that is a water of the state, such as road crossings at drainages. This action requires that measures be incorporated to meet the temperature allocations in CWA Section 401 water quality certifications.
- ▶ **Timber harvest activities on nonfederal lands:** This rule applies to parties conducting timber harvest activities that discharge waste or have the potential to discharge waste. This action requires implementation of riparian management measures that meet the riparian shade allocations and water quality standards. Where the Forest Practice Rules are not sufficient to meet the TMDL allocations or water quality standards, additional measures are to be implemented as directed by North Coast RWQCB staff during the timber harvest review process. RWQCB staff shall make recommendations for additional measures to ensure that the TMDL load allocations and water quality objectives for temperature are achieved during the timber harvest review process, as necessary.

NPDES Permit System and Waste Discharge Requirements for Construction

The SWRCB and the North Coast RWQCB have adopted specific NPDES permits for a variety of activities that have the potential to discharge wastes to waters of the state. The SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-Division of Water Quality [DWQ], referred to as the General Permit) is applicable to all land-disturbing construction activities that would affect 1 acre or more. The NPDES permits all involve similar processes, which include submitting notices of intent to discharge in the jurisdictional area of the North Coast RWQCB and implementing best management practices (BMPs) to minimize those discharges. The North Coast RWQCB also may issue site-specific waste discharge requirements, or waivers to waste discharge requirements, for certain waste discharges to land or waters of the state.

Construction activities subject to the General Permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce nonstormwater discharges to storm sewer systems and other waters. The permit also requires dischargers to consider the use of postconstruction permanent BMPs that will remain in service, to protect water quality throughout the life of the project. Types of BMPs include source controls, treatment controls, and site planning measures.

A storm water pollution prevention plan (SWPPP) must be developed and implemented for activities subject to the NPDES General Permit for construction activity. The SWPPP must include a site map and description of the construction activities, and must identify the BMPs that will be employed to prevent soil erosion and discharge of other construction-related pollutants, such as petroleum products, solvents, paints, and cement, that could contaminate nearby water resources. A monitoring program is generally required to ensure that BMPs are implemented according to the SWPPP and are effective at controlling discharges of stormwater-related pollutants.

Section 1602

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by the California Department of Fish and Wildlife (CDFW) under Section 1602 of the California Fish and Game Code. Under Section 1602, it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by CDFW as subject to Section 1602, or to use any material from the streambeds, without first notifying CDFW of such activity and obtaining a final agreement authorizing such activity. Lake and streambed alteration agreements are discussed in more detail in Section 3.5, “Biological Resources.”

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) is intended to achieve sustainable management of groundwater resources for long-term reliability for multiple benefits while avoiding undesirable results. The SGMA directed DWR to assign priority ratings to groundwater basins throughout the state. All counties and cities that draw water from basins identified as “high” or “medium” priority must comply with the SGMA. The SGMA identifies two compliance options for “high” or “medium” priority basins: form a groundwater sustainability agency and adopt a groundwater sustainability plan; or submit a groundwater sustainability plan alternative if basin conditions demonstrate that the basin has operated under sustainable yield for the past 10 years. The Pepperwood Town Area Groundwater Basin is designated as a “very low priority” basin; therefore, no groundwater sustainability plan is required (Stantec 2019).

California Forest Practice Rules

The California Forest Practice Rules, adopted in Articles 1 and 4 of the Z’berg-Nejedly Forest Practice Act of 1973, require preparation of a timber harvest plan before logging activities. Timber harvest plans must show the actions undertaken to maintain watershed integrity and reduce adverse cumulative impacts, including impacts on water quality and beneficial uses. During wet-weather conditions, a winter operations plan must be included in the timber harvest plan. A winter-period operating plan must address the following subjects:

- ▶ Erosion hazard rating
- ▶ Mechanical site preparation methods

- ▶ Yarding system (constructed skid trails and tractor road watercourse crossings)
- ▶ Operating period
- ▶ Timing for erosion control facilities
- ▶ Consideration of the form of precipitation—rain or snow
- ▶ Ground conditions (soil moisture conditions, frozen ground)
- ▶ The silvicultural system—ground cover
- ▶ Operations within the Watercourse and Lake Protection Zone
- ▶ Equipment use limitations
- ▶ Known unstable areas
- ▶ Logging roads and landings

