4.10 HYDROLOGY AND WATER QUALITY

4.10.1 INTRODUCTION

This section describes hydrologic and flooding characteristics of the project site and vicinity and analyzes the potential for the Hyatt Place project (project) to impact water quality, groundwater, surface drainage, and flooding. Information for this section was obtained from the following sources:

- California Department of Water Resources, Half Moon Bay Terrace Groundwater Basin, 2014
- California Department of Water Resources, Dam Breach Inundation Map Web Publisher, 2019a
- California Department of Water Resources, Sustainable Groundwater Management Act 2019b Basin Prioritization
- California State Water Resources Control Board (SWRCB), Final 2014/2016 California Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report)
- California Emergency Management Agency, California Geologic Survey, and University of Southern California, Tsunami Inundation Map for Emergency Planning Half Moon Bay Quadrangle, 2009
- Coastside County Water District (CCWD), 2015 Urban Water Management Plan.
- CCWD, Staff Report, 2018
- Federal Emergency Management Agency (FEMA), FEMA Flood Map Service Center, 2019
- City of Half Moon Bay, General Plan, Safety Element, 1991
- City of Half Moon Bay, Drainage Master Plan, 2016
- City of Half Moon Bay Local Costal Program & Land Use Plan, 2021
- City of Half Moon Bay, Green Infrastructure Plan, 2019
- Preliminary Delineation of Waters of the U.S. and State, H.T. Harvey & Associates, 2017
- San Francisco Bay Regional Water Quality Control Board (RWQCB), San Francisco Bay Basin (Region 2) Water Quality Control Plan, 2017
- San Mateo County Office of Sustainability, Groundwater, 2019

Project consistency with the 2021 Local Coastal Land Use Plan (LCLUP) is analyzed and included below. The LCLUP was updated and adopted by City Council in October 2020 and certified by the California Coastal Commission (CCC) in April 2021. The updated LCLUP comprises the City's reexamined and updated policy approach for carrying out the Coastal Act in a manner that addresses changed conditions since certification of the 1996 LCLUP.

All documents referenced in this draft Environmental Impact Report (EIR) are available via CD or weblink upon request. The location of the other reference materials is cited at the end of this section. Hard copies of the draft EIR are located at the City of Half Moon Bay, Planning Division, 501 Main Street, Half Moon Bay, CA 94019.

Comments were submitted in response to the Notice of Preparation for this EIR, comments were received regarding hydrology and water quality:

- Concerns that the wetland delineation did not accurately describe the physical extent of wetlands on the site during wet seasons and that the project construction would occur within a 100-foot buffer zone around wetlands
- Concerns that the existing wetland areas and groundwater resources would be negatively affected by the project
- Concerns that historical presence of an agricultural pond on the site could restrict development on the site
- Concerns that runoff from impervious surfaces and structures at the site would negatively affect ditches and drainages downstream, while altering the existing drainage pattern at the site
- Concerns that stormwater runoff from the site would exceed the capacity of current and planned stormwater drainage systems
- Requests for description of the surface waters, wetlands and groundwater conditions, applicable regulations, and possible involvement of the CCC in regulation of these waters
- Request that the project submit detailed plans of all drainage facilities and submit hydrologic calculations during Encroachment Permit review

These comments related to hydrology and water quality are addressed in the discussion below. Comments regarding impacts on wetlands from a biological resource perspective are addressed in **Section 4.4, Biological Resources**.

4.10.2 EXISTING CONDITIONS

Regional Characteristics

The project site is in the San Francisco Bay Area, on the western (ocean) side of the San Francisco Peninsula, 0.75 miles from the coast. Watersheds in the area originate mainly at higher elevations in or adjacent to the lower portions of the Santa Cruz Mountains inland from the project site. The project site is in the Seymour watershed, which originates in higher elevations southeast of the project site. The Seymour watershed drains into the Pacific Ocean to the west of the project site partially through Seymour Channel.[1] **Figure 4.10-1** maps the watersheds in the City. Arroyo Leon Creek, the closest water body to the project site, runs along Higgins Canyon road to flow into Pilarcitos Creek near John L. Carter Memorial Park. Pilarcitos Creek runs close to San Mateo Road, crosses SR-1 and then empties into the Pacific Ocean north of the project site.

Surface Water Quality

Pollutant sources discharging to creeks and other bodies of water may include both "point" and "nonpoint" discharges.

A point source is any discernible, confined, and discrete conveyance (e.g., a pipe discharge) of pollutants to a water body from such sources as industrial facilities or wastewater treatment plants. Point sources are subject to measures designed to protect the overall water quality of the creeks and Pacific Ocean coastline, including water quality requirements, periodic monitoring, annual reporting, and prohibitions of the discharge of pollutants by regulatory agencies, as well as other requirements.

