

HYDROLOGY AND WATER QUALITY

4.8 HYDROLOGY AND WATER QUALITY

This chapter describes the existing character of the Specific Plan Area related to hydrology and water quality. It also evaluates the potential environmental consequences of future development that could arise from adopting and implementing the proposed Specific Plan Update, and approval and development of the proposed Transit-Oriented Developments (TOD) #1 and #2 (together referred to as the “proposed Project”), with regard to potentially significant direct and indirect environmental impacts to water quality and flooding hazards.

4.8.1 ENVIRONMENTAL SETTING

4.8.1.1 REGULATORY FRAMEWORK

This section summarizes existing federal, State, regional, and local policies and regulations that apply to hydrology and water quality.

Federal Regulations

Clean Water Act

Under the Clean Water Act (CWA) of 1977, the United States Environmental Protection Agency (US EPA) seeks to restore and maintain the chemical, physical, and biological integrity of the nation’s waters. The statute employs a variety of regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The CWA authorizes the US EPA to implement water quality regulations. The National Pollutant Discharge Elimination System (NPDES) permit program under Section 402(p) of the CWA controls water pollution by regulating stormwater discharges into the waters of the United States. California has an approved state NPDES program. The US EPA has delegated authority for water permitting to the State Water Resources Control Board (SWRCB), which has nine regional boards. The San Francisco Bay Regional Water Quality Control Board (RWQCB) regulates water quality in Region 2, which includes the Specific Plan Area.

Sections 401 and 404 of the CWA are administered through the Regulatory Program of the U.S. Army Corps of Engineers (USACE) and regulate the water quality of all discharges of fill or dredged material into waters of the United States including wetlands and intermittent stream channels. Section 401, Title 33, Section 1341 of the CWA sets forth water-quality certification requirements for “any applicant applying for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters.” If there are ephemeral drainages and wetlands identified in the Specific Plan Area, construction and other activities may require the acquisition of a permit from the USACE under Section 404 of the CWA and water quality certification from the San Francisco Bay RWQCB under Section 401 of the CWA. Section 401 certification is required from the RWQCB prior to final issuance of Section 404 permits by the USACE.

HYDROLOGY AND WATER QUALITY

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are “impaired” (i.e. not meeting one or more of the water quality standards established by the State). These waters are identified in the Section 303(d) list as waters that are polluted and need further attention to support their beneficial uses. Once the water body or segment is listed, the state is required to establish a Total Maximum Daily Load (TMDL) for the pollutant causing the conditions of impairment. The TMDL is the maximum amount of a pollutant that a water body can receive and still meet water quality standards. Typically, the TMDL is the sum of the allowable loads of a single pollutant from all contributing point and non-point sources. The intent of the 303(d) list is to identify water bodies that require future development of a TMDL to maintain water quality. In accordance with Section 303(d), the RWQCB has identified impaired water bodies within its jurisdiction, and the pollutant or stressor responsible for impairing the water quality. There are no impaired streams within the Specific Plan Area, but Lower San Francisco Bay downstream from the site is on the 303(d) impaired water bodies list for chlordane, DDT, dieldrin, dioxin compounds, furan compounds, invasive species, mercury, PCBs, and trash. Therefore, future proposed development within the Specific Plan Area could adversely impact this impaired water body.

Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP), which provides subsidized flood insurance to communities that comply with FEMA regulations limiting development in flood-plains. FEMA also issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection is established by FEMA, with the minimum level of flood protection for new development set as the 100-year flood event. FEMA mapping of flood hazards for the Specific Plan Area was updated in 2012. The Specific Plan Area includes two concrete-lined open canals that are mapped as being within a 100-year floodplain, according to FEMA Map 06081C0132E. However, the map indicates that runoff from the 100-year storm event would be entirely contained within the confines of the canal channels. Therefore, there would be no floodplain restrictions on development within the Specific Plan Area.

National Pollutant Discharge Elimination System (NPDES)

The NPDES permit program was established by the CWA to regulate municipal and industrial discharges to surface waters of the United States from their municipal separate storm sewer systems (MS4s). Federal NPDES permit regulations have been established for broad categories of discharges, including point-source municipal waste discharges and nonpoint-source stormwater runoff. NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring and other activities.

Under the NPDES Program, all facilities which discharge pollutants into waters of the US are required to obtain an NPDES permit. Requirements for storm water discharges are also regulated under this program. In California, the NPDES permit program is administered by the SWRCB through the nine RWQCBs. The City of Millbrae (City) lies within the jurisdiction of San Francisco RWQCB (Region 2) and is subject to the waste discharge requirements of the Municipal Regional Stormwater Permit, known as the MRP. This was established by Order No. R2-2009-0074 and NPDES Permit No. CAS612008, as amended by Order No. R2-2011-0083 in 2011. The

HYDROLOGY AND WATER QUALITY

San Mateo County permittees include San Mateo County, the San Mateo County Flood Control District, 15 cities, and 5 towns, including Millbrae. The current Municipal Regional Stormwater Permit (MRP) will expire at the end of 2014 and a new permit is due to be reissued in 2015.

Under Provision C.3 of the MRP, the co-permittees use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects. New development or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (depending on the project type) to implement site design measures and/or low impact development (LID) techniques. The City requires as a standard of condition for applicants to conform to all C.3 provisions of the MRP.

State Regulations

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Act of 1969 is the basic water quality control law for California. The act established the SWRCB and divided the state into nine regional basins, each under the jurisdiction of a RWQCB. The SWRCB is the primary state agency responsible for the protection of California's water quality and groundwater supplies. The RWQCBs carry out the regulation, protection, and administration of water quality in each region. Each regional board is required to adopt a water quality control plan or basin plan that recognizes and reflects the regional differences in existing water quality, the beneficial uses of the region's ground and surface water, and local water quality conditions and problems. The Specific Plan Area is within the jurisdiction of the San Francisco Bay RWQCB (Region 2). The Porter-Cologne Act also authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water quality certifications, and other approvals.

State Water Resources Control Board

In California, the SWRCB has broad authority over water quality control issues for the State. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the State by the federal government under the CWA. Other State agencies with jurisdiction over water quality regulation in California include the California Department of Health Services (DHS) for drinking water regulations, the California Department of Pesticide Regulation, the California Department of Fish and Game (CDFG) and the Office of Environmental Health and Hazard Assessment (OEHHA).

Construction activities that disturb one or more acres of land that could impact hydrologic resources must comply with the requirements of the SWRCB Construction General Permit (2009-0009-DWQ) as amended by 2010-0014-DWQ. Under the terms of the permit, applicants must file Permit Registration Documents (PRDs) with the SWRCB prior to the start of construction. The PRDs include a Notice of Intent (NOI), risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and a signed certification statement. The PRDs are now submitted electronically to the SWRCB via the Stormwater Multiple Application and Report Tracking System (SMARTS) website.

HYDROLOGY AND WATER QUALITY

Applicants must also demonstrate conformance with applicable best management practices (BMPs) and prepare a SWPPP, containing a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection, and discharge points, general topography both before and after construction, and drainage patterns across the Specific Plan Area. The SWPPP must list BMPs that would be implemented to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for nonvisible pollutants if there is a failure of the BMPs, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Some sites also require implementation of a Rain Event Action Plan (REAP). The updated Construction General Permit (2010-0014-DWQ), effective September 2, 2012, also requires applicants to comply with post-construction runoff reduction requirements.

San Francisco Bay Regional Water Quality Control Board

Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. The Specific Plan Area is within the jurisdiction of the San Francisco Bay RWQCB (Region 2), which includes all basins that drain into the San Francisco Bay extending to the mouth of the Sacramento-San Joaquin Delta. It includes all or portions of Alameda, Contra, Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties.

The San Francisco Bay RWQCB addresses region-wide water quality issues through the creation and triennial update of the San Francisco Bay Water Quality Control Plan (Basin Plan). The Basin Plan was adopted in 1995 and amended most recently in July 2013. This Basin Plan designates beneficial uses, establishes water quality objectives, and provides implementation programs and policies to achieve those objectives.

State Updated Model Water Efficient Landscape Ordinance (Assembly Bill 1881)

The updated Model Landscape Ordinance requires cities and counties to adopt landscape water conservation ordinances by January 31, 2010 or to adopt a different ordinance that is at least as effective in conserving water as the updated Model Water Efficient Landscape Ordinance (MWELO). The City has adopted the Model Water Efficient Landscaping Ordinance as promulgated in the Municipal Code (Chapter 8.43.040 - Landscaping).

Local Regulations

San Mateo Countywide Water Pollution Prevention Program

The San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) is a partnership of the City/County Association of Governments (C/CAG), 20 incorporated cities within the county, and the County of San Mateo, which share a common NPDES permit. This partnership also relies on each of the municipalities to implement local stormwater pollution prevention and control activities for its own local storm drain systems. The SMCWPPP's Stormwater Management Plan (SWMP) outlines priorities, key elements, strategies, and evaluation methods to implement the SMCWPPP. The comprehensive program includes pollution reduction activities for construction sites, industrial sites, illegal discharges and illicit connections, new development, and municipal operations. The SWMP also includes a public education effort, target pollutant reduction strategies, and watershed

HYDROLOGY AND WATER QUALITY

assessment and monitoring. The SWMP, in conjunction with NPDES permit adopted by the Water Board, is designed to enable SMCWPPP to meet the requirements of the Clean Water Act. . In addition to obtaining coverage under the State NPDES General Permit for construction activities, the Project would also be subject to coverage under the MRP, applicable to post-construction operations.

Millbrae 1998-2015 General Plan

The City of Millbrae General Plan outlines various goals, policies and implementing programs relevant to hydrology and water quality in the Land Use Element and Safety Element. The policies relevant to the proposed Project are listed in Table 4.8-1.