Regional and Local Plans, Policies, Regulations, and Ordinances

Humboldt Redwood Company Habitat Conservation Plan

The Habitat Conservation Plan for the Properties of the Pacific Lumber Company, Scotia Pacific Holding Company, and Salmon Creek Corporation (Humboldt Redwood Company HCP) is a habitat-based, multispecies conservation plan for minimizing and mitigating impacts on multiple species in Humboldt County from timber management activities, mining, or other extraction (HRC 1999). Included is an aquatic conservation plan that outlines policies addressing the potential for ongoing tree harvesting to cause erosion and sedimentation that would lead to increased turbidity in local waterways. Activities conducted during the wet-weather season, defined as October 15 to June 1, must comply with the following aquatic conservation measures of the Humboldt Redwood Company Management Plan:

- ▶ restrictions on road or landing construction, reconstruction, and upgrading within 170 feet of Class I or II waters, or within the equipment exclusion zone (50 feet or 100 feet, respectively) of Class III waters;
- ▶ restrictions on crossing or upgrading of Class I, II, or III waters;
- ▶ prohibitions on grading in unstable soils and steep slopes;
- ▶ standards for road design and restrictions on use based on the type of surface and weather conditions;
- ▶ a soil moisture–based standard for regulating land disturbance; and
- ▶ a rainfall standard for regulating land disturbance.

Soil moisture content, the quantity of rainfall, and turbidity in the local waterways are monitored and the results used as performance indicators to regulate activity at the site.

North Coast Integrated Regional Water Management Plan

Proposition 50 (the Water Security, Clean Drinking Water, Coastal, and Beach Protection Act), enacted in 2002, established a requirement to prepare IRWMPs for regional management of water resources in at least four main areas: water supply, groundwater management, ecosystem restoration, and water quality. Projects and programs included in an IRWMP are designed to integrate multiple strategies and projects, to provide multiple benefits both locally and regionally. These benefits include:

- ▶ support and improvement of local and regional water supply reliability,
- ▶ contribution to the long-term attainment and maintenance of water quality standards,
- ▶ elimination or significant reduction of pollution in impaired waters and sensitive habitat areas,
- ▶ implementation of safe drinking water and water quality projects that serve disadvantaged communities, and;
- ▶ implementation of groundwater management and recharge projects.

Humboldt County is a participating member of the North Coast IRWMP. The North Coast IRWMP covers a seven-county area, corresponding to the boundaries of the North Coast RWQCB’s jurisdiction.

Humboldt County General Plan

The following goals, policies, and standards in the *Humboldt County General Plan* would be applicable to the project:

Goal WR-G1: Water Supply, Quality, and Beneficial Uses. High quality and abundant surface and groundwater water resources that satisfy the water quality objectives and beneficial uses identified in the Water Quality Control Basin Plan for the North Coast Region.

Goal WR-G2: Water Resource Habitat. River and stream habitat supporting the recovery and continued viability of wild, native salmonid and other abundant cold-water fish populations supporting a thriving commercial, sport and tribal fishery.

Goal WR-G3: Planning, Coordination, and Advocacy. A system of local coordination and intra-regional cooperation to advance local, regional, and state water management priorities and objectives.

Goal WR-G4: Watershed Planning Framework. Land use decision making that makes use of watersheds as a planning, management, and coordinating framework to cooperatively manage water and natural resources with local communities, neighboring counties, and state and federal agencies.

Goal WR-G5: Watershed Management. A system of water resource management that recognizes watersheds as natural systems producing multiple economic, social, and environmental benefits that can be sustained in perpetuity and optimized with education, sound data, cooperative public processes, adaptive management, and science based leadership.

Goal WR-G9: Restored Water Quality and Watersheds. All water bodies de-listed and watersheds restored, providing high quality habitat and a full range of beneficial uses and ecosystem services.

Goal WR-G10: Storm Drainage. Storm drainage utilizing onsite infiltration and natural drainage channels and watercourses, while minimizing erosion, peak runoff, and interference with surface and groundwater flows and storm water pollution.

Water Resources and Land Use

- ▶ **Policy WR-P1: Sustainable Management.** Ensure that land use decisions conserve, enhance, and manage water resources on a sustainable basis to assure sufficient clean water for beneficial uses and future generations.