Nonpoint pollutant sources are sources that do not have a single, identifiable discharge point, but are rather a combination of many sources. A nonpoint source can be stormwater runoff from land that contains, for example, petroleum from parking lots, pesticides from farming operations, or sediment from soil erosion. Section 303(d) of the Federal Clean Water Act requires that states develop a list of impaired water bodies that do not meet water quality standards. As of 2016, nearby Pilarcitos Creek did not appear on the list of impaired streams prepared by the State Water Quality Control Board (SWQCB).[2]

[1] Half Moon Bay (City), 2016. Drainage Master Plan. Available: https://www.half-moon-bay.ca.us/DocumentCenter/View/691/CHMB-SDMP-PHASE-I-PDF?bidId=. Accessed: January 2022.

[2] California State Water Resources Control Board (SWRCB), 2016. Final 2014/2016 California Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report). Available: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml. Accessed: January 2022.

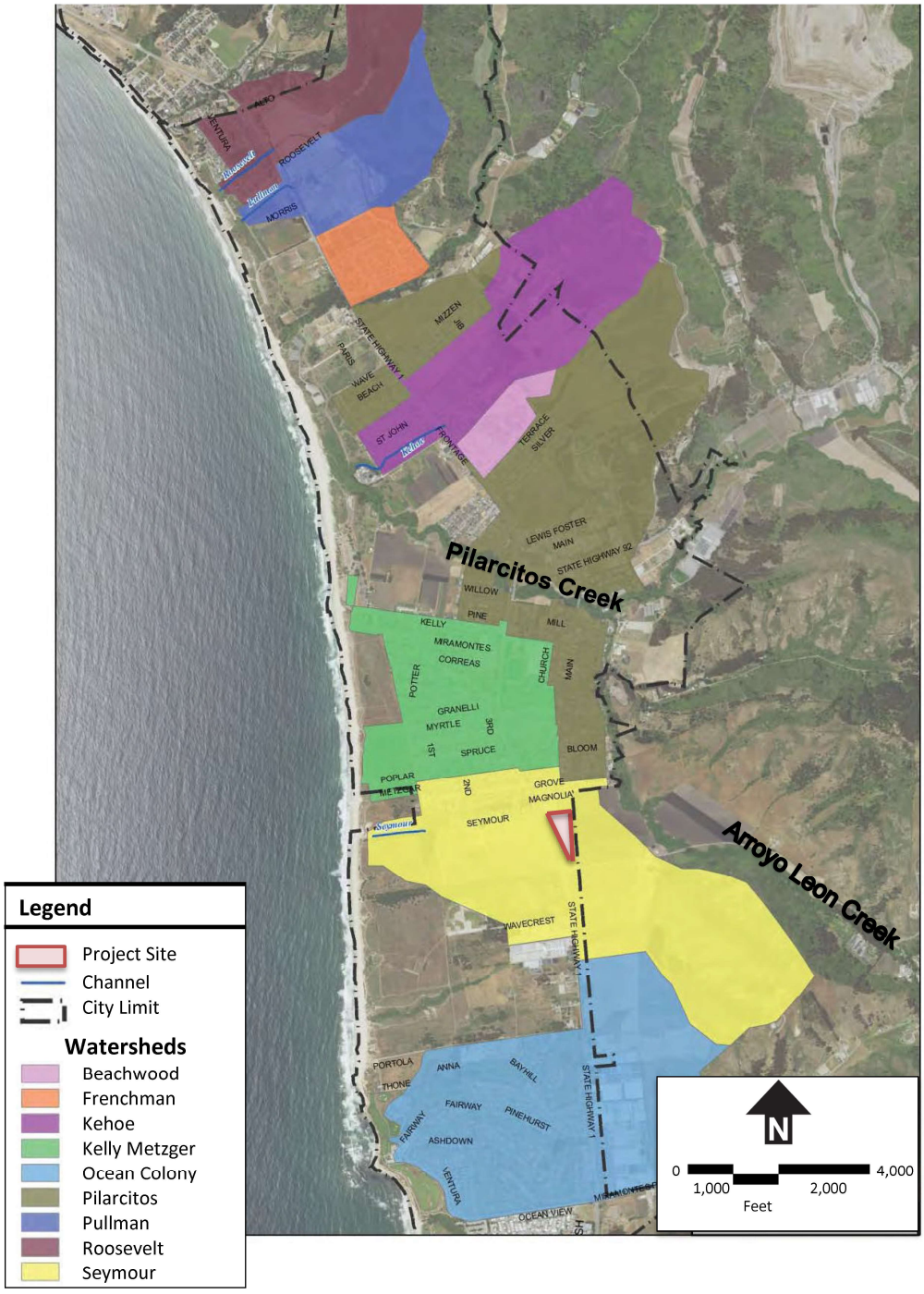
Table 4.10-1 lists the beneficial uses of Pilarcitos Creek and Arroyo Leon, the closest waterbodies to the project site with identified existing beneficial uses according to the San Francisco Basin Water Quality Control Plan (Basin Plan). Beneficial uses of water are those that are protected against degradation such as: domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation and preservation of fish and wildlife, and other aquatic resources or preserves. In California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set criteria to protect those uses. Pollution sources are required to be identified and controlled to protect adopted beneficial uses of water bodies.

