

2.8 Hydrology and Water Quality

<i>Issues (and Supporting Information Sources):</i>	<i>Potentially Significant Impact</i>	<i>Less Than Significant with Mitigation Incorporation</i>	<i>Less Than Significant Impact</i>	<i>No Impact</i>
8. HYDROLOGY AND WATER QUALITY— Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 that would result in substantial erosion of siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 authoritative flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Setting

Setting information in this section was compiled from: field reconnaissance of the Proposed Project site, review of the Proponent's Environmental Assessment (PacifiCorp, 2007), peer-reviewed scientific literature, and resource agency websites and databases.

Hydrologic Setting – Climate and Drainage Features

The Proposed Project study area is located within the Smith River Hydrologic Unit, which includes surface waters from Smith River and its tributaries Rowdy Creek, Dominic Creek,

Morrison Creek, and others. Rowdy Creek drains the upper terrain that is northeast of the Proposed Project site and is joined by Dominie Creek just west of the study area before emptying into the Smith River. Smith River originates in the Siskiyou Mountains and flows through very steep terrain until hitting the wide coastal plain south of the study area. After flowing approximately eight miles through the coastal plain, Smith River empties into the Pacific Ocean, approximately three miles from the Proposed Project site. The Proposed Project site is at the northeastern edge of this coastal plain.

The study area is considered to have a Mediterranean climate characterized by warm, dry summers and cold, wet winters. Annual precipitation averages approximately 78 inches with monthly averages for the period of November through February that exceed 10 inches per month (WRCC, 2007). However, the wet season is generally characterized as lasting from October to April. In general, the amount of precipitation at any place and the proportion of precipitation that falls as snow are related directly to elevation. Due to the relatively low elevation of the study area, precipitation generally does not occur as snowfall.

The Smith River watershed produces the highest runoff per area for all of California. Average annual runoff for the entire basin is about 2.9 million acre feet (IRE, 1997). The Smith River undergoes extreme variation in stream flow throughout the year with low flows during the summer and early fall and high flows during winter and spring. During the summer, base flows are low and fluctuations in flow are infrequent. Although annual variability is high, during a typical rainy season base flows are higher and there are occasional peak flows. Peak flows generally last for a few days, then gradually decline. During the rainy season, daily and weekly fluctuations in stream flow are huge.

Morphology of the Siskiyou/Klamath Mountains and Coastal Plain

Geologic structure has a dominant influence on surface water characteristics. The upper reaches of the watershed were originally created from the tectonic uplift or mountain building associated with the subduction zone offshore known as the Cascadia subduction zone. The Smith River system consists primarily of steep narrow bedrock-controlled channels that formed as runoff cut channels through relatively resistant bedrock in the Siskiyou and Klamath Mountains. There are also areas of less resistant rock where the terrain is relatively less steep and streams develop broader channels with gentler gradients.

The lower Smith River subbasin extends as alluvial channels on the coastal plain, created from a raised marine terrace. The mouth of the South Fork to the ocean meanders across the coastal plain in a much less restricted environment than in the bedrock mountain region. The Smith River flood plain is about a half mile wide near Fort Dick and widens as it flows west across the coastal plain to approximately four miles wide. Mill Creek and Rowdy Creek are the two largest tributaries below the South Fork. Moderate slopes are found on the lower reaches of these two tributaries.

Flooding

The Federal Emergency Management Agency (FEMA) is responsible for mapping areas subject to flooding during a 100-year flood event (i.e., one percent chance of occurring in a given year). According to FEMA, the Proposed Project site is located outside of the 100-year floodplain (FEMA, 1983). However, a 100-year floodplain is mapped just north of the study area associated with Rowdy Creek.

Groundwater Characteristics

The study area is located in the Smith River Plain Groundwater Basin. The irregularly shaped basin is bounded by the inferred Del Norte fault to the north and east where the mountainous region begins. The plain narrows to the north at the mouth of the Smith River down to approximately one mile wide as it continues into Oregon. The west boundary is the Pacific Ocean. The alluvial and floodplain deposits associated with Smith River form most of the water bearing units of the basin. Smith River provides the bulk of recharge to the groundwater basin through direct infiltration in addition to Lake Earl and Talawa, which are shallow brackish lakes in the west central part of the plain that act as collection basins for runoff from minor streams. Depth to groundwater in the study area has recently been measured to be approximately 12 to 20 feet below the ground surface (SHN, 2007). Generally, groundwater levels have shown fluctuations of approximately 5 to 15 feet for normal and dry years, but have not otherwise shown any increasing or decreasing trends over the long term (DWR, 2004).