- ▶ **Policy WR-P2: Protection for Surface and Groundwater Uses.** Impacts on Basin Plan beneficial water uses shall be considered and mitigated during discretionary review of land use permits that are not served by municipal water supplies.
- ▶ **Policy WR-P3: Proactive Protections.** Focus regulatory attention and educational efforts in specified watersheds where limited water supply or threats to water quality have potentially significant cumulative effects on the availability of water for municipal or residential water uses or the aquatic environment.
- ▶ **Policy WR-P5: Critical Watershed Areas.** The Board of Supervisors shall designate all or portions of watersheds as “Critical Watersheds” if cumulative impacts from existing or planned land and water resource uses within the area have the potential to create significant environmental impacts to threatened or endangered species; including Chinook salmon, coho salmon or steelhead. Land and water resources within Critical Watersheds shall be protected by the application of specific standards for such areas to avoid the take of threatened or endangered species.
- ▶ **Policy WR-P9: Mitigate Controllable Sediment Discharge Sites** Proposed development applications involving a site identified as part of the TMDL Controllable Sediment Discharge Inventory shall be conditioned to reduce sediment discharge.
- ▶ **Policy WR-P10: Erosion and Sediment Discharge.** Ministerial and discretionary projects requiring a grading permit shall comply with performance standards adopted by ordinance and/or conditioned to minimize erosion and discharge of sediments into surface runoff, drainage systems, and water bodies consistent with best management practices, adopted Total Maximum Daily Loads (TMDLs), and non-point source regulatory standards.
- ▶ **Policy WR-P12: Project Design.** Development should be designed to complement and not detract from the function of rivers, streams, ponds, wetlands, and their setback areas.
- ▶ **Policy WR-P14: Groundwater Quality Protection.** Commercial and industrial discretionary uses shall be evaluated for their potential to contaminate groundwater resources, and mitigated as necessary.

Watershed Planning

- ▶ **Policy WR-P24: Regional Water Management Planning.** Work on a regional basis through the North Coast Resource Partnership (NCRP) to ensure coordination and adaptive management between statewide water resource planning efforts, regional priorities, and local needs. The goals and objectives identified in the North Coast Integrated Regional Water Management Plan shall be considered in establishing County water resource priorities and policy positions.
- ▶ **Policy WR-P25: State and Federal Watershed Initiatives.** Support implementation of state and federal watershed initiatives such as the Total Maximum Daily Loads (TMDLs), the North Coast Regional Water Quality Control Board’s (NCRWQCB) Watershed Management Initiative, the National Marine Fisheries Services and Department of Fish and Game coho recovery plans and the California Non-Point Source Program Plan.

Stormwater Drainage

- ▶ **Policy WR-P35: Implementation of NPDES Permit.** Implement and comply with the National Pollutant Discharge Elimination Systems (NPDES) Permit issued by the State Water Resources Control Board to the designated portions of the County.
- ▶ **Policy WR-P36: Natural Stormwater Drainage Courses.** Natural drainage courses, including ephemeral streams, shall be retained and protected from development impacts which would alter the natural drainage courses, increase erosion or sedimentation, or have a significant adverse effect on flow rates or water quality. Natural vegetation within riparian and wetland protection zones shall be maintained to preserve natural drainage characteristics consistent with the Biological Resource policies. Stormwater discharges from outfalls, culverts, gutters, and other drainage control facilities that discharge into natural drainage courses shall be dissipated so that they make no significant contribution to additional erosion and, where feasible, are filtered and cleaned of pollutants.
- ▶ **Policy WR-P37: Downstream Stormwater Peak Flows.** Peak downstream stormwater discharge shall not exceed the capacity limits of off-site drainage systems or cause downstream erosion, flooding, habitat destruction, or impacts to wetlands and riparian areas. New development shall demonstrate that post-development peak flow discharges will mimic natural flows to watercourses and avoid impacts to Beneficial Uses of Water.
- ▶ **Policy WR-P38: New Drainage Facilities.** Where it is necessary to develop additional drainage facilities, they shall be designed to be as natural in appearance and function as is feasible. All drainage facilities shall be designed to maintain maximum natural habitat of streams and their streamside management areas and buffers. Detention/retention facilities shall be managed in such a manner as to avoid reducing streamflows during critical low-flow periods.
- ▶ **Policy WR-P39: Restoration Projects.** The County shall encourage restoration projects aimed at reducing erosion and improving habitat values in Streamside Management Areas and wetlands.
- ▶ **Policy WR-P40: Commercial and Industrial Activities.** Commercial and industrial activities shall minimize, and eliminate to the extent feasible, facility-related discharges to the stormwater system. As required by state codes and local ordinances, commercial and industrial stormwater discharge must be routed to a wastewater collection system; for example, minimizing runoff from vehicle maintenance yards, car washes, restaurants cleaning grease, contaminated mats/carts into storm drains, and other wash practices that result in materials other than plain water entering the storm drain system.
- ▶ **Policy WR-P42: Erosion and Sediment Control Measures.** Incorporate appropriate erosion and sediment control measures into development design and improvements.
- ▶ **Policy WR-P45: Reduce Toxic Runoff.** Minimize chemical pollutants in stormwater runoff such as pesticides, fertilizers, household hazardous wastes, and road oil by supporting education programs, household hazardous waste and used oil collection, street and parking lot cleaning and maintenance, use of bio-swales and other stormwater best management practices described in the California Stormwater Best Management Practices Handbooks or their equivalent.