TABLE 4.8-1 MILLBRAE GENERAL PLAN POLICIES PERTAINING TO HYDROLOGY AND WATER QUALITY

Number	Policy
Land Use Element (LU)	
LU5.1	Adequacy of Public Infrastructure and Services. Ensure that new and existing developments can be adequately served by municipal services and facilities in accordance with City standards. New projects which require construction or expansion of public improvements shall pay their fair share of the costs necessary to improve or expand infrastructure to serve them, including street improvements, parks, water storage tanks, sewer and water service, and other public services.
LU5.5	Adequate Utility Infrastructure. Provide safe, reliable, and adequate utility infrastructure to meet the City's new and existing needs and to comply with applicable state, regional, and federal regulations, including: 1) water supply for existing and new normal and emergency needs; 2) sanitary sewer collection; 3) wastewater treatment and disposal; and 4) storm water collection as necessary to provide adequate drainage and flood protection during periods of high rain and high tides.
LU5.6	Recycled Water. Consider the use of high quality recycled water for parks and private landscaping uses.
LU5.7	Water Conservation Techniques. Promote the use of low-water-use and fire suppression landscaping and other water conservation measures.
LU5.10	Storm Water National Pollutant Discharge Elimination System (NPDES). In coordination with the San Mateo City and County Association of Governments, continue to implement measures consistent with the San Mateo Countywide NPDES Stormwater Permit.
Safety Element (S)	
S1.1	Location of Future Development. Permit development only in those areas where potential danger to the health, safety, and welfare of the residents of the community can be adequately mitigated, including development which would be subject to severe flood damage or geological hazard due to its location and/or design. Development also should be prohibited where emergency services, including fire protection, cannot be provided.
S1.12	Ordinances and Codes. The City shall maintain ordinances as necessary to insure safe development in areas of known flood or geological hazard and will use the most current Building and Fire Safety Codes to review permits for new and modified structures.
S1.16	Erosion/Sediment Control. Provide appropriate erosion and sediment control measures in conjunction with proposed development in areas susceptible to erosion and regularly maintain all creekbeds and conduits to minimize problems stemming from their erosion.
S1.17	Drainage Channels, Hydraulic Pumps and Conduits. Program improvements to drainage channels, hydraulic pumps and conduits to mitigate chronic flooding problems.

HYDROLOGY AND WATER QUALITY

TABLE 4.8-1 MILLBRAE GENERAL PLAN POLICIES PERTAINING TO HYDROLOGY AND WATER QUALITY

Number	Policy
S1.18	Flood Hazards. Assure existing and new structures are designed to protect people and property from the threat of potential flooding. New development shall be designed to provide protection from potential impacts of flooding during the "1% chance" or "100-year" flood.
S1.19	Rise in Sea Level. Coordinate with local, regional, state, and federal agencies regarding potential rise in sea level.

Source: City of Millbrae General Plan 1998-2015, adopted 1998.

Millbrae Municipal Code

The City of Millbrae Municipal Code contains all ordinances for the city. The Municipal Code is organized by Title, Chapter, and Section. The current Municipal Code is up to date through Ordinance 747, passed May 27, 2014. The following provisions of Title 8, Public Works and Title 9, Building Regulations of the Municipal Code help to minimize adverse effects to water quality and flooding hazards as a result of development in Millbrae.

- **Chapter 8.45 Water Conservation.** This chapter promotes the City's policy to conserve the efficient use of water. It sets out water use and conservation goals by implementing the City's Urban Water Management Plan. Pursuant to the Water Conservation in Landscaping Act, the "model" water efficient landscape ordinance adopted by the Department of Water Resources is enforceable within the City.
- **Chapter 8.50 Flood Damage Prevention.** This chapter, also known as the "Flood Damage Prevention Ordinance", applies to all areas of special flood hazard (i.e. within the 100-year floodplain) within the City of Millbrae. The chapter meets the requirements of the National Flood Insurance Program (NFIP) regulations. Development within a special flood hazard area requires compliance with construction provisions that include anchoring, elevation of the lowest floor above the base flood elevation by one to two feet depending on the type of flood zone, or flood-proofing for nonresidential structures. A development permit shall be obtained before construction or other development begins within any special flood hazard area.
- **Chapter 8.70 Stormwater Management and Discharge Control.** All projects that will or may result in pollutants entering the City storm drain system must comply with Section 8.70.110 to reduce such pollutants, including standards for parking lots and similar structures, and BMPs for new development and redevelopment projects. In addition, this chapter provides for watercourse protection (Section 8.70.120) to ensure that all watercourses are kept and maintained reasonably free from pollutants and flow restrictions and for the maintenance of healthy bank vegetation. The Chapter also establishes fees (Section 8.70.230) to defray the cost of the stormwater management program for new development and storm water discharges into the City's storm drain system.
- **Chapter 9.45 Grading.** A grading permit must be submitted and approved by the City prior to the start of construction activities and must include an interim and final erosion and sediment control plan and a final landscaping and irrigation plan. Grading is generally prohibited during the rainy season from October 15 through April 15 unless certain conditions are met, as specified in Section 9.45.130.

HYDROLOGY AND WATER QUALITY

4.8.1.2 EXISTING CONDITIONS

Climate, Precipitation, and Topography

Millbrae has a mild Mediterranean climate with mild dry summers and cool wet winters. Night and morning fog can occur during the summer months. Frequent westerly sea breezes keep temperatures relatively mild throughout the year with highs in the mid-fifties and lows in the low-forties during the winter and highs in the low-seventies and lows in the low-fifties during the summer. The warmest month of the year is September with an average maximum temperature of 73 degrees Fahrenheit while the coldest month is January with an average minimum temperature of 42 degrees Fahrenheit. Average annual precipitation for Millbrae is about 20 inches in the lowlands and up to 32 inches in the hills near Skyline Boulevard and I-280, falling primarily between the months of October through April.¹ The topography within the Specific Plan Area is relatively flat, with a gentle topographic gradient to the northeast.

Watershed and Regional Drainage

A watershed is the geographic area draining into a river system, ocean, or other body of water through a single outlet and includes the receiving waters. The Specific Plan Area lies within the Millbrae Creek Watershed and the Green Hills Creek Watershed, as shown on Figure 4.8-1. The Millbrae Creek Watershed drains 1.5 square miles and encompasses the cities of Millbrae and Burlingame. The creek is culverted or hardened, except for a 0.7-mile section upstream of Ashton Avenue. Within the boundaries of the Specific Plan Area, Millbrae Creek and its tributaries are present either as underground storm drains or engineered channels, including El Portal Canal which borders the Specific Plan Area to the east.² The Green Hills Creek Watershed, which encompasses 2.8 square miles, collects runoff from Green Hills Creek and its tributaries via several storm drain networks, which discharge to Highline Canal, which borders the Specific Plan Area to the west. Of the total channel length of 10.2 miles, 7.9 miles consist of underground culverts or storm drains, 1.8 miles are engineered channels, and only 0.5 miles of the upper reach of Green Hills Creek is in its natural state.

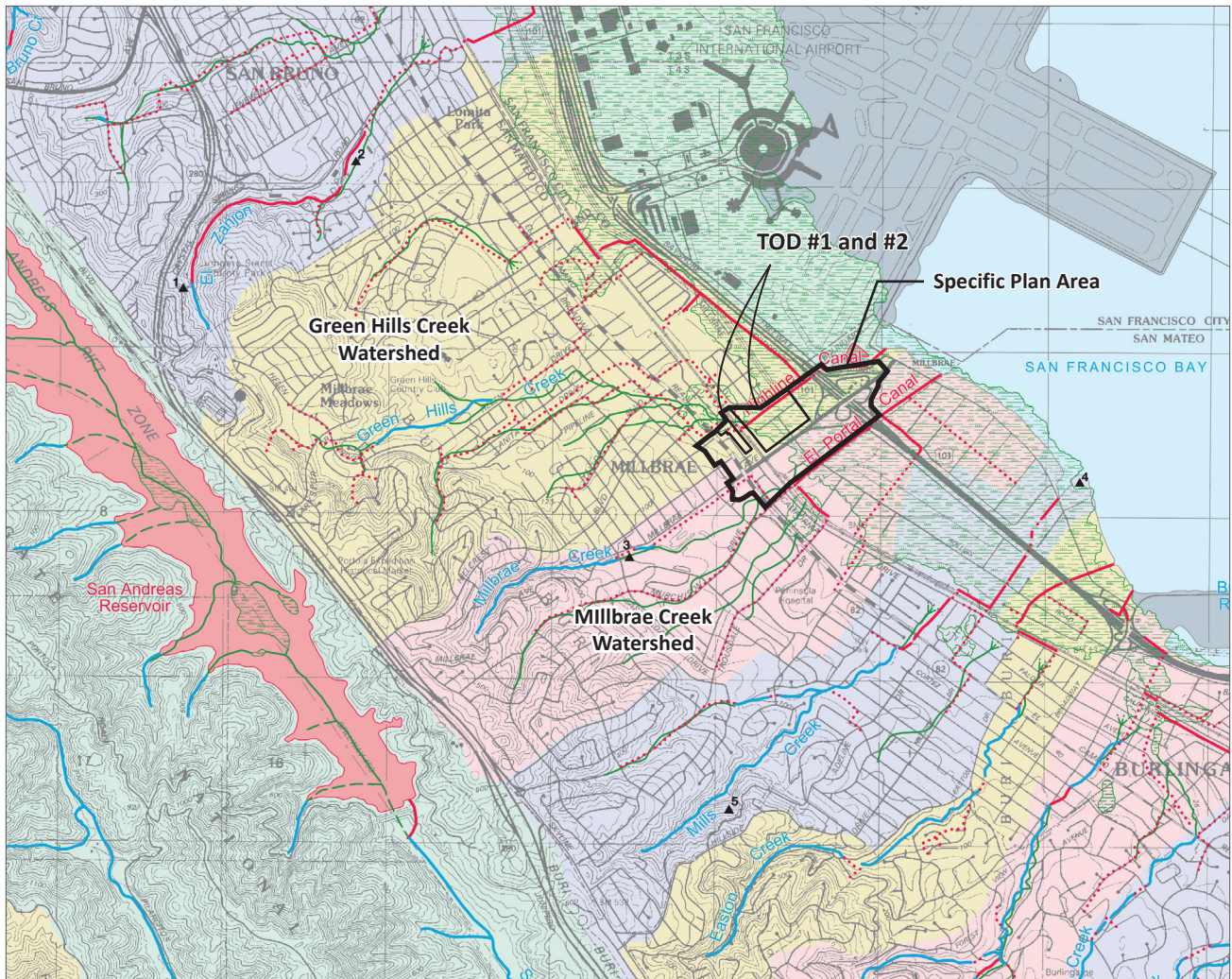
Local Drainage

Stormwater in Millbrae is conveyed through three primary trunk lines consisting of storm drain pipes, open channels, and pump stations before discharging into San Francisco Bay.³ The northern part of the system flows through to Spruce Street, where stormwater empties into Lomita Canal. The center part of the system empties into the Highline Canal, which conveys flow directly into the Bay. The canal has a floodgate to prevent high tides from backing up into the canal. The southern part of the City's storm drain system enters the El Portal Canal, which Millbrae shares with the City of Burlingame. The canal is dewatered by a pump station in Burlingame.