Table 4.10-1 Beneficial Uses of Pilarcitos Creek and Arroyo Leon Creek

Beneficial Use	Water Body	
	Pilarcitos Creek	Arroyo Leon
Agricultural Supply	X	-
Municipal and Domestic Water Supply	X	-
Cold and Freshwater Habitat	X	-
Fish Migration	X	-
Preservation of Rare & Endangered Species	X	-
Fish Spawning	X	-
Warm Water Habitat	X	-
Wildlife Habitat	X	-
Water Contact Recreation	X	-
Noncontact Water Recreation	X	-

Source:RWQCB, 2017.

Hyatt Place Half Moon Bay Project



Regional Hydrologic Conditions Figure **4.10-1**

Source: Half Moon Bay 2016

Groundwater

Nine groundwater basins are mapped in San Mateo County (County). Four groundwater basins occur on the east side of the Santa Cruz Mountains along San Francisco Bay. The remaining groundwater basins occur along the Pacific Coast.[3] All of the groundwater basins in the County have been identified as very low priority groundwater basins by the California Statewide Groundwater Elevation Monitoring Program (CASGEM). Very low priority groundwater basins are those that score between 0 and 7 on the CASGEM 40-point priority range based on eight components, which include population and population growth overlying the basin, wells that draw from it, and irrigated acreage. This program is designed to track seasonal and long-term trends in groundwater elevations in California's groundwater basins.[4] The project site is entirely underlain by the Half Moon Bay Terrace groundwater basin.

Groundwater Quality

The Half Moon Bay Terrace groundwater basin's northern areas contain high amounts of iron and manganese. The presence of iron and manganese in the Half Moon Bay Terrace groundwater basin is likely due to natural occurrences of these elements rather than pollution.[5] Conditions for sea water intrusion into the basin have not developed, but are considered possible.[6] The Basin Plan identifies the existing beneficial uses of the Half Moon Bay Terrace groundwater basin as agricultural water supply, and municipal and domestic water supply. The Basin Plan identifies industrial service water supply and industrial process water supply as two potential beneficial uses for this groundwater basin. According to the San Mateo County Sea Level Rise Vulnerability Assessment, the Sewer Authority Mid-Coastside Wastewater Treatment Plant (SAM Plant) is within the Future Erosion zone of sea level rise impacts.[7] Loss of wastewater service associated with the SAM Plant in a future erosion scenario could affect groundwater quality due to the potential for untreated

[3] San Mateo County Office of Sustainability, 2019. Groundwater. Available: https://www.smcsustainability.org/energy-water/groundwater/. Accessed: January 2022.

[4] California Department of Water Resources, 2019b. Sustainable Groundwater Management Act 2019 Basin Prioritization. Available: https://water.ca.gov/programs/groundwater-management/basin-prioritization. Accessed: January 2022.

[5] Coastside County Water District (District), 2018. Staff Report. Available: http://www.coastsidewater.org/agendas/091118/7A.pdf. Accessed: January 2022.

[6] California Department of Water Resources, 2014. Half Moon Bay Terrace Groundwater Basin. Available: https://www.smcsustainability.org/download/energy-water/groundwater/2-22.pdf. Accessed: January 2022.

[7] Sea Change San Mateo, 2018. Sea Level Rise Vulnerability Assessment. Available: seachangesmc.org/wp-content/uploads/2018/03/2018-03-12_SLR_VA_Report_2.2018_WEB_FINAL.pdf. Accessed: January 2022.

sewage spills. The plant is presently subject to groundwater intrusion and can be vulnerable to creek backup caused by heavy rainfall that coincides with high tides.

Global Climate Change

The project site is located in a Mediterranean climate zone in which rain occurs mainly in the winter and spring. During the dry summer, fog helps reduce evaporation and plants' water needs.[8] However, rising temperatures due to global climate change are likely to affect the project region in numerous ways. Decreases in snowpack in the Sierra region will reduce snowmelt that feeds Bay Area water bodies. Rising temperatures will increase evaporation and the water needs of plants and agriculture. Rising temperatures may negatively affect fisheries and water quality, while sea level rise may result in saltwater intrusion.[9]

Local Hydrology

The project site consists of a 5-acre open field. The project site gently slopes to the northwest to a drainage channel on the south side of SR-1. According to the Preliminary Delineation report,[10] the drainage channel is an existing linear ditch likely constructed to collect runoff from the adjacent roadway. The ditch does not appear to have been maintained in the last decade and has been colonized by both native and non-native vegetation, thus developing wetland characteristics. Stormwater flows across the site as sheet flow to the drainage channel to discharge offsite at the northwest corner of the site. Four areas of seasonal wetlands were identified within this drainage channel and receive most of the runoff from the site. The wetland areas are thinly shaped and parallel SR-1, extending for three-fourth of the length of the channel within the project site. As described in **Section 4.4, Biological Resources**, the CCC has reviewed the extent and quality of the wetland areas and has not designated any as Environmentally Sensitive Habitat Areas. No evidence of an existing or past agricultural pond at the site was identified.