Water Resources and Land Use

- **Standard WR-S6: Total Maximum Daily Loads (TMDLs) Implementation.** Discretionary development within watersheds containing impaired water bodies as defined under Section 303(d) of the federal Clean Water Act and governed by TMDL implementation plans shall be conditioned to reduce or prevent further impairment consistent with applicable TMDLs.
- **Standard WR-S7: Erosion and Sediment Discharge.** Ministerial and discretionary projects shall conform to grading ordinance standards for erosion and sediment control.
- **Standard WR-S9: Projects in Proximity to Wild and Scenic Rivers.** Projects located within state designated wild, scenic, or recreational river basins shall be consistent with the guidelines in the State Wild and Scenic Rivers Act as amended.

Stormwater Drainage

- **Standard WR-S13: Storm Water Management.** All commercial, industrial, multi-family, quasi-public, and public parking facilities shall, whenever possible, provide stormwater treatment for parking lot runoff using bio-retention areas, filter strips, and/or other practices that be integrated into required landscaping areas and traffic islands. In all other cases, oil/water separators shall be required. A maintenance plan for oil/water separators shall be required. During construction, the following erosion and sediment control measures shall be incorporated into development design and improvements:
 - A. Minimize soil exposure during the rainy season by proper timing of grading and construction;
 - B. Retain natural vegetation where feasible;
 - C. Vegetate and mulch denuded areas to protect them from winter rains;
 - D. Divert runoff from steep denuded slopes and critical areas with barriers or ditches;
 - E. Minimize length and steepness of slopes by benching, terracing, or constructing diversion structures;
 - F. Trap sediment-laden runoff in basins to allow soil particles to settle out before flows are released to receiving waters; and
 - G. Inspect sites prior to significant rain events to ensure control measures are working properly and correct problems as needed.

Humboldt County Grading, Excavation, Erosion, and Sediment Control Ordinance

The County's Grading, Excavation, Erosion, and Sedimentation Control Ordinance (Section 331-12) sets forth rules and regulations to control excavation, grading, and earthwork construction, including fills, embankments, and erosion and sedimentation controls. In addition to providing a plan that identifies the location of the work, the application for a grading permit must include a site-specific erosion and sediment control plan. The ordinance lists the minimum requirements for erosion and sedimentation control. In some cases, a SWPPP may be submitted in lieu of the erosion and sediment control plan. Grading activities also must conform to grading standards, including for cut slope, fill material, setbacks, terracing, and drainage.

3.10.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

The following thresholds of significance are based on the environmental checklist in Appendix G of the State CEQA Guidelines, as amended. Implementing the proposed project would result in a significant impact related to hydrology and water quality if it would:

- ▶ violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;
- ▶ substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- ▶ substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
 - result in substantial erosion or siltation on- or off-site;
 - substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
 - create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
 - impede or redirect flood flows;
- ▶ result in flood hazard, tsunami, or seiche zones, or risk release of pollutants due to project inundation; or
- ▶ conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

ANALYSIS METHODOLOGY

The environmental analysis for hydrology and water quality is based on project-specific information, site visits, and existing information from previously completed documents that address water resources in the project vicinity, including the following:

- ▶ *Lower Eel River Watershed Assessment Report* (Downie and Gleason 2010)
- ▶ Humboldt County Code (grading, excavation, erosion, sediment control, and zoning regulations)
- ▶ *Humboldt County General Plan* (Humboldt County 2017)
- ▶ *Water Supply Assessment for the Humboldt Wind Energy Project* (Stantec 2019)

The effects of the proposed project were compared to environmental baseline conditions (existing on-site conditions) to determine impacts. This DEIR takes into account the mitigating effects of applicable regulations related to hydrology and water quality in considering impact significance.

ISSUES NOT DISCUSSED FURTHER

Increased Risk of Inundation by Seiche, Tsunami, or Dam or Levee Failure—The potential for inundation by a seiche or tsunami at the site of the proposed wind turbine generators (WTGs) is negligible, given the site’s distance from the nearest water body that could generate seiches or tsunamis (the Pacific Ocean) and its elevation above sea level, according to the California Department of Conservation’s Tsunami Inundation Maps (DOC 2018). The project does not propose the placement of permanent structures in an area subject to inundation by dam or levee failure and would not expose people or structures to these hazards.