Regulatory Context

Federal and State Water Quality Policies

The legislation governing the water quality aspects of the Proposed Project are the Federal Clean Water Act (CWA) and the Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code); these acts provide the basis for water quality regulation. The California legislature has assigned the primary responsibility to administer regulations for the protection and enhancement of water quality to the California State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB). The SWRCB provides State-level coordination of the water quality control program by establishing statewide policies and plans for the implementation of State and federal regulations. Nine RWQCBs throughout California adopt and implement water quality control plans (basin plans) that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems.

Beneficial Use and Section 303(d)

Section 303 of the Clean Water Act (CWA) requires states to establish water quality standards consisting of designated beneficial uses of water bodies and water quality standards to protect those uses for all waters of the United States. Under Section 303(d) of the CWA, states, territories, and authorized tribes are required to develop lists of impaired waters. Impaired waters are those that do not meet water quality standards, even after point sources of pollution have the required levels of pollution control technology.

The basin plan prepared by the North Coast RWQCB lists beneficial uses for both Smith River and Rowdy Creek (RWQCB, 2007). Both surface waters are considered to have the following beneficial uses: municipal supply, agricultural supply, industrial supply, fresh water habitat, navigational waters, recreation, commercial, cold water habitat, wildlife habitat, rare species habitat, migration of aquatic organisms, and spawning habitat. In addition, Smith River has two additional beneficial uses: estuarine and marine habitat. The 2002 Section 303 (d) list of impaired water bodies, approved by the U.S. Environmental Protection Agency (USEPA) in 2003, does not include either Smith River or Rowdy Creek (RWQCB, 2003).

NPDES Program

The CWA was amended in 1972 to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with the National Pollutant Discharge Elimination System (NPDES) permit. The 1987 amendments to the CWA added Section 402(p), which establishes a framework for regulating municipal and industrial storm water discharges under the NPDES Program. In November 1990, the USEPA published final regulations that establish storm water permit application requirements for discharges of storm water to waters of the United States from construction projects that encompass five or more acres of soil disturbance. Regulations (Phase II Rule) that became final on December 8, 1999 expanded the existing NPDES Program to address storm water discharges from construction sites that disturb land equal to or greater than one acre and less than five acres (small construction activity).

While federal regulations allow two permitting options for storm water discharges (individual permits and General Permits), the SWRCB has elected to adopt only one statewide General Permit that would apply to all storm water discharges associated with construction activities of the Proposed Project.¹ This General Permit requires all dischargers where construction activity disturbs one acre or more, to:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices (BMPs) that would prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off site into receiving waters.
- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the nation.
- Perform inspections of all BMPs.

This General Permit is implemented and enforced by the nine RWQCBs. The North Coast RWQCB administers the stormwater permitting program in the Proposed Project study area. Dischargers are required to submit a Notice of Intent (NOI) to obtain coverage under this General Permit and annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected. Dischargers are responsible for notifying the relevant RWQCB of violations or incidents of non-compliance.

¹ State Water Resources Control Board (SWRCB) Order No. 99-08-DWQ National Pollutant Discharge Elimination System General Permit No. CAS000002.

On August 19, 1999, the SWRCB reissued the General Construction Storm Water Permit (Water Quality Order 99-08-DWQ referred to as “General Permit”). In September 2000, a court decision directed the SWRCB to modify the provisions of the General Permit to require permittees to implement specific sampling and analytical procedures to determine whether BMPs implemented on a construction site are: (1) preventing further impairment by sediment in storm waters discharged directly into waters listed as impaired for sediment or silt and (2) preventing other pollutants, that are known or should be known by permittees to occur on construction sites and that are not visually detectable in storm water discharges, from causing or contributing to exceedances of water quality objectives. The monitoring provisions in the General Permit have been modified pursuant to the court order.

Del Norte County General Plan

The *Del Norte County General Plan* Land Use Element contains the following policy that could be applicable to the Proposed Project (Del Norte County, 2003):

Policy 1.B.1: The County shall seek to maintain, and where feasible, enhance the existing quality of all water resources in order to ensure public health and safety and the biological productivity of waters.

Hydrology and Water Quality Impacts and Mitigation Measures

a) Violate any water quality standards or waste discharge requirements: *Less than significant.*

Water pollutants, including sediment, petroleum based fuels, and/or lubricants, may be discharged during the construction phase of the Proposed Project. Construction activities have the potential to temporarily increase the sediment load of stormwater runoff from construction areas (e.g., disturbing soil at work areas, the staging area, access roads, etc.). Excess sediment in surface drainage pathways can alter and degrade the aquatic habitat in creeks and rivers. In addition, if construction equipment or workers inadvertently release pollutants such as hydraulic fluid or petroleum to the surface water, these materials could be entrained by stormwater and discharged into surface water features causing water quality degradation.

