

3.10 HYDROLOGY AND WATER QUALITY

This section describes the environmental and regulatory setting for hydrology and water quality. It also describes existing conditions and potential impacts relative to hydrology and water quality that would result from implementation of the proposed project and, mitigation for potentially significant impacts, where feasible.

3.10.1 Environmental Setting

Regional Setting

The County is part of the California Water Resource Control Board's Klamath-North Coast Hydrologic Basin Planning Area. The Klamath-North Coast Hydrologic Basin Planning Area includes all watersheds draining into the Pacific Ocean from the Oregon border south through the Russian River Basin.

Nonpoint source pollution, also known as polluted runoff, is the leading cause of water quality impairments in California and the nation. Nonpoint sources, including natural sources, are the major contributors of pollution to impacted streams, lakes, wetlands, estuaries, marine waters, and ground water basins. Unlike pollution traceable to a single location or "point" (such as a wastewater treatment plant [WWTP]), nonpoint source pollution comes from many diffuse sources and is principally caused by stormwater, snowmelt, or agricultural runoff moving across and diffusing into the ground. The runoff picks up natural and human pollutants and deposits them throughout the natural watershed in rivers, lakes, coastal areas, and aquifers.

According to Section 303(d) of the federal CWA list of impaired waters, water quality issues within the Eureka Plain portion of the watershed include sedimentation and siltation within the Freshwater and Elk watersheds and the presence of dioxin toxin equivalents in Humboldt Bay. The upper hillslope areas of the watershed, while populated to varying degrees, are primarily occupied by timber production and harvesting activities, with coast redwood as the predominant harvested species. Freshwater streams support production of anadromous salmonids, including steelhead and cutthroat trout, and Coho and Chinook salmon. The deltas of the Elk River and Mad River Slough support commercial and sport shellfish production and harvesting. Past practices and continued problems with harvesting techniques and road construction have added to stream sedimentation, in varying degrees, in all the drainages in the watershed. Stormwater runoff from all watersheds draining to the Bay convey indicators of bacterial contamination that impacts shellfish harvest. Seasonal and rainfall-based shellfish harvesting closures are used to mitigate the effects of nonpoint source runoff.

Local Setting

Surface Water

The proposed project is located in the Eureka Plain Planning Watershed. The Eureka Plain Planning Watershed is the most developed watershed in Humboldt County and includes the cities of Eureka and Arcata, and numerous unincorporated communities, including Cutten, where the proposed project is located. Surface water in the project area originates as precipitation in the form of rain or snow and flows on the surface through the various streams, rivers, or stored in lakes and ponds. The USEPA also defines water flows below the ground level as ground water under the influence of surface water if it has



occurrences of insects or other macro-organisms, algae, organic debris, or large-diameter pathogens; or if it exhibits significant and relatively rapid shifts in water characteristics, such as turbidity, temperature, conductivity, or pH, which closely correlate to climatological or surface water conditions.

The project site occupies the gently northwest-sloping, dissected surface of a late Pleistocene age marine terrace. The project area encompasses large portions of the terrace surface, as well as the heads of several tributary stream valleys that encroach from the north, east, and south. The margins of the project area, therefore, typically consist of sloping ground that descends gradually into the adjacent stream valleys but include locally steeper areas. Elevation of the terrace surface ranges across the site from about 170 to 200 feet amsl. The lowest elevation at the site is in the stream valley at the northern end of the property, an elevation of about 30 feet amsl. Slopes in the project area are typically negligible on the terrace surface, with gradients of less than 5 percent, to moderately steep on the stream valley walls, with gradients of 30 to 40 percent. Steeper valley and ravine wall slopes are locally present within the study area.

A total of 0.101 acre of riparian habitat occurs along two drainage features within the project area. Riparian habitat associated with these drainages will be temporarily and permanently impacted. It's anticipated that 0.050 acre of riparian habitat will be temporarily impacted, and 0.041 acre will be permanently impacted. In addition, approximately 0.338 acre (14,723 square feet) of wetlands exist within the project area. An estimated 0.168 acre (7,318 square feet) of the wetlands (50%) will be temporarily (0.017 acre) and permanently (0.151 acre) impacted by the project and project-related activities.