IMPACTS AND MITIGATION MEASURES

IMPACT 3.10-1	<p>Potential Temporary, Short-Term Construction-Related Drainage and Water Quality Effects. <i>Project construction activities would involve grading and earth movement, which could substantially alter the site’s existing drainage patterns, generate erosion or siltation on-site, and deposit other nonpoint-source pollutants in on-site stormwater runoff. If not properly designed and implemented, the proposed earthwork could degrade surface water or groundwater quality or change existing drainage patterns through hydromodification. Construction-related spills of hazardous materials or fuels could also reach receiving waters, thus degrading water quality and potentially violating a water quality standard or waste discharge requirement. The project would implement all measures contained in regulatory plans, programs, and policies adopted for protection of the environment. However, this impact would be potentially significant.</i></p>
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Grading and Soil Erosion

Construction activities would introduce the potential for increased erosion and sedimentation, with subsequent effects on water quality and potential alterations to drainage patterns. During site grading, trenching, and construction activities, areas of bare soil would be exposed to erosive forces for long periods. Bare soils would be much more likely to erode than vegetated areas because they would lack the dispersion, infiltration, and retention properties created by covering vegetation. Construction activities involving soil disturbance, excavation, cutting/filling, stockpiling, and grading could result in increased erosion and sedimentation to surface waters and could introduce contaminants into groundwater. If precautions are not taken to contain contaminants, construction could introduce contaminants into stormwater runoff (nonpoint-source pollution), a major contributor to the degradation of water quality.

Project construction activities that have the potential to degrade water quality include:

- ▶ excavating soil as needed to pour concrete for 60 WTG foundations, each requiring a hole 10 feet deep and 60–70 feet in diameter;
- ▶ creating and using temporary staging areas for storage of components and worker staging;
- ▶ grading a permanent pad to place the operations and maintenance (O&M) facility;
- ▶ constructing new 24-foot- by 48-foot-wide access and turbine string roads;
- ▶ making temporary and permanent improvements to existing roads;

- ▶ replacing existing drainage culverts where necessary;
- ▶ performing directional drilling to create a passageway under the Eel River to accommodate the generation transmission line (gen-tie line); and
- ▶ clearing vegetation for aboveground electrical lines and communication system cabling.

Improving the access roads from the Jordan Creek staging area up to Monument Ridge would expose soil along a steep slope because trees would be cleared to provide sufficient roadway clearance to accommodate heavy trucks carrying oversized loads; rough grading sections for new road segments where the existing logging road does not accommodate turning movements by heavy trucks; and leveling of the road bed. Removing the tree canopy and grading for improvement of the access road would expose soils that previously were sheltered from heavy wind and rain by the tree canopy and vegetation. Significant impacts on the beneficial uses of North Coast waters can result from changes in drainage patterns or sediment loads entering existing streams and other on-site watercourses, or from the placement of road crossings across existing drainages. Such changes and actions can alter a water body's physical structure and natural function by:

- ▶ potentially altering the flow rate or water depth;
- ▶ causing an increase in sediment loading;
- ▶ contributing to higher water temperatures and lower levels of dissolved oxygen;
- ▶ degrading the structure of aquatic habitat, causing the loss of fish and other aquatic populations; and
- ▶ causing an overall decrease in the water quality of on-site tributaries that may discharge into the Eel River, which is listed as impaired for sediment and temperature.

Project-related grading activity is subject to the requirements outlined in a Section 401 water quality certification, an SWRCB statewide NPDES stormwater permit for general construction activity (Water Quality Order 2009-0009-DWQ), and any other necessary site-specific waste discharge requirements or waivers under the Porter-Cologne Act.

The project applicant must prepare and submit the appropriate notices of intent and prepare the SWPPP at the time final grading and engineering plans are completed and submitted to the County for review. Final engineering plans would consist of a map/plot plan identifying the precise locations of all planned earthwork, any planned improvements to existing roads, and the locations and type of drainage improvements, to show how the project would comply with the regulatory requirements for surface water quality and hydrology.

The SWPPP includes specific actions and specifications for pollution prevention and control. These may include, at a minimum, the use of erosion and sediment-control BMPs, including construction techniques, to reduce the potential for runoff and the release, mobilization, and exposure of pollutants, and other measures to be implemented during construction. Measures in the SWPPP may include:

- ▶ temporary erosion control and soil stabilization measures, sedimentation ponds, inlet protection, perforated riser pipes, check dams, and silt fences;

- ▶ implementation of approved local plans, nonstormwater management controls, permanent postconstruction BMPs, and assignment of inspection and maintenance responsibilities;
- ▶ the likely pollutants used during construction that could be present in stormwater drainage and nonstormwater discharges, including fuels, lubricants, and other types of materials used for equipment operation;
- ▶ spill prevention and contingency measures, including measures to prevent or clean up spills of hazardous waste and of hazardous materials used for equipment operation, and emergency procedures for responding to spills;
- ▶ personnel training requirements and procedures to inform workers of permit requirements and proper installation methods for BMPs specified in the SWPPP; and
- ▶ appropriate personnel responsible for supervisory duties related to implementation of the SWPPP.