¹ US Climate Data, 2015. Accessed at <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?casfoa+sfo> on February 12, 2015.







² Oakland Museum of California, 2007. *Creek and Watershed Map of San Mateo & Vicinity*.

³ Kimley-Horn and Associates, Inc. 2015. *Millbrae Station Area Specific Plan Update, Utilities and Service Systems*.



Source: Oakland Museum of California, 2007; William Lettis & Associates, Inc.



-  Creeks, watershed area $\geq 0.2 \text{ km}^2$
-  Underground storm drains $\geq 24"$
-  Engineered channels
-  Bay, ocean or natural lakes
-  Artificial bodies of water
-  Bay fill
-  Present watersheds
-  Modern tidal marsh formed after ~1850
-  Historical tidal marsh, circa 1850, still present









Historical Features, circa 1850	
	Creeks, buried or drained, dashed where location uncertain
	Shoreline or marsh boundary
	Ephemeral creek
	Lakes
	Water spreads over the ground
	Willow grove
	Tidal marsh and sloughs
	Now filled land

Figure 4.8-1
Watershed and Regional Drainage

HYDROLOGY AND WATER QUALITY

The Specific Plan Area is located at the downstream end of the central and southern portions of the storm drain system. The storm drain system within the Specific Plan Area consists primarily of an internal network of 12-inch to 30-inch pipes that convey flow to larger trunk lines beneath Millbrae Avenue or discharge into the adjacent canals, which border the Specific Plan Area to the northwest and southeast. Figure 4.8-2 shows the existing storm drain network within the Specific Plan Area.

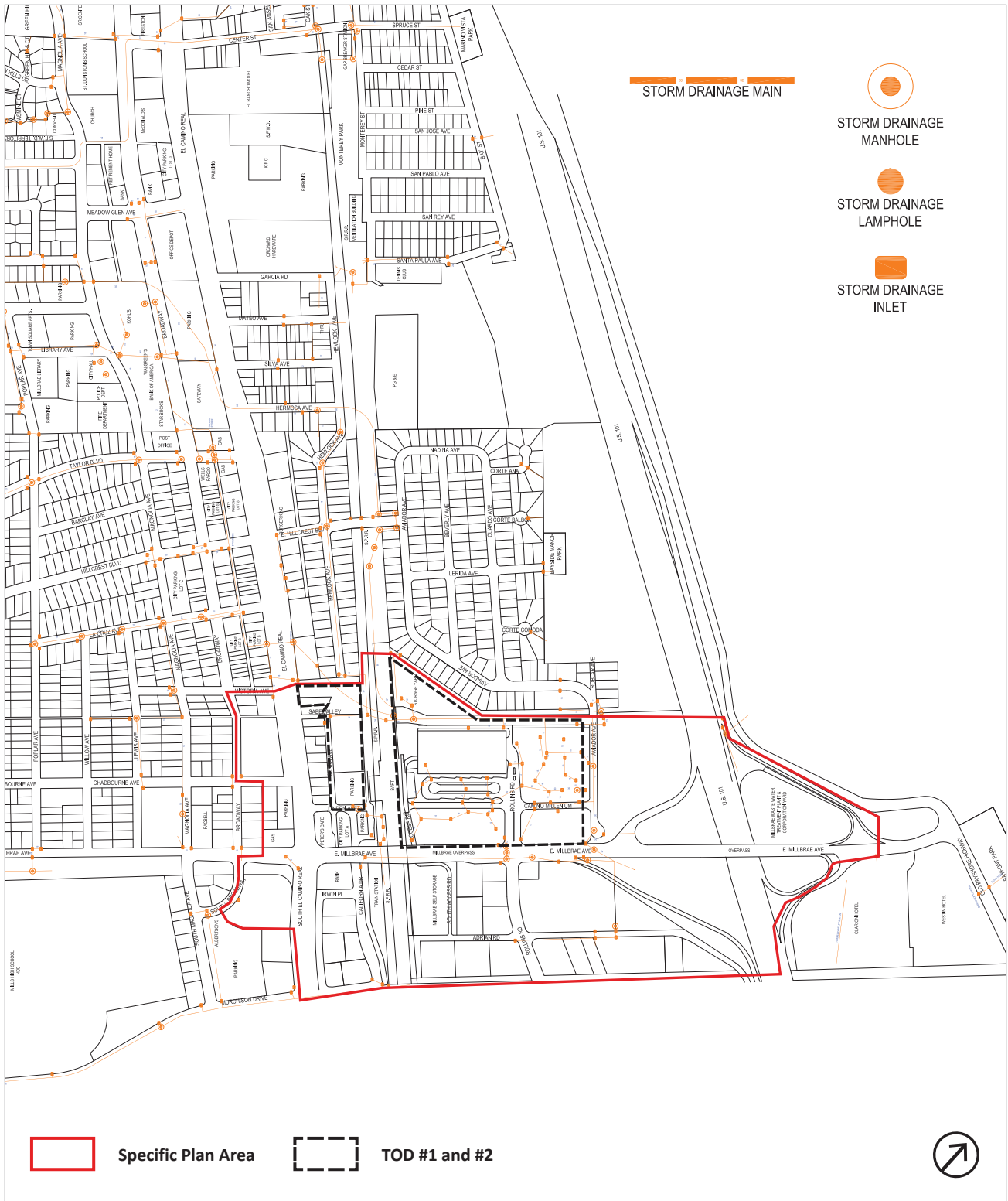
With the proposed development within the Specific Plan Area, some existing storm drain culverts will be relocated and new interior storm drain collector systems would be required. Additional details regarding the proposed storm drain configuration with planned development of the proposed TOD #1 and TOD #2 projects are provided below. Since the Specific Plan Area is almost completely built out, the drainage areas and runoff coefficients would remain similar to existing conditions. Private storm drain improvements would be required for individual on-site collection systems. Installation and maintenance of these improvements would be the responsibility of the individual parcel developers.

TOD #1 Project

The TOD #1 project site is located near the downstream end of the City of Millbrae's central portion of the storm drain system. The City's main storm drain trunk line (a 4 foot by 11 foot box culvert) flows diagonally through the northwest corner of the TOD #1 project site and under the Caltrain/BART railroad tracks via eight 54-inch culvert pipes before discharging into the Highline Canal. Overland stormwater flows are directed to a surface inlet structure at the west side of the railroad tracks.⁴ The existing culverts under the railroad tracks have sufficient capacity for the 100-year storm flow, but the 4-foot by 11-foot box culvert does not.

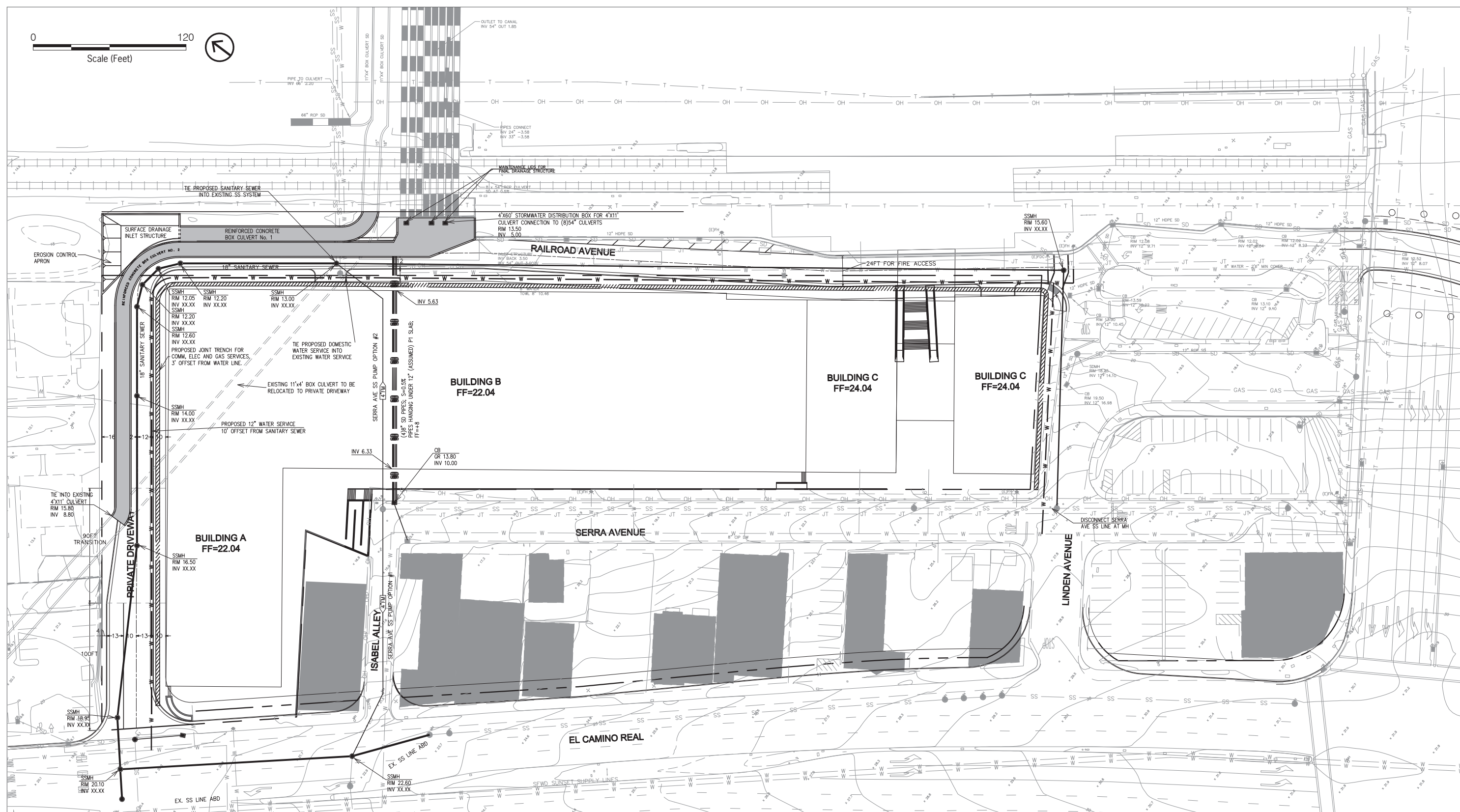
Proposed development within the TOD #1 project site would require relocation of the existing 4-foot by 11-foot box culvert that cuts through the TOD #1 project site and the addition of a new surface drainage inlet structure in the north corner of the site. The relocated box culvert and a new 4-foot by 11-foot box culvert from the new inlet structure would be connected to the existing culverts under the Caltrain/BART railroad tracks. These existing culverts have sufficient capacity to carry the 100-year storm event. Overflow from the 4-foot by 11-foot box culvert would be conveyed within the extension of Victoria Avenue to the east where it would discharge into the new inlet structure, which ultimately discharges to Highline Canal. The proposed storm drain configuration as shown in Figure 4.8-3.