The project site is underlain by the Half Moon Bay Terrace groundwater basin. At high elevations direct precipitation contributes to groundwater recharge of this groundwater basin, while creeks and streams contribute to groundwater recharge at lower elevations.[11] The Half Moon Bay Terrace groundwater basin has been

[8] Coastside County Water District (District), 2016. 2015 Urban Water Management Plan. Available: http://www.coastsidewater.org/agendas/091118/7A.pdf. Accessed: January 2022.

[9] San Mateo County Office of Sustainability, 2019. Groundwater. Available: https://www.smcsustainability.org/energy-water/groundwater/. Accessed: January 2022.

[10] Preliminary Delineation of Waters of the U.S. and State, HT Harvey & Associates, 2017.

[11] California Department of Water Resources, 2014. Half Moon Bay Terrace Groundwater Basin. Available: https://www.smcsustainability.org/download/energy-water/groundwater/2-22.pdf. Accessed: January 2022.

identified as very low priority by CASGEM and thus management of this basin is not required under the Sustainable Groundwater Management Act.[12] Groundwater was measured ranging from approximately 15 to 30 feet below the project site during the geotechnical investigation. Borings were taken in December of 2016 at depths of 40 and 35 feet. The study acknowledged groundwater fluctuations may occur based on annual variations in precipitation, and other seasonal factors.

Flooding

A review of the FEMA Flood Zone Maps for San Mateo County indicates that the project site is not subject to flooding during a 100-year flood event The project site and immediate vicinity are designated as an unshaded "Zone X," delineating a minimal flood risk hazard according to FEMA. Such lands are considered outside areas where flooding could occur on a 500-year basis. The nearest floodway area occurs along Pilarcitos Creek, and a flood zone located roughly 1,100 feet east of the northeast corner of the project site (Federal Emergency Management Agency, 2019). Additionally, the project site is not within a dam inundation zone. The Pilarcitos dam's inundation zone is mapped at approximately 1,900 feet from the project site.[13] The project site is located 4,000 feet from the coast and is not within an area mapped as a tsunami inundation area.[14]

4.10.3 REGULATORY SETTING

Federal

Clean Water Act

The Clean Water Act (CWA) was enacted by Congress in 1972 and amended several times since inception. It is the primary federal law regulating water quality in the United States and forms the basis for several State and local laws throughout the country. Its objective is to reduce or eliminate water pollution in the nation's rivers, streams, lakes, and coastal waters. The CWA prescribed the basic federal laws for regulating discharges of pollutants as well as set minimum water quality standards for all "waters of the United States." Several mechanisms are employed to control

[12] California Department of Water Resources, 2019b. Sustainable Groundwater Management Act 2019 Basin Prioritization. Available: file:///C:/Users/Rescobar/Downloads/sgma_bp_process_document.pdf. Accessed: January 2022.

[13] California Department of Water Resources, 2019a. Dam Breach Inundation Map Web Publisher. Available: https://fmds.water.ca.gov/webgis/?appid=dam_prototype_v2. Accessed: January 2022.

[14] California Emergency Management Agency, California Geologic Survey, and University of Southern California, 2009. Tsunami Inundation Map for Emergency Planning Half Moon Bay Quadrangle, Accessed: January 2022.

domestic, industrial, and agricultural pollution under the CWA. At the Federal level, the CWA is administered by the U.S. Environmental Protection Agency (EPA). At the State and regional level, the CWA is administered and enforced by the State Water Resources Control Board (SWRCB) and the RWQCB. The State of California has developed several water quality laws, rules, and regulations, in part to assist in the implementation of the CWA and related federally mandated water quality requirements. In many cases, the Federal requirements set minimum standards and policies and the laws, rules, and regulations adopted by the State and regional boards exceed the Federal requirements.

Section 402 –NPDES Permit Program

Section 402 of the CWA establishes the National Pollutant Discharge Elimination Discharge System (NPDES), a permitting system for the discharge of any pollutant into waters of the US, except for dredge or fills material. RWQCBs administer this permitting program in California. Section 402(p) requires permits for discharges of stormwater from industrial uses, construction, and municipal separate storm sewer systems (MS4s).

Additionally, improvement projects disturbing more than one acre of land during construction are required to file a Notice of Intent (NOI) to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity. A developer must propose control measures that are consistent with the State General Construction Permit. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site covered by the state's General Permit. A SWPPP must include "Best Management Practices" (BMPs) designed to reduce potential impacts to surface water quality through the construction and life of the project.

Project Consistency

In order to comply with NPDES site design requirements, the project design would be divided into three drainage management areas (DMAs) to direct stormwater runoff to the building and a parking lot to treatment areas. DMA 1 would be treated via self-retaining stormwater ponds, before flowing overland into nearby wetlands. DMA 2 would use both self-retaining areas and bioretention treatment. Runoff in DMA 3 would flow from the hotel and parking lot bypassing the wetlands and entering bioretention areas.