BMPs typically found on a construction site may include the following measures:

- ▶ Implement temporary erosion-control measures in disturbed areas, to minimize discharge of sediment into nearby drainage conveyances. These measures may include silt fences, staked straw bales or wattles, sediment/silt basins and traps, geofabric, sandbag dikes, and temporary vegetation.
- ▶ Stabilize the construction entrance/exit by creating a graveled area or pad where vehicles enter and exit a construction area, to provide a buffer area for surface runoff and help control dust.
- ▶ Establish permanent vegetative cover to reduce erosion in disturbed construction areas, by slowing runoff velocities, trapping sediment, and enhancing filtration and transpiration.
- ▶ Preserve existing vegetation to the maximum extent practicable, to protect surfaces from erosion and provide sediment control. Sensitive areas, such as those defined in Section 3.5, “Biological Resources,” will also be clearly identified and protected.
- ▶ Complete clearing and grading only in the project right-of-way and limit these activities to the minimum amount necessary to complete the project. Boundaries of clearings will be clearly marked. Under the sediment and erosion control plan, the project site will be stabilized on completion of construction, and postconstruction BMPs and monitoring will be implemented so that sediment in disturbed areas does not mobilize.
- ▶ Use drainage swales, ditches, and earth dikes to control erosion and runoff by conveying surface runoff down sloping land, intercepting and diverting runoff to a watercourse or channel, preventing sheet flow over sloped surfaces, preventing runoff accumulation at the base of a grade, and avoiding flood damage along roadways and facility infrastructure.

Activities conducted during the wet-weather season, defined as October 15 to June 1, would also comply with aquatic conservation measures of the Humboldt Redwood Company Management Plan and logging practices outlined in the Forest Practices Act. Soil moisture content, the quantity of rainfall, and turbidity in the local waterways are monitored under the Aquatic Plan and the results used as performance indicators to regulate activity.

The Humboldt Redwood Company Management Plan outlines equipment exclusion zones where heavy equipment associated with timber operations is totally excluded for the protection of aquatic habitat, aquatic species, water quality, and beneficial uses of water and other forest resources. The plan also establishes setbacks between activity and drainages based on the following classification system:

- ▶ *Class I waters* are those where fish are always or seasonally present on-site. These waters include habitat to sustain fish migration, spawning, and rearing, and domestic water supplies, such as springs, on-site or within 100 feet downstream from the project operations area.
- ▶ *Class II waters* are non-fish-bearing waters where aquatic habitat is present for non-fish aquatic species, including in watercourses, streams, seeps, springs, lakes, ponds, and wetlands.
- ▶ *Class III waters* are those with no aquatic life or habitat present.

Timber Harvest

All timber harvest activity must follow the California Forest Practice Rules, which require preparation and implementation of a winter operations plan during the wet-weather season. The winter operations plan lists harvesting practices and erosion-control measures to be implemented that avoid cumulative impacts on the watershed and maintain beneficial uses.

Hazardous Substances

Nonstormwater discharges could result from construction dewatering procedures, or from discharge or accidental spills of hazardous substances, such as fuels, oils, concrete, paints, solvents, cleaners, or other construction materials. As described in Chapter 2, “Project Description,” and Section 3.9, “Hazards and Hazardous Materials,” potentially hazardous materials used in the operation and maintenance of the WTGs would be stored in an O&M building in approved aboveground containers with appropriate spill containment features. In addition, a spill prevention, containment, and countermeasure plan and a hazardous materials management plan would be developed before hazardous materials are transported, used, or disposed of and before the concrete batch plant is operational. Compliance with existing regulations requiring proper transport, handling, storage, and spill prevention and cleanup measures would reduce the potential for the use and handling of small quantities of hazardous materials to cause a significant impact on water quality. Consequently, the risk of significant hazards from the transport, use, and disposal of these materials is low.

Overall Impact Conclusion

The project would implement all measures contained in regulatory plans, programs, and policies adopted for protection of the environment. Nonetheless, the potential exists for construction-related spills of hazardous materials or fuels to reach receiving waters and degrade water quality and potentially violate a water quality standard or waste discharge requirement. Therefore, this impact would be **potentially significant**.

Mitigation Measure 3.10-1: Implement Wet-Weather BMPs Consistent with the Humboldt Redwood Company Habitat Conservation Plan.