Stormwater

Humboldt County has a wet climate and large amount of land dedicated to timber production and agriculture that is of concern with regard to pollution due to stormwater runoff. According to the County General Plan EIR, runoff from heavy rains picks up potential pollutants and carries them downstream, where they may be deposited or may remain suspended in sensitive ecological areas throughout a watershed.

The County Public Works Department is responsible for storm drainage within the unincorporated areas of the County, including the project site. The community of Cutten has improved stormwater conveyance systems. However, the project site is undeveloped, and based on topography and database research, all mapped drainages eventually drain into Ryan Creek, ultimately draining into Humboldt Bay, which is a traditionally navigable water.

In February 2013, the SWRCB adopted the current version of Water Quality Order No. 2013-0001-DWQ WDRs for Stormwater Discharges MS4 General Permit (hereinafter referred to as "MS4 Permit"). The purpose of the MS4 Permit is to control the discharge of pollutants to stormwater drainage systems that ultimately drain to natural waterways. This MS4 Permit applies to many areas within the County, including the project area. The MS4 Permit requires the County to ensure that certain development projects comply with post-construction stormwater requirements based on LID standards. These standards, effective as of July 1, 2015, are intended to maintain a site's predevelopment runoff characteristics by using design techniques that capture, treat, and infiltrate stormwater on site. The County is a permittee under SWRCB Water Quality Order No. 2013-0001-DWQ, WDRs for Stormwater Discharges From Small MS4s (Stormwater Permit).



Groundwater

The proposed project is located in the Eureka Plain Groundwater Basin, which encompasses 37,400 acres, receives approximately 37 to 47 inches of rain per year, has an extraction rate of 6,100 acre feet of groundwater, and has local wells yielding 400 gallons of water per minute (Humboldt County 2017c). HCSD delivers 1,500 gallons per minute (gpm) (or 2,400 acre-feet per year [AFY]) to the Humboldt Hill area from wells located within the Eureka Plain groundwater basin. The water quality of groundwater is generally acceptable for most uses, but is considered unsuitable for domestic or municipal use, as concentrations of dissolved iron in many wells may exceed the USEPA's secondary drinking-water recommendation of 300 micrograms per liter (Humboldt County 2017c). Based on the Geologic and Geotechnical Investigation for the project site (see Appendix E), test pits at a depth of 5 feet to 10 feet on the project site did not encounter groundwater, except for the test pit on Lots 77 and 78, where groundwater was encountered at a depth of 6 feet.

Flooding

The most prevalent cause of floods in the County are from river flooding with dam failure. Coastal high-water hazards (tsunamis and flood tides) are less common. Flooding is a concern for many waterways in the County, including the Eureka Plain, especially Freshwater and Jacoby Creeks. According to the FEMA Flood Map Service, the project area is not located in an area known to have substantial flooding (FEMA 2016). An area designated as flood zone A, which is a special flood hazard area without base flood elevation, occurs directly east of the project site. Additionally, the project area is outside of the tsunami hazard areas as identified on the County Web GIS application (Humboldt County 2020).

3.10.2 Regulatory Setting

Federal

Federal Clean Water Act

The federal CWA (33 U.S.C. Section 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the U.S. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the NPDES permit process (CWA Section 402). Section 401 of the CWA regulates surface water quality and a Water Quality Certification is required for federal actions (including construction activities) that may result in impacts to surface water. In California, NPDES permitting authority is delegated to, and administered by, the nine RWQCBs. The proposed project is located within Region 1, regulated by the North Coast RWQCB.

Safe Drinking Water Act

Under the Safe Drinking Water Act (Public Law 93-523), enacted in 1974, the USEPA 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 the USEPA's primary and secondary maximum contaminant levels (MCLs), which are applicable to treated water supplies delivered to the distribution system. The USEPA has delegated to the California Department of



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

NPDES Construction Permit

The federal CWA prohibits certain discharges of stormwater containing pollutants except in compliance with an NPDES permit. The federal statutes and regulations require discharges to surface waters comprising stormwater associated with construction activity, including demolition, clearing, grading, and excavation, and other land disturbance activities (except operations that result in disturbance of less than 1 acre of total land area and/or discharges to municipalities with combined stormwater and sewer systems) to obtain coverage under an NPDES permit. The NPDES permit must require implementation of Best Available Technology Economically Achievable (and Best Conventional Pollutant Control Technology to reduce or eliminate pollutants in stormwater runoff.