PacifiCorp would implement specific erosion control and surface water protection methods for each construction activity conducted as part of the Proposed Project. These control and protection measures, or BMPs, are standard in the construction industry and are commonly used to minimize water quality degradation. As discussed in the Regulatory Context section above, the Proposed Project would be required to comply with the NPDES Permit and therefore, be required to employ specific BMPs for the protection of surface water. PacifiCorp would be required to provide details as to the design and monitoring of the BMPs in the SWPPP, which they would prepare under the NPDES permit requirements.

b) Depletion of 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: *Less than significant.*

The Proposed Project would not require extraction of groundwater supplies for either construction or operational purposes. The only potential effect on groundwater supplies would be whether the Proposed Project would result in a significant net increase in impervious surfaces. An increase in impervious surfaces could potentially result in the loss of natural groundwater recharge capabilities. The proposed site for the new substation currently contains some areas of impervious surfaces although the majority of the surface at site is not impervious. The Proposed Project would result in the entire ground surface being covered with gravel except for a concrete slab oil containment system (approximately 50 feet by 40 feet). In addition, the demolition of the existing substation would help offset any potential increases in impervious surfaces that would be associated with the proposed substation. The net result of the Proposed Project would not significantly increase impervious surfaces; therefore, impacts would be less than significant.

c) Alter existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on- or off-site: *Less than significant.*

The Proposed Project would not significantly alter the existing drainage pattern of the site or area. Although some grading activities would be required to level the Proposed Project area, this would only be necessary for a small portion of the site. As discussed above in a), PacifiCorp would be required to employ specific BMPs for the protection of erosion and siltation on- or off-site during construction as detailed in the SWPPP. Impacts associated with alteration of drainage area and potential erosion or siltation would be less than significant.

d) Alter the existing drainage pattern of the site or area or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site: *Less than significant.*

Construction or operation of the Proposed Project would not alter drainage patterns such that they would cause flooding on- or off-site. Some vegetation removal and soil disturbance would occur during clearing of the proposed substation site and installation of the proposed new tap pole, resulting in the potential for increased stormwater runoff. However, implementation of the BMPs associated with the SWPPP would minimize the potential for surface runoff and reduce the potential for on- or off-site flooding. Impacts associated with alteration of drainage patterns and potential flooding would be less than significant.

e) 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: *Less than significant.*

The Proposed Project is not likely to increase or create runoff beyond existing levels. No additional potential sources of polluted runoff, aside from those discussed in a), above, are expected as a result of construction activities related to the Proposed Project. Therefore, this potential impact is considered less than significant.

f) Otherwise degrade water quality: *No impact.*

The Proposed Project would not result in potential surface water pollution beyond the issues discussed in a), above. Therefore, implementation of the Proposed Project would not otherwise degrade water quality beyond the issues previously addressed.

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 authoritative flood hazard delineation map: *No impact.*

The Proposed Project does not include the placement of housing. Therefore, it would not result in any impacts related to the placement of 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.

h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows: *No impact.*

No structures associated with the Proposed Project would be placed in a 100-year floodplain as determined by the Flood Insurance Rate Map that identifies 100-year flood zones within the study area. The Proposed Project site is located outside of the flood zone boundaries according to digital maps available from FEMA (1983). There would be no impact related to 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: *No impact.*

The Proposed Project site is not located within an inundation area for either a failed levee or dam; therefore, there would be no impact from flooding as a result of dam or levee failure.

j) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow: *Less than significant.*

There are no enclosed bodies of water located in the immediate vicinity of the Proposed Project site that would put the Proposed Project at risk due to a seiche. The Proposed Project site is also located at an elevation (approximately 80 feet above mean sea level) and sufficiently inland (approximately three miles) that would preclude it from risk of a tsunami. The potential risk of injury or damage involving a mudflow (or debris avalanche) is not considered likely based on the distance (more than 50 miles) to any

possible volcanic activity. Thus, the potential impacts associated with mudflows or debris avalanches would be less than significant.

References – Hydrology and Water Quality

Del Norte County. 2003. Del Norte County General Plan.

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Institute for River Ecosystems (IRE). 1997. Humboldt State University, *Smith River Fisheries and Ecosystem*, 1997.

PacifiCorp. 2007. Proponent's Environmental Assessment for the Morrison Creek 69 kV Substation Project. May 29, 2007.

Regional Water Quality Control Board (RWQCB). 2007. *North Coast Region Basin Plan*, <http://www.waterboards.ca.gov/northcoast/programs/basinplan/bpdocs.html>, updated 2007.

RWQCB. 2003. *CWA 303(d) List of Water Quality Segment*, <http://www.waterboards.ca.gov/tmdl/docs/2002reg1303dlist.pdf>, approved by USEPA 2003.

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