⁴ Millbrae Serra Station LLC, 2013. *Proposed Amendments for Millbrae Station Area Specific Plan – Stormwater Demand*. Dated December 05, 2013.



Source: City of Millbrae, Public Works Department, 2/1/2008.

Figure 4.8-2
Existing Storm Drain System



Source: BKF Engineers.

Figure 4.8-3
TOD #1 Storm Drain System

HYDROLOGY AND WATER QUALITY

TOD #2 Project

Storm drains in the vicinity of the TOD #2 project site include an existing 36-inch line that runs under the Highline Canal along the northwest side of the TOD #2 project site, an existing 15-inch storm drain beneath the Garden Lane pedestrian paseo in the middle of the TOD #2 project site, and an existing 15-inch storm drain beneath Aviador Avenue along the northeast edge of the TOD #2 project site. There also is an existing 15-inch storm drain beneath Millbrae Avenue; however, runoff from the proposed TOD #2 project's development would not connect to this system.

Proposed development within the TOD #2 project site would include construction of a new storm drain network and the installation of various biotreatment areas and storm drain manhole media filter inserts. The proposed parking area (Site 8) in the southwest corner of the TOD #2 project site would include new storm drains around the perimeter of the lot. Numerous biotreatment areas would be located around the periphery of the parking lot as well as at the end of the parking aisles that connect to the storm drain system, which ultimately discharges to a curb inlet at the roadway bordering the TOD #2 project site to the northwest. For the parking areas designated as Site 6A and 6B, a similar configuration will be implemented with biotreatment areas around and within the perimeter of the parking areas that connect to new peripheral storm drain systems. The storm drain system for Site 6B would discharge to the 15-inch storm drain beneath Garden Lane pedestrian paseo and the storm drain system for Site 6A would discharge to the 15-inch storm drain system beneath Aviador Avenue. There also would be a biotreatment area at the cul-de-sac at the end of Aviador Avenue with a new storm drain about 175 feet long that connects to the existing 15-inch storm drain system at the corner of Garden Lane and Aviador Avenue.

The rest of the TOD #2 project site would include new interior storm drains that connect to the existing 15-inch storm drain system beneath Garden Lane. Each storm drain manhole would be equipped with a media filter insert. A new 15-inch storm drain is proposed beneath Rollins Roads to connect storm water runoff from facilities on either side of this roadway. The proposed storm drain system for the proposed TOD #2 project is shown in Figure 4.8-4.

Groundwater

The Specific Plan Area is located within the Westside Groundwater Basin and more specifically, within the South Westside Groundwater Basin, as shown in Figure 4.8-5. The 14-square mile South Westside Groundwater Basin underlies Daly City, Colma, South San Francisco, San Bruno, Millbrae, and portions of unincorporated San Mateo County, Burlingame, and Hillsborough.

The City relies solely on surface water supplied by the San Francisco Public Utilities Commission (SFPUC) to serve its residents and does not supplement this supply with groundwater.⁵ In the mid-1990s, the City investigated drilling municipal groundwater wells as a supplemental water source but found no potential source of groundwater within the City's boundaries. Groundwater is not available or considered in the City's near term water supply planning. According to information provided by the SWRCB database Geotracker for several remediation projects within the Specific Plan Area, the depth to groundwater for the shallow perched aquifer ranges from about 4 feet

⁵ Kennedy/Jenks Consultants, 2011. *2010 Urban Water Management Plan*. Prepared for City of Millbrae.

HYDROLOGY AND WATER QUALITY

to 20 feet below ground surface (bgs).⁶ Therefore, it is possible that perched groundwater may be encountered during excavation and construction activities.

Water Quality

The Specific Plan Area is within the Millbrae Creek and Green Hills Creek Watersheds. More specifically, stormwater runoff from the Specific Plan Area would discharge into the City's storm drain system and open channels, which connect and discharge to Lower San Francisco Bay. The beneficial uses of the surface water bodies to which storm water from the Specific Plan Area would discharge have been designated in the *Water Quality Control Plan for the San Francisco Bay Region* (Basin Plan).⁷ These potential and beneficial uses are summarized in Table 4.8-2.

TABLE 4.8-2 DESIGNATED BENEFICIAL USES OF SURFACE WATERS NEAR PROJECT SITE

Water Body	Designated Beneficial Use
<i>Surface Water</i> - San Francisco Bay Lower	IND, COMM, SHELL, EST, MIGR, RARE, SPWN, WILD, REC1, REC2, NAV
<i>Groundwater</i> - Westside Groundwater Basin D	MUN, PROC, IND, AGR (potential)

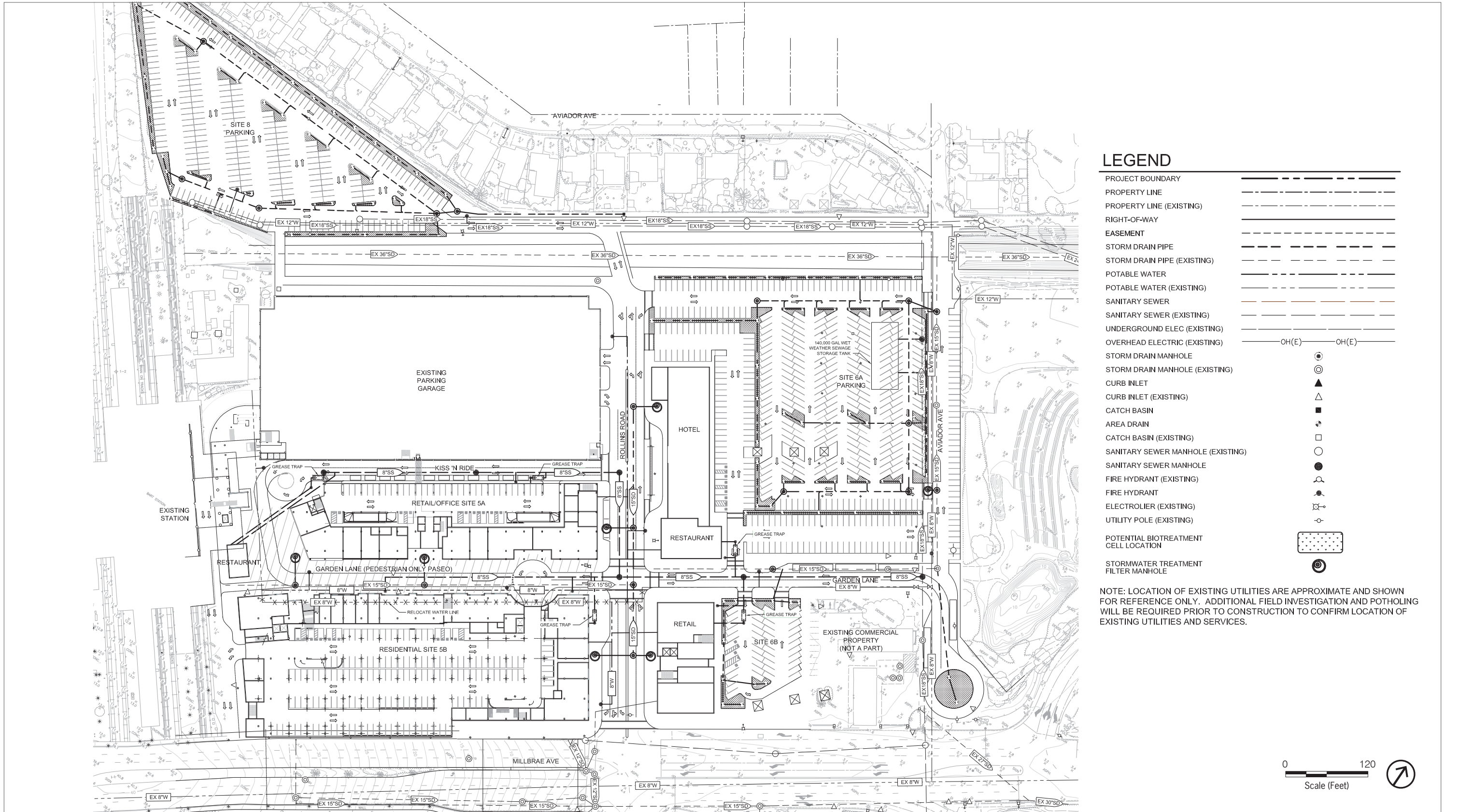
Note: All beneficial uses are existing, except where designated potential.
Source: San Francisco RWQCB. *Water Quality Control Plan*.

The potential and existing beneficial uses are as follows:

- AGR – Agricultural Supply
- COMM – Commercial and sport fishing
- EST – Estuarine habitat
- IND – Industrial service supply
- MIGR – Fish migration
- MUN – Municipal and domestic supply
- NAV – Navigation
- PROC – Industrial process supply
- RARE – Preservation of rare and endangered species
- REC-1 – Water contact recreation
- REC-2 – Non-contact water recreation
- SHELL – Shellfish harvesting
- SPWN – Fish spawning
- WILD – Wildlife habitat

⁶ SWRCB, 2015. *Geotracker Data Base* accessed on February 13, 2015 at <http://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=millbrae%2C+ca>

⁷ San Francisco Bay Area Regional Water Quality Control Board (RWQCB). *Water Quality Control Plan for San Francisco Bay Area*. Accessed December 7, 2014. http://www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml.