To reduce the potential for erosion and sedimentation that may cause downstream impacts on anadromous fish species, the project applicant shall prepare and implement an erosion control plan for review and

approval by the Humboldt County Planning & Building Department that includes the following measures from the Humboldt Redwood Company HCP:

- No road or landing construction, reconstruction, and upgrading shall occur within 170 feet of Class I or II waters, or within the Equipment Exclusion Zone (50 or 100 feet, respectively) of Class III waters. The construction, reconstruction, and upgrading shall not cross Class I, II, or III waters.
- No portion of the constructed, reconstructed, and upgraded road/landing shall cross an inner gorge, headwall swale, unstable area, extreme, very high, or high mass-wasting hazard area.
- The soil moisture condition in the soils moved for purposes of construction, reconstruction, and upgrading shall be no wetter than is found during normal watering (dust abatement treatments or light rainfall, and the soil is not rutting or pumping fines).
- During and after construction, reconstruction, and upgrading, there shall be no visible increase in turbidity in any drainage facility, construction/reconstruction site, or road surface, any of which drains directly to Class I, II, or III waters (standing water on the road that does not drain to Class I, II, or III waters is not applicable).
- During construction, reconstruction, and upgrading, erosion control material of sufficient quantity shall be stockpiled on-site and used to prevent an increase in turbidity in any drainage facility, construction site, or road surface, any of which drains directly to Class I, II, or III waters.

If the Humboldt Redwood Company HCP measures cannot be implemented, or if the project applicant seeks to conduct work during the wet season (October 15–June 1), the project applicant shall implement the following measures while conducting tree harvest, road or landing construction, reconstruction, and road upgrades:

- Exposed slopes greater than 10:1 shall be stabilized with hydraulic wood fiber mulch applied at a minimum rate of 2,500 pounds per acre. A sterile erosion control seed mix or suitable native seed mix shall be applied with the hydraulic mulch.
- Exposed slopes greater than 3:1 shall be stabilized with erosion control matting installed in accordance with the current California Stormwater Quality Association (CASQA) BMP Handbook. Erosion control matting shall consist of 100 percent biodegradable materials. In lieu of erosion control matting, hydraulic Bonded Fiber Matrix (BFM) consisting of wood mulch with tackifier shall be applied at a minimum rate of 3,500 pounds per acre. A sterile erosion control seed mix or suitable native seed mix shall be applied with the hydraulic BFM.
- Exposed slopes greater than 10:1 shall have fiber roll or equivalent linear slope breaks installed at the following minimum intervals:

Slope	Interval
i. >15:1	25 feet
ii. >10:1	20 feet
iii. >4:1	15 feet
iv. >2:1	10 feet

Fiber roll linear slope breaks shall consist of 100 percent biodegradable materials and shall be installed in accordance with the current CASQA BMP Handbook.

- Temporary access roads established as part of the project shall be stabilized with rock and shall have water bars, earthen dike, or equivalent slope diverters installed at the following intervals:

Slope	Interval
v. >15:1	150 feet
vi. >10:1	100 feet
vii. >5:1	75 feet
viii. >4:1	50 feet

- The outflow from slope diverters shall be directed onto a stabilized area or into a grade stabilization structure. Road slope diversion and outflow structures shall be installed in accordance with the current CASQA BMP Handbook.
- To monitor the effectiveness of wet-season erosion control measures, the project applicant shall implement a stormwater discharge sampling program in accordance with the SWRCB General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ (General Permit). The project applicant shall comply with the Numeric Action Levels (NALs) for turbidity and pH specified in the General Permit, and shall adjust BMPs as necessary to maintain compliance with turbidity and pH NALs. The results of laboratory sampling will be provided to the Humboldt County Planning & Building Department at the time the results are uploaded to the state Stormwater Multiple Application and Report Tracking System database.
- Should erosion and sedimentation devices fail, or should the NALs and/or pH NALs be exceeded, the County will have stop-work authority over project construction activities. The County will stop work on any portion of the project determined by the County to be the source of erosion or sedimentation. Work will be suspended until the erosion and sedimentation control measures can be fortified or reestablished, or until the County determines that site conditions (e.g., weather, soil moisture content) have improved.
- The project applicant shall inspect erosion and sedimentation control measures before any precipitation event (as defined by greater than 0.25 inch of rain forecasted for a 24-hour period) during the wet season, and shall report the inspection results to the County before conducting work during any precipitation event. Work shall be suspended if the County determines that erosion control measures are in disrepair, or would be ineffective in the prevention of erosion resulting from the forecasted precipitation event. At any time, work may be suspended at the discretion of the County if site conditions deteriorate to the point where erosion control measures would be ineffective.

Implementation: Project applicant.

Timing: Before issuance of a grading permit and throughout construction.

Enforcement: Humboldt County Planning & Building Department.