State

Porter Cologne Water Quality Control Act

The State of California established the SWRCB, which oversees the nine RWQCBs, through the Porter-Cologne Act. Through the enforcement of Porter-Cologne Act, the SWRCB determines the beneficial uses of the waters (surface and groundwater) of the State, establishes narrative and/or numerical water quality standards, and initiates policies relating to water quality. The SWRCB and, more specifically, the RWQCB, are authorized to prescribe WDRs for the discharge of waste, which may impact waters of the State. Furthermore, the development of water quality control plans, or Basin Plans, are required by the Porter-Cologne Act to protect water quality. The SWRCB issues both General Construction Permits and Individual Permits under the auspices of the federal NPDES program.

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. 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]). 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. As such, these creeks are subject to regulation for the existing designated uses in their receiving water bodies.

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.

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 the California Department of Water Resources (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 Eureka Plain Groundwater Basin is designated as a “very low priority” basin; therefore, no groundwater sustainability plan has been prepared (Humboldt County 2017c).

Local

Humboldt County General Plan

The Humboldt County General Plan, adopted October 23, 2017, contains several policies that directly pertain to hydrology and water quality, including the following:

Goal WR-G7. Effective Conservation Strategies. Effective application of conservation, water re-use, and low impact storage strategies such as rainwater catchment in meeting year-round water supply needs.

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 stormwater pollution.



- **Policy WR-P9. Mitigate Controllable Sediment Discharge Sites.** Proposed development applications involving a site identified as part of the Total Maximum Daily Loads (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 TMDLs, and non-point source regulatory standards.
- **Policy WR-P12. Project Design.** Development should be designed to compliment [sic] and not detract from the function of rivers streams, ponds, wetlands, and their setbacks.
- **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-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-P42. Erosion and Sediment Control Measures.** Incorporate appropriate erosion and sediment control measures into development design and improvements.
- **Policy WR-P43. Storm Drainage Design Standards.** Drainage design standards for new development shall be adopted by ordinance. The design standards shall ensure that storms of specified intensity, frequency, and duration can be accommodated by engineered drainage systems and natural drainage courses.
- **Policy WR-P44. Storm Drainage Impact Reduction.** Develop and require the use of Low Impact Development (LID) standards consistent with Regional Water Board requirements to reduce the quantity and increase the quality of stormwater runoff from new development and redevelopment projects in areas within the County's MS4 boundary or as triggered under other Regional Water Board permits. For all other watersheds, develop storm drainage development guidelines with incentives to encourage LID standards to reduce the quantity and increase the quality of stormwater runoff from new developments.

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 Integrated Regional Water Management Plans (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.

The 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 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 Methodology for Analysis

Descriptions and analyses in this section are based largely on information provided by DWR, SWRCB, the County General Plan, and the Preliminary Hydrology and Drainage Study (see Appendix F). Additionally, applicable hydrology and water quality regulations were reviewed and applicable hydrology database searches conducted in order to complete the analysis portion of this section. These regulations and databases were analyzed in conjunction with the thresholds of significance identified below.

3.10.4 Thresholds of Significance

The CEQA Guidelines Appendix G Environmental Checklist was assessed during the NOP scoping process to identify the proposed project components that have the potential to cause a significant impact. The following thresholds of significance were used to determine if further evaluation within this EIR was warranted to ascertain whether the proposed project may:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water 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 a 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 offsite
- 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
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation [refer to Section 7, Effects Found Not To Be Significant]
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan

3.10.5 Project Impact Analysis and Mitigation Measures

This section analyzes the proposed project's potential to result in significant impacts to hydrology and water quality. When a potential impact was determined to be potentially significant, feasible mitigation measures were identified to reduce or avoid that impact.

Surface and Ground Water Quality

Impact HYD-1: The proposed project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.

Impact Analysis Construction

The construction activities for the proposed project are anticipated to include timber harvesting, ground clearing/excavation and grading, and construction of residences, commercial uses, and water storage tank. Approximately 21.73 acres of the project site would be permanently preserved as forest reserve. Construction activities could result in runoff of sediment and materials into drainages, wetlands, and riparian areas, and eventually to Ryan Creek, if not properly handled.