Source: Republic Millbrae LLC; HMM.

Figure 4.8-4
TOD #2 Storm Drain System






HYDROLOGY AND WATER QUALITY

Back of Figure 4.8-4



Source: San Mateo County 2010; Oakland Museum, Upper Peninsula Watershed Finder; SF Public Works Dept. 2004. As modified by GHD 2012.



-  Proposed Project Well Facility Sites
-  County Boundary
-  Creeks and Other Waterbodies
-  North Westside Groundwater Basin¹
-  South Westside Groundwater Basin¹

¹The Westside Groundwater Basin has been administratively divided at the San Francisco-San Mateo County line.

Figure 4.8-5
Westside Groundwater Basin

HYDROLOGY AND WATER QUALITY

In accordance with Section 303(d) of the Clean Water Act, the State must present US EPA with a list of impaired water bodies that do not meet water quality standards. Listed impaired water bodies are presented in Table 4.8-3.

TABLE 4.8-3 SECTION 303(D) LIST OF IMPAIRED WATER BODIES TO WHICH PROJECT SITE DISCHARGES

Water Body	Pollutant	Potential Source	Status of TMDL
San Francisco Bay Lower	Chlordane	Nonpoint source	Planned (2013)
	DDT	Nonpoint source	Planned (2013)
	Dieldrin	Nonpoint source	Planned (2013)
	Dioxin compounds	Atmospheric deposition	Planned (2019)
	Furan compounds	Atmospheric deposition	Planned (2019)
	Invasive species	Ballast water	Planned (2019)
	Mercury	Industrial and municipal point sources; resource extraction; atmospheric deposition; natural sources; nonpoint sources	Approved (2008)
	PCBs	Unknown nonpoint sources	Planned (2008)
	Trash	Illegal dumping, urban runoff/storm sewers	Planned (2021)

Source: State Water Resources Control Board. 2010 Integrated Report, Clean Water Act, Section 303(d) List, Accessed on February 13, 2015.

Once a water body has been placed on the 303(d) list of impaired waters, states are required to develop a Total Maximum Daily Load (TMDL) to address each pollutant causing impairment. A TMDL defines how much of a pollutant a water body can tolerate and still meet water quality standards. TMDLs have been approved by US EPA for mercury in Lower San Francisco Bay.

The Basin Plan also contains water quality criteria for groundwater. The project site is within the Westside Groundwater Basin. Groundwater in this basin is generally of good quality; approximately 40 percent of the water sampled is characterized as bicarbonate waters.⁸ Groundwater generally meets drinking water standards with the exception of elevated nitrate-nitrogen concentrations in some wells.

⁸ California Department of Water Resources (DWR). *California's Groundwater Bulletin 118, Basins and Subbasins of the San Francisco Bay Hydrologic Region*. Accessed on November 26, 2014 at http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/2-35.pdf.

HYDROLOGY AND WATER QUALITY

Groundwater can become contaminated from the release of fuels from underground storage tanks or historical industrial activities. A review of the SWRCB's Geotracker website indicates that there currently are two active gasoline station remediation projects within the Specific Plan Area. The groundwater plumes do not extend to either of the TOD #1 or TOD #2 project sites. Further discussion of the cleanup sites can be found in Chapter 4.7, Hazards and Hazardous Materials, of this Draft EIR.

Flooding

Flood hazard zones are areas subject to flood hazards that are identified on an official Flood Insurance Rate Map (FIRM) issued by the Federal Emergency Management Agency (FEMA). Flooding can be earthquake induced or the result of intense rainfall. Areas within a 100-year floodplain have a 1 percent probability of flooding in a given year.

According to FIRM Map No. 06081C0132E, there are two areas designated as Zone A (i.e. subject to inundation in the event of a 100-year flood) that border the Specific Plan Area to the northwest and southwest.⁹ These areas coincide with the locations of the Highline Canal and the El Portal Canal, respectively.

The FEMA map indicates that the 100-year flood would be fully contained within the channels of these canals. Therefore, development within the Specific Plan Area will not be restricted or be subject to FEMA regulations. Parts of the Specific Plan Area between Millbrae Avenue and the El Portal Canal and north of Highway 101 lie within the 500-year floodplain; however, there are no FEMA or City restrictions on development in these areas. A map of the FEMA floodplain is provided as Figure 4.8-6.

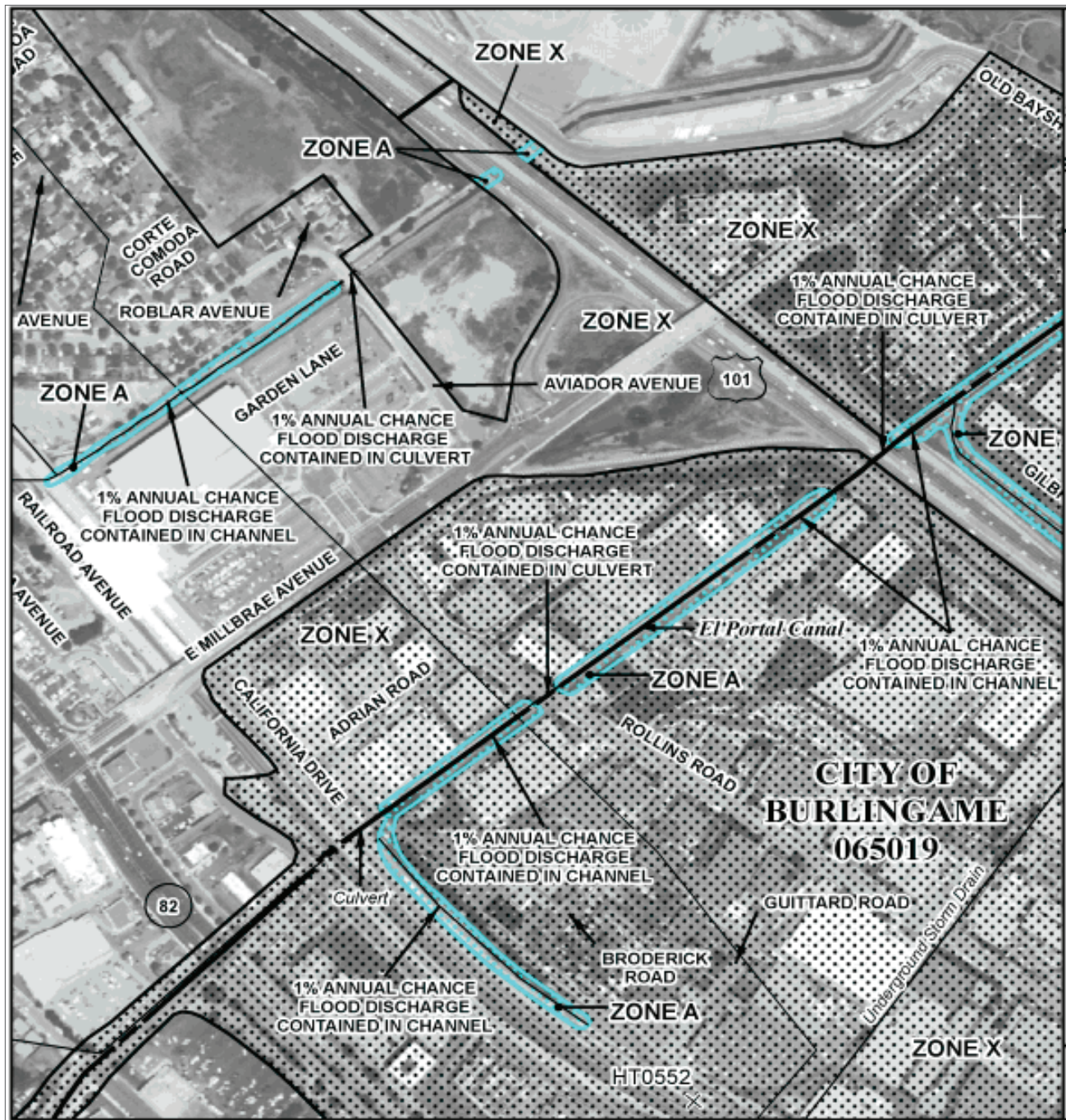
Dam Inundation

The California Office of Emergency Services (CalOES) has compiled dam inundation maps for the San Francisco Bay area.¹⁰ A review of these maps indicates that the Specific Plan Area is not located within a dam inundation zone. San Mateo County also provides a map showing dam failure inundation areas.¹¹ There are no mapped dam inundation areas within the City of Millbrae or the Specific Plan Area. Therefore, there will be no flooding impact from this potential hazard.

⁹ Federal Emergency Management Agency (FEMA). FIRM Map No. 06081C0132E. Dated October 16, 2012.

¹⁰ California Office of Emergency Services (CalOES), 2009. *Dam Inundation Registered Images and Boundary Files in Shape File Format. Version DVD 3*. Dated April 2009

¹¹ San Mateo County, 2015. *Dam Failure Inundation Areas*. Accessed at <http://planning.smcgov.org/documents/san-mateo-county-hazards-dam-failure-inundation-areas> on February 13, 2015.



Source: FEMA, Federal Emergency Management Agency, 2012.



Figure 4.8-6
FEMA Floodplain

HYDROLOGY AND WATER QUALITY

Seiche, Tsunami, and Mudflow

A tsunami is a large tidal wave generated by an earthquake, landslide, or volcanic eruption. Tsunami inundation maps have been developed for the San Francisco Bay area.¹² According to the Tsunami Inundation Map for San Mateo Quadrangle, the Specific Plan Area is not within the mapped tsunami inundation area. Therefore, it will not be subject to flooding from a tsunami.