The system would be designed according to the criteria in the C.3 Stormwater Technical Guidance Manual for the NPDES permit and the California Stormwater Best Management Practice Handbook to provide a level of treatment that meets or exceeds existing standards, as described elsewhere in this section. During construction, erosion control and stormwater pollution prevention plans would prevent construction-related pollution from contaminating downstream receiving

waters consistent with the above-mentioned documents. Therefore, the implementation of the project would be consistent with the CWA.

State

Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. Under the Porter-Cologne Water Quality Control Act, the State Water Resources Control Board (SWRCB) has the ultimate authority over state water rights and water quality policy. This Act applies to any person discharging or proposing to discharge waste within the region, except discharges into a community sewer system. This act requires a "Report of Waste Discharge" for any discharge of waste to land or surface waters that may impair beneficial uses for surface or groundwater of the State. Discharges under the Porter-Cologne Act are allowed when in compliance with Waste Discharge Requirements (WDRs), which may be required even when the discharge is already permitted or exempt under the CWA.

Project Consistency

As described above, treated runoff, as required under NPDES, from the project site would reach seasonal wetlands in the drainage channel on site. However, the runoff would be compliant with NPDES, and thus the project would be in compliance with the Porter-Cologne Water Quality Control Act. In addition, a WDR is not anticipated for the project due to the presence of existing stormwater conveyance systems.

Local

San Francisco Bay Municipal Regional Stormwater Permit

RWQCBs administer the NPDES program as established by Section 402 of the CWA. In November of 2015, the San Francisco RWQCB issued one permit to regulate stormwater discharges from local agencies in several counties, including San Mateo County (County). Pursuant to provision C.3 of this permit, the project is subject to the planning and building authority of the County as the development creates over 10,000 square feet of impervious surface.

Project Consistency

Through low-impact development techniques, the project implementation and operation would include appropriate source control, site design and stormwater treatment measures which would be consistent with County's NPDES Permit. **Table 4.10-2** lists policies and regulations relating to hydrology and water quality from the Half Moon Bay Local Coastal Program and describes the implementation of the

project's consistency with these policies, which contribute to RWQCB and NPDES permit consistency for San Mateo County.

Half Moon Bay Green Infrastructure Plan

The City's Green Infrastructure Plan (GIP), adopted September 2019, is a cost-effective, resilient approach to managing water quality by using plants, soils, and other elements to mimic the natural water cycle and capture rainwater. The GIP describes how the City will, over time, transition its existing "gray" (i.e., traditional) infrastructure to "green" infrastructure. This local planning document determines, defines, and supports local green infrastructure goals and policies.

Project Consistency

The project would comply with the most recent Energy Efficiency Standards of Title 24 by incorporating 'green building' and energy saving measures, specifically under the Leadership in Energy and Environmental Design (LEED) checklist. Green Building and energy saving measures include low water-use landscaping and water fixtures, as well as other energy-saving features.

Half Moon Bay General Plan and Local Coastal Plan

The City's Municipal Code and Local Coastal Program & Land Use Plan contain policies and regulations related to hydrological resources. In the Municipal Code, Chapter 18.38, Coastal Resource Conservation Standards, outlines several policies applicable to the project. The LCLUP Chapters 3 and 6 contain further policies related to hydrology and water quality that apply to the project. **Table 4.10-2** below outlines the Local Coastal Program & Land Use Plan and Municipal Code sections related to hydrological resources and evaluates the project's consistency with each policy.

Table 4.10-2 Project Consistency with Relevant General Plan, Local Coastal Program, and Relevant Policies and Sections

Policy Numbers	Policy Text	Project Consistency
City of Half Moon Bay Zoning Code		
Section 18.38.080 (D)	Wetlands Buffer Zone. The minimum buffer surrounding lakes, ponds, and marshes shall be 100 feet, measured from the high water point, except that no buffer is required for man-made ponds and reservoirs used for agriculture.	**Consistent.** The only project features that would be constructed within 100 feet of the wetland areas would be a Class I multi-modal path and landscaped elements on the western portion of the project site. No structures would be introduced to this area. Standpipes for fire hydrants would be present near interior and exterior paths and vegetation maintenance activities would be low-impact so as to not disturb the surrounding wetland.