During earthwork activities, there is the potential for sediment introduction into downstream waterways—potentially degrading water quality. Temporary stockpiles of sediment or other materials also have the potential to erode and be carried into the stormwater system and waterways. Construction activities will likely involve the use of gasoline and diesel-powered vehicles and equipment that pose a potential risk of accidental fuel and related chemical releases that could enter the drainage system and degrade water quality. This would be a potentially significant impact.

Any construction project that will result in the disturbance of more than one acre is required by the SWRCB to obtain a General Activity Stormwater Permit and NPDES permit prior to project initiation. 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 and any other necessary site-specific WDRs or waivers under the Porter Cologne Act. As part of the NPDES permit, the project Applicant must prepare and implement a SWPPP. The SWPPP must identify potential sources of pollution that are reasonably expected to affect the quality of stormwater discharges and identify and implement BMPs to ensure reduction of these pollutants during storm events.



The proposed project would comply with the Title III, Division 3, Building Regulations of the County Code related to grading, excavations, erosion, and sediment control for construction projects. The County Code includes requirements for obtaining a grading permit and general design standards, as well as BMPs for construction related to grading and drainage activities. MM HYD-1, Prepare a Stormwater Pollution Prevention Plan (SWPPP), would incorporate the principals outlined in the County Code requirement and NPDES permit, which would minimize potential erosion, thereby preventing sediment and other materials from entering waterways during construction activities. Therefore, construction related runoff that could result in an impact to water quality would be considered less than significant with MM HYD-1 incorporated.

Operation

Development of the proposed project would convert as much as 59.27 acres of existing forested land to urban use, which will include an increase of impervious surfaces associated with buildings, roadways, parking, and pathways. This large increase in impervious surfaces would create the potential for discharge of urban stormwater pollutants into surface water bodies over the life of the project. The proposed project would generate increased stormwater runoff from roadways, landscaped areas, building roofs, and parking areas that would contain high levels of urban pollutants such as heavy metals, oil and grease, and sediment. Runoff from landscaped areas may contain pesticides and nutrients. This would be a potentially significant impact.

The proposed project aims to have several stormwater quality protection measures, such as bioswales, filter strips infiltration galleries, rain gardens, rain barrels, trees, or other accepted BMPs incorporated into the on-site drainage system to treat urban runoff, in addition to other pervious surfaces. A detailed drainage plan with type, size, and location of these stormwater quality features was not available for review at the time of publication of this Draft EIR.

Implementation of MM HYD-2 would require the project Applicant to prepare and submit a stormwater quality and drainage management plan to the County for review and approval that would demonstrate adequate water quality protection prior to issuance of grading permits. The stormwater quality control plan would be required to document the expected target pollutants and types of treatments that would be required to address those pollutants during operation. The expected polluted runoff from paved roadways and proposed treatment should be included in the stormwater quality control plan. The stormwater quality control plan would also describe any monitoring effort and performance measures required and what entity would provide oversight to ensure that stormwater quality is sufficiently treated so it will not impede downstream detention basin performance or degrade water quality downstream.

The implementation of these mitigation measures would ensure that potential, long-term, operational water quality impacts are reduced to a level of less than significant.

Level of Significance Before Mitigation

Potentially Significant Impact.

Mitigation Measures

MM HYD-1: Prepare a Stormwater Pollution and Prevention Plan (SWPPP). Prior to the issuance of grading permits for each phase, the project Applicant shall prepare and submit a Stormwater Pollution Prevention Plan (SWPPP) to the Regional Water Quality Control Board (RWQCB) electronically and a copy to the County of Humboldt that identifies



specific actions and Best Management Practices (BMPs) to prevent stormwater pollution during construction activities. The SWPPP shall identify a practical sequence for BMP implementation, monitoring, and maintenance; site restoration; contingency measures; responsible parties; and agency contacts. The SWPPP shall include but will not be limited to the following elements:

- Temporary erosion control measures shall be employed for disturbed areas.
- Specific measures shall be identified to protect downstream drainage features during construction of the proposed project.
- No disturbed surfaces shall be left without erosion control measures in place during the winter and spring months.
- Sediment shall be retained on-site by a system of sediment basins, traps, or other appropriate measures.
- Construction shall be staged in a manner that minimizes the amount of area disturbed at any one time.
- Stockpiles and disturbed areas shall be managed by means of earth berms, diversion ditches, straw wattles, straw bales, silt fences, gravel filters, mulching, revegetation, and temporary covers as appropriate.
- The construction contractor shall prepare Standard Operating Procedures for the handling of hazardous materials on the construction site to eliminate or reduce discharge of materials to storm drains.
- BMP performance and effectiveness shall be determined either by visual means where applicable (e.g., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination (such as inadvertent petroleum release) is required by the RWQCB to determine adequacy of the measure.
- In the event of significant construction delays or delays in final landscape installation, native grasses or other appropriate vegetative cover shall be established on the construction site as soon as possible after disturbance, as an interim erosion control measure throughout the wet season.
- 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.
- Exposed slopes greater than 3:1 shall be stabilized with erosion control matting installed in accordance with the current California Stormwater Quality Association (CASQA) Best Management Practices 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.

- To monitor the effectiveness of wet-season erosion control measures, the project Applicant shall implement a stormwater discharge sampling program in accordance with the State Water Resources Control Board (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.

MM HYD-2: Prepare a Stormwater Quality and Drainage Management Plan. Prior to the filing of the map for each phase, the project Applicant shall submit a stormwater quality control plan to the County of Humboldt for review and approval. The stormwater quality control plan shall include a detailed drainage plan and identify expected, site-specific pollutants and required measures to treat those pollutants before they reach the detention basins, storm drain systems, and ultimately Ryan Creek or other waterbodies. The approved measures shall be incorporated into the proposed project. The stormwater quality control plan shall also describe monitoring and performance measures and standards required in order to ensure water quality is adequately protected during operation of the project area. Examples of stormwater pollution prevention measures and practices to be incorporated into the stormwater quality control plan include but are not limited to:

- Strategically placed bioswales and landscaped areas that promote percolation of runoff
- Pervious pavement
- Roof drains that discharge to landscaped areas
- Curb cuts in parking areas to allow runoff to enter landscaped areas



- Rock-lined areas along landscaped areas in parking lots
- Catch basins
- Oil/water separators
- Regular sweeping of parking areas and cleaning of storm drainage facilities
- Readily posted information for maintenance personnel to implement or follow stormwater pollution prevention measures
- Additionally, the facility shall be designed to evapotranspire, infiltrate, harvest/use, or bio-treat stormwater to meet at least one of the following hydraulic sizing design criteria:
 - Volumetric Criteria:
 - The maximized capture stormwater volume for the tributary area, on the basis of historical rainfall records, determined using the formula and volume capture coefficients in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87 (i.e., the 85th percentile 24-hour storm event runoff); or
 - The volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with the methodology in Section 5 of the CASQA Stormwater Best Management Practices Handbook, New Development and Redevelopment (2003), using local rainfall data.
 - Flow-based Criteria:
 - The flow of runoff produced from a rain event equal to at least 0.2 inches per hour intensity; or
 - The flow of runoff produced from a rain event equal to at least 2 times the 85th percentile hourly rainfall intensity as determined from local rainfall records.

Level of Significance After Mitigation

Less Than Significant Impact with Mitigation Incorporated.

Groundwater Management

Impact HYD-2: The proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

Impact Analysis

As discussed in Section 3.18, Utilities and Service systems, the proposed project would result in an increase in water demand of 66,920 gallons per day (GPD) in order to serve the new development. Water would be provided by HCSD, which purchases water from Humboldt Bay Municipal Water District (HBMWD). HBMWD is currently only using 15 percent of its 84,000 acre-feet entitled water capacity and the Eureka Plain Groundwater Basin is designated as a “very low priority” basin with no overdraft conditions (Humboldt County 2017c). The increase in water required for the proposed project would



represent approximately 0.09 percent of HBMWDs total water entitlement capacity. Additionally, HCSD has identified the need for a new water storage tank to meet the proposed project demand and fire protection requirements. This water tank would supply much of the water needed to support the project site, and therefore, would further limit the need for groundwater supply to support the project area. Therefore, it is unlikely that the proposed project would require additional groundwater supplies in excess of existing recharge rates. Therefore, the proposed project would result in a less than significant impact related to groundwater supplies or interference with groundwater recharge.

Level of Significance Before Mitigation

Less Than Significant Impact.

Mitigation Measures

None required.