Seiches are waves that oscillate in enclosed water bodies, such as reservoirs, lakes, ponds, swimming pools, or semi-enclosed bodies of water, such as San Francisco Bay. Although San Andreas Lake is located approximately 1.6 miles southwest from the Specific Plan Area, any flooding resulting from a seiche would not reach the Specific Plan Area because the predominant flow direction would be to the southeast and away from the site. Also, the topography and intervening structures between the lake and the Specific Plan Area would minimize any potential flooding impact. Seiches can also occur in water storage tanks due to oscillations that occur during earthquakes. These oscillations can cause bulging and failure of these tanks, resulting in flooding. There are no aboveground storage tanks within the Specific Plan Area or in close proximity to the Specific Plan Area; therefore, there would be no impact due to flooding from seiches associated with water tanks. Finally, semi-enclosed bodies of water, such as San Francisco Bay, can result in seiches due to earthquakes. However, since the Specific Plan Area is not within a tsunami inundation zone, it can also be assumed that a seiche in San Francisco Bay would not result in a significant impact.

A mudflow is a landslide composed of saturated rock debris and soil with a consistency of wet cement. The Project site is relatively flat and the interactive map by the Association of Bay Area Governments (ABAG) indicates that debris flows would not occur within or in the vicinity of the Specific Plan Area.¹³

Sea Level Rise

California Executive Order S-13-2008 states that all state agencies planning construction projects in areas vulnerable to sea level rise must consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and to the extent feasible, reduce expected risks to sea level rise.¹⁴ The Governor of California's Delta Vision Blue Ribbon Task Force adopted a sea level rise of 55 inches by 2100 for planning purposes. The San Francisco Bay Conservation and Development Commission (BCDC) in the latest amendment to the Bay Plan (October 2011), added new climate change findings and policies.¹⁵ The new amended policies cover protection from flooding, encourage innovative means of dealing with flood danger, and make it clear that local governments will determine how best to deal with development proposals inland of BCDC's jurisdiction. The

¹² California Emergency Management Agency, 2009. *Tsunami Inundation Map for Emergency Planning, San Mateo Quadrangle* Dated June 15, 2009.

¹³ Association of Bay Area Governments (ABAG), 2015. Interactive Map of Debris Flow Source Area. Accessed on February 13, 2015 at <http://gis.abag.ca.gov/website/Hazards/?hlyr=debrisFlowSource>.

¹⁴ State of California. *Executive Order S-13-08*. Accessed on February 16, 2015 at <http://gov.ca.gov/news.php?id=11036>.

¹⁵ San Francisco Bay Conservation and Development Commission (BCDC). *Resolution No. 11-08: Adoption of Bay Plan Amendment Adding New Climate Change Findings and Policies to the Bay Plan*. Accessed on February 16, 2015 at http://www.bcdc.ca.gov/proposed_bay_plan/10-01Resolution.pdf.

HYDROLOGY AND WATER QUALITY

BCDC has jurisdiction to regulate new development within 100 feet inland from the Bay shoreline. The Specific Plan Area is more than 100 feet from the Bay shoreline at its nearest location and would not be subject to BCDC jurisdiction. However, the potential of sea level rise on future development within the Specific Plan Area is still appropriate for further discussion.

Different scenarios and models used to predict sea level rise result in different estimates in the magnitude of sea level rise. Most shoreline damage from flooding will occur as a result of storm activity in combination with higher sea levels. The key factors that contribute to coastal flooding include high tides, storm surge, high waves, and high runoff rates from rivers and creeks.¹⁶

The Pacific Institute has produced sea level rise scenario maps for long range planning.¹⁷ Figure 4.8-7 shows the projected sea level rise for the Specific Plan Area. Most of the Specific Plan Area north of El Camino Real is susceptible to the projected sea level rise of 55 inches by 2100.

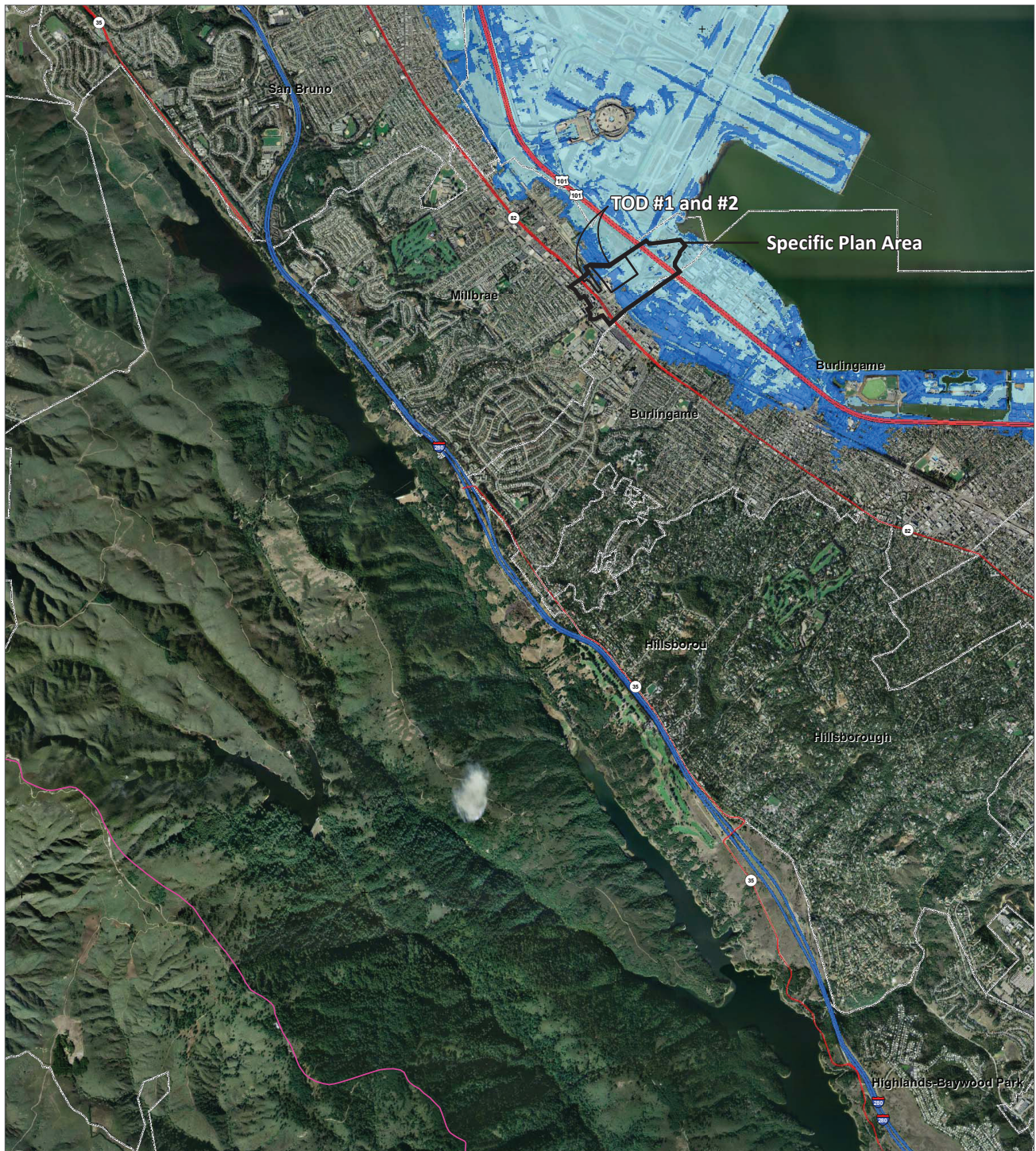
4.8.2 STANDARDS OF SIGNIFICANCE

The proposed Project would result in significant adverse impacts if it would:

1. Violate any water quality standards or waste discharge requirements.
2. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation, or flooding on- or off-site.
4. Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
5. Otherwise substantially degrade water quality.
6. Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map or place structures that would impede or redirect flood flows within a 100-year flood hazard area.
7. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.
8. Be subject to inundation by seiche, tsunami, or mudflow.

¹⁶ San Francisco BCDC, 2011. *Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline*.

¹⁷ Pacific Institute, 2009. *California Flood Risk: Sea Level Rise Montara Mountain Quadrangle and San Mateo Quadrangle*



Source: Pacific Institute, Oakland California, 2009.

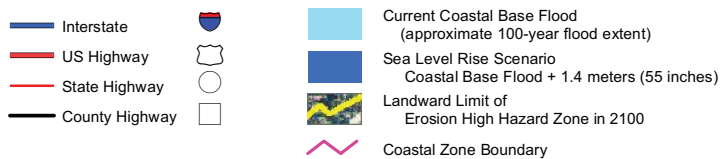


Figure 4.8-7
Projected Sea-Level Rise

HYDROLOGY AND WATER QUALITY

4.8.3 IMPACT DISCUSSION

HYDRO-1	The proposed Project would not violate any water quality standards or waste discharge requirements.
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Specific Plan Update

Urban runoff can carry a variety of pollutants, such as oil and grease, metals, sediment and pesticide residues from roadways, parking lots, rooftops, landscaped areas and deposit them into adjacent waterways via the storm drain system. Implementation of the Specific Plan Update will result in a total buildout of 1,653,340 square feet of office space, 275,110 square feet of retail space, 1,750 residential units, and 370 hotel rooms, which could create changes to water quality. Although most of the Specific Plan Area is already developed, increasing the total area of impervious surfaces can result in a greater potential to introduce pollutants to receiving waters. Construction activities could also result in the degradation of water quality, releasing sediment, oil and greases, and other chemicals to nearby water bodies.

Construction Impacts

Clearing, grading, excavation, and construction activities associated with development or redevelopment within the Specific Plan Area have the potential to impact water quality through soil erosion and increasing the amount of silt and debris carried in runoff. Additionally, the use of construction materials such as fuels, solvents, and paints may present a risk to surface water quality. Finally, the refueling and parking of construction vehicles and other equipment on-site during construction may result in oil, grease, or related pollutant leaks and spills that may discharge into the storm drain system.

To minimize these potential impacts, new and redevelopment projects that disturb one or more acres of land would be required to comply with the NPDES General Construction Permit (GCP) as well as prepare a Storm Water Pollution Prevention Plan (SWPPP) that requires the incorporation of Best Management Practices (BMPs) to control sedimentation, erosion, and hazardous materials contamination of runoff during construction. The GCP also requires that prior to the start of construction activities, the project applicant must file Permit Registration Documents (PRDs) with the SWRCB, which includes a Notice of Intent (NOI), risk assessment, site map, annual fee, signed certification statement, SWPPP, and post-construction water balance calculations. The SWPPP shall include BMPs for erosion and sediment control, site management/housekeeping/waste management, management of non-stormwater discharges, run-on and run-off controls, and BMP inspection, maintenance, and repair activities. The SWPPP shall also include a construction site monitoring program that identifies requirements for dry weather visual observations of pollutants at all discharge locations and as required sampling of site effluent and receiving waters. A Qualified SWPPP Practitioner (QSP) shall be responsible for implementing the BMPs at the site and performing all required monitoring and inspection/maintenance/repair activities. Prior to issuance of a grading permit, a copy of the project's NOI and SWPPP shall be submitted to the City for approval. A copy of the NOI and SWPPP shall also be kept on-site and made available for review by City inspectors upon request.