Policy Numbers	Policy Text	Project Consistency
Section 18.38.080 (E)	Permitted Uses within Wetlands Buffer Zones. The riparian buffer zone uses listed in this title shall apply to wetlands buffer zones.	**Consistent.** As listed under Policy 18.38.075 (A), trails and scenic overlooks are permitted uses within riparian buffer zones, and, therefore, are permitted within 100 feet of the wetland areas.
Section18.38.080 (G)	Development Standards within Wetlands Buffer Zones. The riparian buffer development standards listed under this title shall apply to wetlands buffer zones. Development shall be designed and constructed so as to ensure that: 1. The removal of vegetation is minimized; 2. Development conforms to natural topography and that erosion potential is minimized; 3. Provisions have been made (i.e., catch basins) to keep runoff and sedimentation from exceeding predevelopment levels; 4. Native and noninvasive exotic vegetation is used for replanting, where appropriate; 5. Any discharge of toxic substances, such as fertilizers and pesticides, into the riparian corridor is prevented; 6. Vegetation in or adjacent to man-made agricultural ponds is removed if the life of the pond is endangered; and 7. Dredging in or adjacent to man-made ponds is allowed if the county resource conservation district, or any similar or successor agency or entity, certifies that siltation imperils continued use of the pond for agricultural water storage and supply.	**Consistent.** As discussed in **Chapter 3.0, Project Description**, the project would be designed such that the development conforms to the natural topography of the existing wetlands. The project's landscaping would be consistent with the wetlands restoration and expansion proposed along the western and southern portions of the property, as well as within the bioswale areas. These bioswale areas would prevent discharge of toxic substances into the wetlands.

Policy Numbers	Policy Text	Project Consistency
Section 18.38.080 (G)	H. Findings for Development within Wetlands Buffer Zones. The following findings shall be supported by the contents of the required biologic report that: 1. There are special circumstances or conditions affecting the property; 2. The project is necessary for the proper design and function of some permitted or existing activity on the property; 3. The project will not be detrimental to the public welfare or injurious to other property in the area in which the project is located; 4. The project will not significantly reduce or adversely impact the sensitive habitat, or there is no feasible alternative which would be less damaging to the environment; 5. The project is in accordance with the purpose of this chapter and with the objectives of the LCP land use plan; and 6. Development on a property, which has its only building site located in the buffer area, maintains a twenty-foot buffer from the outer edge of any wetland.	**Consistent.** The project would not significantly reduce or adversely impact the wetland habitat (see **Section 4.4, Biological Resources**, for a full discussion of biological report findings). As discussed in **Section 4.11, Land Use and Planning**, and in consistency statements below, the project would be consistent with the LCP land use plan. Project development would maintain at least a 25-foot buffer from the edge of the wetland.
Local Coastal Program & Land Use Plan Chapter 3 Public Works		
3-44: Best Management Practices for Development	Implement best management practices for new development through conditions of approval including low impact development techniques (e.g., limited impervious surfaces), site control measures, and other means to manage stormwater flows and improve water quality throughout the City's stormwater basins. For development consisting of areas with significant impervious surfaces, such as parking lots, require design features that capture sediment and other pollutants to filter runoff prior to discharge.	**Consistent.** The approximately 5-acre project site will include significant open space areas including wetlands. Conditions of approval will require development of green infrastructure detention facilities to store storm water and the parking lot landscaping will capture run-off from the parking lot.

Policy Numbers	Policy Text	Project Consistency
Local Coastal Program & Land Use Plan Chapter 6 Natural Resources		
6-76: Green Infrastructure	Promote and prioritize the use of Low Impact Development (LID) strategies, Best Management Practices (BMPs), and on-site infiltration to create green infrastructure for treating and reducing stormwater runoff. In and adjacent to ESHA, use resource-dependent green infrastructure projects for natural restoration purposes and provision of buffer areas to allow for natural erosion, evolution of natural drainage flows, and sediment transport balance.	**Consistent.** The approximately 5 acre project site will include significant open space areas including wetlands. Green infrastructure detention facilities will be provided to store storm water and the parking lot landscaping will capture run-off from the parking lot.
6-83: Construction Best Management Practices (BMPs)	Require new development proposals to include construction phase erosion control and polluted runoff control plans. These plans shall specify BMPs that will be implemented to minimize erosion and sedimentation, provide adequate sanitary and waste disposal facilities and prevent contamination of runoff by construction chemicals and materials.	**Consistent.** The project includes construction phase erosion control and polluted runoff control plans.

Policy Numbers	Policy Text	Project Consistency
6-84: Drainage and Runoff Control Plans	Require new development proposals to include post-construction phase drainage and polluted runoff control plans. Such plans shall: a. Specify site design, source control and treatment control BMPs that will be implemented to minimize post-construction polluted runoff, and shall include the monitoring and maintenance plans for these BMPs; b. Ensure that post-construction structural BMPs (or suites of BMPs) are designed to treat, infiltrate, or filter the amount of stormwater runoff produced by all storms up to and including the 10-year 2-hour storm event; c. Ensure dry weather runoff does not exceed the pre-development baseline flow rate to receiving waterbodies; d. Complement and utilize existing drainage patterns and systems where they are in proper functioning condition, conveying drainage from the developed area of the site in a non-erosive manner that avoids downstream cumulative impacts; and Restore disturbed or degraded natural drainage systems where feasible, except where there are geologic or public safety concerns.	**Consistent.** The project includes post-construction phase drainage and polluted runoff control plans consistent with these requirements.
6-86: BMP Maintenance	Require structural BMPs to be inspected, cleaned, and repaired as necessary to ensure proper functioning for the life of the development. As a condition of permit approval, require ongoing application, maintenance and monitoring as is necessary for effective operation of all BMPs (including site design, source control, and treatment control).	**Consistent.** The project includes ongoing application, maintenance and monitoring as is necessary for effective operation of all BMPs (including site design, source control, and treatment control).