Level of Significance After Mitigation

Less Than Significant Impact.

Drainage Pattern

Impact HYD-3:	The proposed project would not 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: <ul style="list-style-type: none">i) result in a substantial erosion or siltation on- or off-site;ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;iii) 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; oriv) impede or redirect flood flows.
----------------------	--

Impact Analysis

A preliminary drainage study was prepared for the proposed project to determine if the project site can support MS4 Permit requirements and that drainage infrastructure can be provided to properly drain the proposed development, which is included as Appendix F.

Construction

Construction activities could temporarily change drainage patterns, due to grading activities that could impact drainages, wetlands, and riparian areas. All grading activities would comply with mitigation measure MM HYD-1, Prepare a Stormwater Pollution Prevention Plan (SWPPP), to minimize potential erosion, thereby preventing sediment and other materials from entering waterways during construction activities. The project site does not lie in a FEMA-identified floodplain, and there would be no potential for on-site or off-site flooding. Impacts would be less than significant.



Operation

As discussed under impact HYD-1 above, operation of the proposed project would result in permanent alterations to the natural drainage patterns in the project area by adding impervious surfaces, thereby resulting in possible long-term erosion, runoff, or redirection of flood flows through the area if not properly managed. Stormwater facilities in this area are managed by the County Public Works Department. County Public Works Department staff have indicated that, for post-construction stormwater control and drainage design, the project will need to meet the requirements of the SWRCB Water Quality Order No. 2013-0001-DWQ WDRs for Stormwater Discharges from Small MS4s. Section E.12 of the MS4 Permit includes standards and regulations pertaining to the numeric sizing criteria for stormwater detention and treatment.

As discussed in the preliminary drainage study and noted in MM HYD-3, each parcel of the proposed development would incorporate a combination of LID features, including infiltration galleries, bioswales, rain gardens, rain barrels, trees, etc. All proposed roadways would have a depressed parkway adjacent to the road surface that would function as a bioswale for roadway drainage. Storm drain inlets would be located within the bioswales to convey drainage to the storm drain system for flows exceeding the 85th percentile storm. Storm drainage would then be conveyed to the drainage area outlet. Each drainage management area within the MS4 Permit area would require additional stormwater detention. Since a final drainage plan with exact type, size, and location of these stormwater quality features is not available for review, MM HYD-2 requires review and approval of a final drainage plan prior to issuance of grading permits for each phase. Operation of the water storage tank is anticipated to occupy a small footprint and would not change the drainage patterns substantially. The impact related to drainage would be less than significant with mitigation incorporated.

Level of Significance Before Mitigation

Potentially Significant Impact.

Mitigation Measures

MM HYD-3: Prepare a Low Impact Development Plan. Prior to the filing of the map for each phase, the project Applicant shall submit a Low Impact Development (LID) Plan for each single-family lot, commercial lots, and multi-family lots as applicable for approval of the Humboldt County Public Works Director. The Plan shall be part of the Improvement Plans and include a combination of LID features including infiltration galleries, bioswales, rain gardens, rain barrels, trees, etc. The plans may be modified based on the location, design, size and land use type; however, minimum requirements shall be adhered to as required by the Public Works Director.

Level of Significance After Mitigation

Less Than Significant Impact with Mitigation Incorporated.



Water Quality Control Plan or Sustainable Groundwater Management Plan

Impact HYD-4: The proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Impact Analysis

The project site lies within the Eureka Plain Groundwater Basin that is designated as a “very low priority” basin; therefore, no groundwater sustainability plan has been prepared (Humboldt County 2017c). However, the County General Plan EIR acknowledges that future development in the basin may impact water quality or groundwater recharge. As discussed in impact HYD-1 and HYD-2, both construction and operation of the proposed project would not result in significant impacts to water quality or groundwater resources with the implementation of mitigation. Impacts from construction and operation of the proposed project would not substantially affect surface water or groundwater resources within the project area or surrounding area. Therefore, the potential for the proposed project to conflict with or obstruct implementation of water quality control plans or sustainable groundwater management plans would be less than significant.

Level of Significance Before Mitigation

Potentially Significant Impact.

Mitigation Measures

MM HYD-1 and MM HYD-2 would be required.

Level of Significance After Mitigation

Less Than Significant Impact with Mitigation Incorporated.



This page is intentionally left blank.