HYDROLOGY AND WATER QUALITY

The City also has strict rules regarding stormwater construction runoff. All projects must comply with the Chapter 9.45 of the Municipal Code, Grading, to minimize potential impacts to water quality. This requires obtaining a grading permit and preparation of an interim (construction) erosion control plan as well as a final (operational) erosion control plan. All projects, regardless of the amount of acreage disturbed, must incorporate all of the following BMPs, as per the provisions of the MRP and SMCWPPP's C.3 requirements:

Construction BMPs:

- Store, handle, and dispose of construction materials/wastes properly to prevent contact with stormwater
- Control and prevent discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, wash water or sediments, rinse water from architectural copper, and non-stormwater discharges to storm drains and watercourses
- Use sediment controls or filtration to remove sediment when dewatering and obtain all necessary permits
- Do not clean, fuel, or maintain vehicles on-site, except in a designated area where washwater is contained and treated
- Delineate with field markers clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and drainage courses
- Protect adjacent properties and undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers or filters, dikes, mulching, or other measures as appropriate
- Perform clearing and earth moving activities only during dry weather
- Limit and time applications of pesticides and fertilizers to prevent polluted runoff
- Limit construction access routes and stabilize designated access points
- Avoid tracking dirt or other materials off-site; clean off-site paved areas and sidewalks using dry sweeping methods
- Train and provide instruction to all employees and subcontractors regarding the construction BMPs.
- Attach the SMCWPPP's construction BMP plan sheet to project plans and require contractors to implement the applicable BMPs on the plan sheet

Erosion and Sedimentation Control BMPs:

- Stabilize all denuded areas and install and maintain all temporary erosion and sediment controls continuously between October 15th and April 15th of each year, until permanent erosion control has been established
- Divert on-site runoff around exposed areas; divert off-site runoff around the site (e.g. swales and dikes)
- Prevent erosion and trap sediment on-site, using BMPs such as sediment basins or traps, earthen dikes or berms, silt fences, check dams, soil blankets or mats, covers for soil stockpiles, and/or other measures.

HYDROLOGY AND WATER QUALITY

- Protect all storm drain inlets in the vicinity of the site using sediment controls such as berms, fiber rolls, or filters
- Provide notes, specifications, or attachments describing the following:
 - Construction, operation, and maintenance of erosion and sediment control measures, including inspection frequency
 - Methods and schedule for grading, excavation, filling, clearing of vegetation, and storage and disposal of excavated or cleared material
 - Specifications for vegetative cover and mulch, including methods and schedules for planting and fertilization
 - Provisions for temporary and/or permanent irrigation.

With implementation of the City's grading requirements and installation of the BMPs specified in the SMCWPPP's C.3 requirements and SWPPP, construction impacts to water quality as a result of future development under the Specific Plan Update would be *less than significant* and no mitigation measures are required.

Operational Impacts

Runoff from buildings, parking lots, and residential developments typically contain oils, grease, fuel, antifreeze, byproducts of combustion (such as lead, cadmium, nickel, and other metals), as well as fertilizers, herbicides, pesticides, and other pollutants. Precipitation at the beginning of the rainy season may result in an initial stormwater runoff (first flush) with high pollutant concentrations.

Water quality in stormwater runoff is regulated locally by the SMCWPPP, which include the C.3 provisions set by the San Francisco Bay RWQCB. The San Mateo Countywide NPDES permit was amended in 2009 and now includes stricter requirements for incorporating post-construction stormwater control/LID measures into new development and redevelopment projects. All new and redevelopment projects must incorporate site design, source control, and treatment measures to the maximum extent practicable and to use stormwater control measures that are technically feasible and not cost prohibitive. Also, each project regulated under the C.3 provisions must treat 100 percent of the amount of runoff for the project's drainage area with on-site Low Impact Development (LID) treatment measures. Stormwater treatment requirements must be met by using evapotranspiration, infiltration, rainwater harvesting, and reuse. Where this is infeasible, landscape-based biotreatment is allowed.

All new development or redevelopment projects that would create and/or replace more than 10,000 square feet of impervious surface would be classified as Regulated Projects and would be subject to the C.3 provisions of the NPDES permit, requiring site design, source control, and treatment control measures. In addition, all Special Land Use Category Projects, such as uncovered parking areas, which add or create 5,000 square feet or more of impervious surface, would also require stormwater treatment. Redevelopment projects that would replace 50 percent or less of the existing impervious surface at the site would only need to treat stormwater runoff from the portion of the site that is redeveloped. Small projects that create and/or replace 2,500 square feet but less than

HYDROLOGY AND WATER QUALITY

10,000 square feet of impervious surface or individual single family home projects that create and/or replace 2,500 square feet or more of impervious surface would be required to incorporate site design measures to the maximum extent practicable. The site design measures, source control measures, and treatment control measures for new and redevelopment project are listed as follows:

Site Design Measures:

- Protect sensitive areas, including wetland and riparian areas, and minimize changes to the natural topography
- Minimize land disturbance and impervious surfaces (especially parking lots)
- Minimize impervious areas from being directly connected to the storm drain system (e.g. direct runoff from roof downspouts and other impervious surfaces to landscaped areas where feasible)
- Install rain barrels or cisterns to capture and use rainwater for irrigation and other non-potable use
- Design areas of “micro-detention” in landscaping to retain rainfall runoff onsite, where appropriate
- Maximize permeability by clustering development and preserving open space, where appropriate
- Concentrate development density, where appropriate, to reduce impervious surface on a watershed basis
- Use permeable pavement surfaces where feasible
- Use “Bay-Friendly” landscape design (see example at www.bayfriendly.org).

Source Control Measures:

- Mark on-site inlets with the words “No Dumping! Flows to Bay” or equivalent
- Retain existing vegetation as practicable
- Select diverse species appropriate to the site. Include plants that are pest- and/or disease-resistant, drought-tolerant, and/or attract beneficial insects
- Minimize use of pesticides and quick-release fertilizers
- Use efficient irrigation system; design to minimize runoff
- Provide connection for pool, spa, or fountain to drain to the sanitary sewer
- Provide a roofed and enclosed area for dumpsters, recycling containers, etc., designed to prevent stormwater run-on and runoff
- Connect any drains in or beneath dumpsters or compactors to the sanitary sewer
- Roof, pave, and berm wash areas to prevent stormwater run-on and runoff, plumb to sanitary sewer, and sign as a designated wash area

HYDROLOGY AND WATER QUALITY

- Cover outdoor equipment/material storage areas or design to avoid pollutant contact with stormwater runoff
- Locate outdoor equipment/material storage areas only on paved and contained areas
- Roof storage areas that will contain non-hazardous liquids, drain to sanitary sewer, and contain by berms or similar measure
- Cover and/or grade loading docks to minimize run-on and runoff from the loading areas
- Position downspouts to direct stormwater away from the loading area
- Drain water from loading docks to the sanitary sewer
- Install door skirts between the trailers and the buildings
- Perform operational source controls, such as street sweeping and regular inspection and cleaning of storm drain inlets.

Besides incorporating site control and source control measures, Regulated Projects must all enter an agreement of responsibility and funding for ongoing operation and maintenance of stormwater treatment measures. These treatment control measures must be consistent with the Vector Control Plan requirements provided in Appendix F of the C.3 Technical Guidelines. The design volume of stormwater runoff must be infiltrated, evapotranspired, and/or captured and reused, unless the City determines it is infeasible based on criteria and procedures it develops, in which case biotreatment, but not vault-based treatment, may be used. The stormwater treatment measures must be hydraulically sized, using one of the following:

- Flow-based treatment measure sized to manage the flow of runoff produced by a rain event equal to at least 0.2 inches per hour
- Volume-based treatment measure sized to capture 80 percent or more of the volume of annual runoff, using local rainfall data
- Treatment measure using a combination of flow and volume capacity, sized to treat 80 percent or more of the total runoff over the life of the project, using local rainfall data.

Potential treatment measures include the following:

- Vegetated swale or vegetated buffer strip
- Tree well filter (allowed only for Special Projects)
- Flow-through planter box
- Bioretention area/rain garden
- Infiltration trench
- Green roof
- Hydrodynamic separator (as part of multi-step process)

HYDROLOGY AND WATER QUALITY

- Manufactured drain insert (as part of multi-step process)
- Detention basin
- Pervious pavement
- Subsurface infiltration systems
- Rainwater harvesting and reuse

In addition, the City has rules as specified in the *Stormwater Management and Discharge Control Ordinance* (Municipal Code 8.70), which requires the implementation of BMPs for all projects that may cause or contribute to stormwater pollution or contamination, in accordance with the MRP and SMCWPPP C.3 provisions.

Required compliance with the C.3 provisions of the MRP, the City's ordinances and regulations, and implementation of site design, source control, and treatment control measures with development of projects within the Specific Plan Area would result in *less than significant* operational impact to water quality and no mitigation measures are required. In summary, there would be no significant impacts to water quality from future development associated with implementation of the Specific Plan Update.

Significance Without Mitigation: Less than significant.

TOD #1 Project

Implementation of the proposed TOD #1 project would result in the development of 267,000 square feet of office space, 32,000 square feet of retail space, and 500 residential units. The area is already built out but would result in the replacement of existing impervious surfaces. As such, new and redevelopment projects that disturb one or more acres of land would be required to comply with the NPDES General Construction Permit (GCP) as well as prepare Permit Registration Documents (PRDs) and a Storm Water Pollution Prevention Plan (SWPPP) for submittal to the SWRCB. Also, post-construction stormwater treatment measures would be required for all regulated projects creating or replacing 10,000 square feet or more of impervious surface. As such, the projects would be required to comply with the C.3 provisions of the MRP and the City's ordinances and regulations. As described in more detail above in Impact HYDRO-1, Specific Plan Update discussion, new development within the TOD #1 project site would not result in a significant impact to water quality for either the construction or operational phases of the project.