Policy Numbers	Policy Text	Project Consistency
6-8: Grading and Site Plan	Require all development to be sited and designed so as to minimize grading, alteration of natural landforms, and vegetation clearance in order to prevent soil erosion, stream siltation, reduced water percolation, increased runoff, and adverse impacts on plant and animal life and prevent net increases in baseline flows for any receiving waterbody, except where necessary for habitat restoration projects.	**Consistent.** The project site is relatively flat and will require limited grading. The grading and drainage plan will include green infrastructure detention basins and avoid impacts to ESHA and buffers.

Source: Half Moon Bay Local Coastal Program, 2021.

4.10.4 IMPACTS AND MITIGATION MEASURES

Thresholds of Significance

The following thresholds of significance for hydrology and water quality were derived from the *Environmental Checklist in the California Environmental Quality Act (CEQA) Guidelines Appendix G*. These thresholds of significance have been amended or supplemented, as appropriate, to address lead agency requirements and the full range of potential impacts related to this project.

An impact of the project would be considered significant and would require mitigation if it would meet one of the following thresholds of significance:

Hyd a) Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality;

Hyd b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;

Hyd c) 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 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.

Hyd d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation;

Hyd e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Methodology

Evaluation of hydrology and water quality impacts associated with the project includes the following:

- Determining flood hazards that could affect the project site and design
- Compliance with Regulatory framework with respect to water quality
- Identification of the impacts of project on nearby beneficial uses, and stormwater flow.
- Ability of the project to comply with the City's drainage and water quality requirements

FEMA's Flood Insurance Rate Map, and the California Department of Water Resources' Web Map Publisher were used to identify flood risks within the project vicinity. The California Emergency Management Agency's tsunami inundation zone maps established the project vicinity's flood risks in relation to tsunamis. Publicly available information from the California Department of Water Resources, and CCWD were used to establish the general hydrological setting of the project site along with details regarding surface and groundwater quality within the project vicinity. The regulatory framework with respect to water quality within the project region was established by review of the RWQCB's NDPES permit and the Basin plan. Impacts from project implementation on beneficial uses and stormwater were determined through review of the project design and the basin plan.

Discussion of Impacts

Hydro a) Would the project violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality?

Construction

Less than Significant. Project construction would involve ground disturbing activities such as excavation, trenching, and grading, which could result in runoff that contains sediment and other pollutants that could degrade water quality if not properly controlled. Fueling or maintenance of construction vehicles would occur within the construction footprint during construction, which poses a risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. Construction activities would be subject to a NPDES General Construction Permit, issued by the RWQCB, which would contain water quality control requirements. These requirements include the implementation of a SWPPP to identify potential pollutant sources and prescribe BMPs to avoid impacts to surface water or groundwater quality during construction. Such BMPs could include using fiber rolls to catch erosion, stabilizing driveways, and blanketing exposed soils. With implementation of required water quality control requirements, this impact would be less than significant.

Operation

Less than Significant. Project operation would be subject to a post-construction NPDES Permit and Provision C.3 requirements, requiring incorporation of source control design elements to prevent pollutants from entering stormwater. Maintenance agreements, such as parking lot sweeping and catch basin cleaning, as well as storm drain signs and stenciling, would be required under NPDES permit conditions.

The project design would include a dual treatment system of self-retaining landscape areas and bio retention areas along the west side of the project site. This treatment would prevent polluted stormwater from entering wetlands, degrading surface water quality, or negatively impacting groundwater quality. With implementation of required permit conditions and use of the dual treatment system, this impact would be less than significant.

Hydro b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less than Significant. The project site presently contributes to groundwater recharge, because it is entirely made up of pervious areas. Implementation of the project would add 120,000 square feet (2.75 acres) of impervious surfaces where currently no impervious surfaces exist. The Half Moon Bay Terrace Groundwater Basin covers a total of 9,189 acres. Due to the large area of the groundwater basin and the relatively small area of impervious surface that would be added (0.03 percent of the total groundwater basin), the project would not measurably affect groundwater recharge. Additionally, the project design would include landscape that promotes surface infiltration where possible and would include a drainage system to return the flow of stormwater across the site to natural conditions. Implementation of the project would not change the existing groundwater recharge pattern of the project vicinity, and therefore would not have an adverse impact on aquifer volume. This impact would be less than significant.

Hydro c) Would the project 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;

Or

Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

Construction

Less than Significant. As described above in threshold **Hydro (a),** project construction would involve ground disturbing activities such as excavation, trenching, and grading. These activities could temporarily alter the drainage pattern of the project site. However, compliance with NDPES requirements would prevent erosion, siltation, and flooding on- and off-site. Construction activities would not alter the course of the existing drainage channel that contains wetland characteristics on the project site, and no streams or rivers are present on the project site. Therefore, impacts from project construction would be less than significant.