Implementing Mitigation Measure 3.10-1 to protect water quality during wet-weather road construction would achieve consistency with the requirements of the Humboldt Redwood Company HCP, specifically those established to protect anadromous fish, by avoiding any potential for downstream sedimentation. The measures listed above would allow the project to comply with the management objectives of the Humboldt Redwood Company HCP. Therefore, implementing this mitigation measure would reduce this impact to **less than significant**.

The expansion of the Bridgeville Substation would involve grading on less than 1 acre, which would be subject to a grading permit that would include provisions to address water quality. Therefore, this impact of substation expansion would be **less than significant**.

IMPACT 3.10-2	Potential to Increase the Rate or Amount of Surface Runoff in a Manner that Would Result in Flooding On- or Off-site. <i>Project implementation would not substantially alter runoff volumes, as the percentage of impervious surface is minimal compared to the total land area in the watershed. Topography would not be substantially altered by clearing and grading for project components, and stream channel crossings would be stormproofed to improve their capacity and protect against erosion. The proposed project is not anticipated to substantially increase the peak discharge rates of stormwater runoff. The project would not increase the potential for on-site and off-site flooding, exceed the capacity of existing or planned stormwater drainage systems, or impede or redirect flood flows. This impact would be less than significant.</i>
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The project site's topography varies, from steep slopes with an aspect ratio exceeding 50 percent to areas along the valley floor where the aspect ratio is less than 10 percent. The site contains several named and unnamed drainages that cross the site and may discharge into the Eel River. Constructing project access roadways could alter existing drainage patterns in the project area if the crossings are not designed with sufficient capacity to accommodate stormwater flows in on-site drainages. Further, localized erosion could occur on the steeper slopes during project operation.

As required, the project applicant would submit the final design and specifications to the County Planning & Building Department for approval and would file a notice of intent. Preparation and approval of such plans would indicate that the proposed project could convey upstream, off-site runoff and detain project-related on-site runoff in an appropriate manner to meet stormwater management criteria. The project applicant must also develop and implement a SWPPP that outlines structural and treatment controls for runoff. Therefore, this impact would be **less than significant**.

The expansion of the Bridgeville Substation would involve grading on less than 1 acre and would not alter any drainage patterns or create significant impervious surfaces. Therefore, this impact of substation expansion would be **less than significant**.

<p>IMPACT 3.10-3</p>	<p>Potential Water Quality Impacts from Project Operations. <i>Project implementation would alter the permeability of surfaces that could increase runoff from the project area, thereby increasing the potential for transport of pollutants from the project area to local surface waters. This impact would be less than significant.</i></p>
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The proposed project would not generate pollutants that could be transported in the runoff, except potentially for small quantities of oils or greases from the generation components (e.g., turbines). Accidental spills of oils, grease, or other pollutants during project operations could cause pollutants to be transported to local surface waters or groundwater. However, as described in Chapter 2, “Project Description,” and Section 3.9, “Hazards and Hazardous Materials,” potentially hazardous materials used in the operation and maintenance of the WTGs would be stored in an O&M facility in approved aboveground containers with appropriate spill containment features. In addition, a spill prevention, containment, and countermeasure plan and a hazardous materials management plan would be developed before hazardous materials are transported, used, or disposed of and before construction. Therefore, this impact would be **less than significant**.

The expansion of the Bridgeville Substation would not alter any drainage patterns or create significant impervious surfaces. Therefore, this impact of substation expansion would be **less than significant**.

<p>IMPACT 3.10-4</p>	<p>Potential to Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge Such that the Project May Impede Sustainable Groundwater Management. <i>Compaction and widening of roads, installation of turbines and foundations, and operation of the project facilities could require the use of surface or groundwater. This impact would be less than significant.</i></p>
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Water for dust suppression, backfill compaction, and cement mixing is estimated at 62 acre-feet over the duration of construction (Stantec 2019). This water demand would be met by the use of treated wastewater sourced from the nearby Scotia Community Services District’s wastewater treatment and cogeneration facilities and from Humboldt Redwood Company discharges into the “Log Pond” located in the town of Scotia. Groundwater would not be used during construction activity.

The Pepperwood Town Area Groundwater Basin is designated as a “very low priority” under the SGMA and this basin is not subject to a groundwater plan or adjudication of resources. The amount of water necessary to supply potable water for 15 employees at the O&M facility and meet standards for fire flow pressure and duration is 1.74 afy (Stantec 2019). The project’s demand for water during operation can be considered a *de minimis* use and sufficient supply is available to meet existing and future demands with the project on the Pepperwood Area Groundwater Basin, including municipal and industrial uses. This impact would be **less than significant**.

The expansion of the Bridgeville Substation would involve grading on less than 1 acre and would not alter any drainage patterns or create significant impervious surfaces. Therefore, this impact of substation expansion would be **less than significant**.