Operation

Less than Significant. As described above in threshold **Hydro (b),** implementation of the project would introduce new impervious areas to the project site. However, the project design would include self-retaining stormwater treatment areas and

bioretention areas on the western side of the project site. The majority of stormwater would be collected and treated on site, then allowed to evaporate or percolate into the ground. Some stormwater would be treated onsite and then allowed to flow overland into wetland areas. These landscaping elements would prevent changes in drainage patterns from creating erosion, siltation, and flooding. Implementation of the project would not alter the course of the drainage channel on the project site, and no streams or rivers are present on the project site. Therefore, impacts from project operation would be less than significant.

Or

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. See response to threshold **Hydro (a)** above. NPDES compliance during project construction would prevent runoff from the project site from exceeding the capacity of stormwater drainage systems and would ensure that no substantial additional sources of polluted runoff are created. The project design includes a dual treatment system that would receive runoff, preventing the release of polluted stormwater and the prevent impacts on stormwater drainage system during project operation. This impact would be less than significant.

Or

Impede or redirect flood flows?

No Impact. According to the Flood Insurance Rate Map generated by FEMA, the project site is not located in a 500-year flood zone. Therefore, construction and operation of the project would not introduce any structures that would impede or redirect flood flows. No impact would occur.

Hydro d) Would the project in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. The project site is not located in a flood hazard, dam inundation, tsunami or seiche zone. According to Flood Insurance Rate Map generated by FEMA, the project site is not located within a 500-year flood zone. Additionally, the project site is not within a dam inundation zone. The Pilarcitos dam inundation zone is the closest dam inundation zone to the project site, mapped at approximately 1,900 feet from the project site.[15] The project site is located 4,000 feet from the coast and is not located within an area mapped as a tsunami inundation area (California Emergency Management Agency, 2009). The project site is located 5.5 miles from the Upper

[15] California Department of Water Resources, 2019a. Dam Breach Inundation Map Web Publisher. Available: https://fmds.water.ca.gov/webgis/?appid=dam_prototype_v2. Accessed: January 2022.

Crystal Springs Reservoir and separated by a mountain range, this is the closest waterbody where a seiche might occur.[16] Therefore, no impact would occur.

Hydro e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact. Because CASGEM identifies the Half Moon Bay Terrace groundwater basin as very low priority basin, local authorities are not required to establish a sustainable groundwater plan for this groundwater basin. No such plan exists, or is required, for the Half Moon Bay Terrace groundwater basin, and therefore, implementation of the project would not conflict with or obstruct implementation of a sustainable groundwater management.

As explained above in **Section 4.10.2**, **Existing Conditions**, the Basin Plan identifies beneficial uses for Arroyo Leon and Pilarcitos Creek, the closest water bodies to the project site, and for the Half Moon Bay Terrace groundwater basin. Compliance with NPDES requirements would prevent project construction from impacting the beneficial uses identified in the Basin Plan through the implementation of BMPs. The project is also consistent with the Local Coastal Plan and Municipal Code policies with relation to hydrology and water quality (see **Table 4.10-2**). During operation, the project's dual stormwater treatment system would prevent any runoff from the site from impacting the nearby waterbodies' beneficial uses. Additionally, runoff from the project site flows to the west, in the opposite direction of Arroyo Leon. As project construction and operation would not alter the direction of runoff from the project site, runoff from the project site would be unlikely to drain into Pilarcitos Creek or Arroyo Leon. Therefore, no impact would occur.

4.10.5 CUMULATIVE IMPACTS

Cumulative impacts occur when two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Other projects in the area include past and planned residential, commercial, and infrastructure development projects in Half Moon Bay. See **Chapter 4.0, Setting, Impacts, and Mitigation Measures,** for the full list of cumulative projects within Half Moon Bay.

The discharge of stormwater runoff from new development in California is regulated by local, State, and Federal laws specifically to ensure that they do not result in the gradual degradation of water quality. Point sources of pollution are required to be

[16] City of Half Moon Bay, 2021. General Plan, Safety Element. Available: https://www.half-moon-bay.ca.us/DocumentCenter/View/185/1991-Safety-Element-of-General-Plan-PDF. Accessed: January 2022.

identified and controlled in order to protect adopted beneficial uses of water. Implementation of these policies occur as part of the development review and construction permitting process. The project's drainage system would comply with NPDES requirements. Other projects considered under the cumulative scenario are subject to the same NPDES requirements and local regulations governing hydrology and water quality as the project. Therefore, the project, in consideration with projects in **Table 4.0-1** (**Chapter 4.0, Setting, Impacts, and Mitigation Measures**), would not have a cumulatively considerable contribution to a cumulative impact to hydrology and water quality.

4.10.6 REFERENCES

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