Significance Without Mitigation: Less than significant.

TOD #2 Project

Implementation of the proposed TOD #2 project would result in the development of 164,535 square feet of office space, 46,935 square feet of retail space, 321 residential units, and 116 hotel rooms. The area is already built out and covered with essentially 100 percent of impervious surfaces. New and redevelopment projects within the Specific Plan Area that disturb one or more acres of land would be required to comply with the NPDES General Construction Permit (GCP) as well as prepare Permit Registration Documents (PRDs) and a Storm Water

HYDROLOGY AND WATER QUALITY

Pollution Prevention Plan (SWPPP) for submittal to the SWRCB. Also, post-construction stormwater treatment measures would be required for all regulated projects creating or replacing 10,000 square feet or more of impervious surface. As such, the projects would be required to comply with the C.3 provisions of the MRP and the City's ordinances and regulations. As described in more detail above in Impact HYDRO-1, Specific Plan Update discussion, new development within the TOD #2 project site would not result in a significant impact to water quality for either the construction or operational phases of the project.

Significance Without Mitigation: Less than significant.

HYDRO-2	The proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
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Specific Plan Update

New construction could result in impacts related to groundwater if the construction would require dewatering or reduce groundwater recharge. Groundwater recharge may be reduced if areas currently available for the infiltration of rainfall runoff are reduced and permeable areas are replaced by impermeable surfaces. Although development within the Specific Plan Area would involve the creation of approximately 2 million square feet of office and retail space as well as 1,750 residential units and 370 hotel rooms, the area is already built out with commercial, industrial, and multi-family residential land uses. Therefore, there should be no significant increase in the amount of impervious surface at the site and therefore no reduction in groundwater recharge.

Buildout of the proposed Specific Plan Area would lead to an increased demand for water, which could impact groundwater supplies. Although the Specific Plan Area is located within the South Westside Groundwater Basin, the City uses only surface water supplied by the SFPUC to serve its customers and does not supplement this supply with groundwater. There are no municipal groundwater wells within the city limits and future groundwater supplies are not considered in the City's near term water supply planning. Therefore, development within the Specific Plan Area would have a *less-than-significant* impact on groundwater supply and no mitigation measures are required.

Grading, cut-and-fill activities, and building construction within the Specific Plan Area may encounter shallow groundwater. According to information from remedial investigations within the Specific Plan Area, the depth to groundwater for the shallow perched aquifer ranges from about 4 feet to 20 feet below ground surface (bgs).¹⁸ Therefore, temporary construction dewatering may be necessary. However, this is not anticipated to adversely impact groundwater resources because required excavations would intersect only the shallow groundwater table and dewatering would be a temporary occurrence. There are no municipal groundwater wells within the Specific

¹⁸ SWRCB, 2015. *Geotracker Data Base* accessed on February 13, 2015 at <http://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=millbrae%2C+ca>.

HYDROLOGY AND WATER QUALITY

Plan Area. A Waste Discharge Requirement (WDR) permit would be required from the San Francisco Bay RWQCB for construction dewatering activities and the WDR permit would require testing to ensure that discharged water did not pose a risk to water quality. In summary, the impact of future development under the Specific Plan Update on groundwater supplies or groundwater recharge would be *less than significant* and no mitigation measures are required.

Significance Without Mitigation: Less than significant.

TOD #1 Project

The discussion provided above in Impact HYDRO-2, Specific Plan Update, is applicable to the proposed TOD #1 project. The impact of the proposed TOD #1 project on groundwater recharge and supply is *less than significant* and no mitigation measures are required.

Significance Without Mitigation: Less than significant.

TOD #2 Project

The discussion provided above in Impact HYDRO-2, Specific Plan Update, is applicable to the proposed TOD #2 project. The impact of the proposed TOD #2 project on groundwater recharge and supply is *less than significant* and no mitigation measures are required.

Significance Without Mitigation: Less than significant.

HYDRO-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, in a manner which would result in substantial erosion, siltation, or flooding on- or off-site.
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Specific Plan Update

The Specific Plan Update would involve redevelopment of an already built out area that is currently connected to the City's storm drain system. Future development under the Specific Plan Update would not involve the alteration of any natural drainage channels or any watercourse. It also would not significantly alter existing drainage patterns other than creating additional internal storm drains to convey runoff to the existing storm drain system and adding new stormwater treatment measures.

New development within the Specific Plan Area would require grading or soil exposure during construction. If not controlled, the transport of these materials into local waterways could temporarily increase suspended sediment concentrations. To minimize this impact, all future project applicants would be required to comply with all of the requirements of the State GCP, including preparation of PRDs and submittal of a SWPPP to the SWRCB prior to the start of construction activities.

HYDROLOGY AND WATER QUALITY

The implementation of BMPs during the construction phase would include the following measures to minimize erosion and siltation:

- Minimize disturbed areas of the site.
- Implement dust control measures, such as silt fences and regular watering of open areas.
- Stabilize construction entrances/exits.
- Install storm drain inlet protection measures.
- Install sediment control measures around the site, including gravel bag barriers.

Compliance with the established permits and regulations would ensure that impacts from erosion and siltation both on- and off-site would be *less than significant* and no mitigation measures are required.

The Specific Plan Area is already developed and implementation of new development within this area is expected to generate less stormwater runoff than existing conditions because of the requirements to comply with San Mateo County's C.3 provisions of the MRP. These provisions require BMPs to be implemented which incorporate site design, source control, and treatment control measures that provide both flow control and treatment to runoff before it enters the storm drain system. Although stormwater treatment measures for the entire Specific Plan Area have not yet been designed, bioretention BMPs typically treat and regulate flow by gradually releasing stormwater to the storm drain system, thus ensuring that there is no significant increase in runoff from the site. As a result, implementation of the Specific Plan update would not result in on-site and/or off-site flooding. A change in the timing and volume of runoff from a site is called "hydromodification." Projects that are in susceptible areas, as defined in the SMCWPPP, are required to incorporate one or more hydromodification management (HM) measures in the design. The Specific Plan Area is not located in a hydromodification area, as shown on the City of Millbrae maps in the San Mateo County *C.3 Stormwater Technical Guidance* document, and therefore HM measures are not required.¹⁹

With the implementation of site BMPs, the construction of bioretention treatment areas, and no significant increase in the amount of impervious surface, new development within the Specific Plan Area would not increase the rate or amount of surface runoff in a manner that would cause flooding. In addition, the City requires compliance with Chapter 8.70 of the Municipal Code, *Stormwater Management and Discharge Control*, and the implementation of BMPs for new development and redevelopment projects. Also, the Municipal Code, Chapter 9.45, *Grading*, requires submittal and approval of a grading permit prior to the start of construction activities that must include an interim and final erosion and sediment control plan and a final landscaping and irrigation plan. This minimizes the potential for erosion or siltation during construction. In summary, impacts related to erosion, siltation, and flooding with development within the Specific Plan Area are *less than significant* and no mitigation measures are required.

Significance Without Mitigation: Less than significant.

¹⁹ San Mateo Countywide Water Pollution Prevention Program, 2014. *C.3 Stormwater Technical Guidance. Version 4.1*. Dated October 2014.

HYDROLOGY AND WATER QUALITY

TOD #1 Project

The proposed TOD #1 project proposes new mixed-use development including office, retail, residential, underground parking, a plaza, and an enclosed galleria retail corridor that connects Serra Avenue to the Millbrae Station platform. The TOD #1 project site is already developed and there should be no significant change in drainage areas and runoff coefficients as compared to existing conditions. In addition, post-construction stormwater treatment measures and the use of LID design strategies are required for new development, as per the MRP and SMCWPPP C.3 provisions. Disturbance of one acre or more of land also requires submittal of a SWPPP and implementation of erosion and sediment control measures to minimize the potential impacts during construction activities. As such, the impacts related to erosion, siltation, and flooding within the TOD #1 project site are *less than significant* and no mitigation measures are required.

Significance Without Mitigation: Less than significant.

TOD #2 Project

The proposed TOD #2 project proposes a mixed-use project including office, multi-family residential, retail, and hotel uses in addition to a new surface parking lot for BART passengers on a parcel currently used as the City's storage yard. The TOD #2 project site is built out and essentially 100 percent impervious. With implementation of proposed stormwater treatment control measures, as shown in Figure 4.8-8, the amount of stormwater runoff leaving the TOD #2 project site would be less than under existing conditions. The proposed stormwater treatment measures include biotreatment facilities collecting runoff from the parking areas and media filters in the storm drain catch basins in other areas of the site. The biotreatment facilities exceed the required capacities specified in the C.3 provisions and the implementation of these stormwater control measures should minimize the potential for siltation and excessive runoff from the site. Also, the NPDES requirements to prepare a SWPPP and the City's requirements to submit an erosion and sediment control plan prior to the issuance of a grading permit would minimize the potential impacts during construction activities. As such, the impacts related to erosion, siltation, and flooding within the TOD #2 project site are *less than significant* and no mitigation measures are required.

Significance Without Mitigation: Less than significant.

HYDRO-4	The proposed Project would not 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.
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Specific Plan Update

Urban development has two potential impacts to stormwater runoff hydrology. Impervious surfaces, such as roads, sidewalks, and buildings prevent the natural infiltration of stormwater into the soil and thus create higher runoff volumes. In addition, more rapid transport of runoff over impervious surfaces combined with higher runoff volumes cause elevated peak flows. This increase in flows may adversely impact stormwater drainage systems.

HYDROLOGY AND WATER QUALITY

The Specific Plan Area is connected to the City's existing storm drain system via an internal network of 12-inch to 30-inch pipes that convey flow to larger trunk lines beneath Millbrae Avenue or discharge into the adjacent canals to the northwest and southeast. The Specific Plan Area is already built out with impervious surface and the proposed development should not significantly increase the amount of runoff from the site, especially with the requirement to implement C.3 stormwater control provisions. Under the proposed Specific Plan Update, some existing storm drain culverts will be relocated and new interior storm drain collector systems would be required. Since the Specific Plan Area is almost completely built out, the drainage areas and runoff coefficients would remain similar to existing conditions.

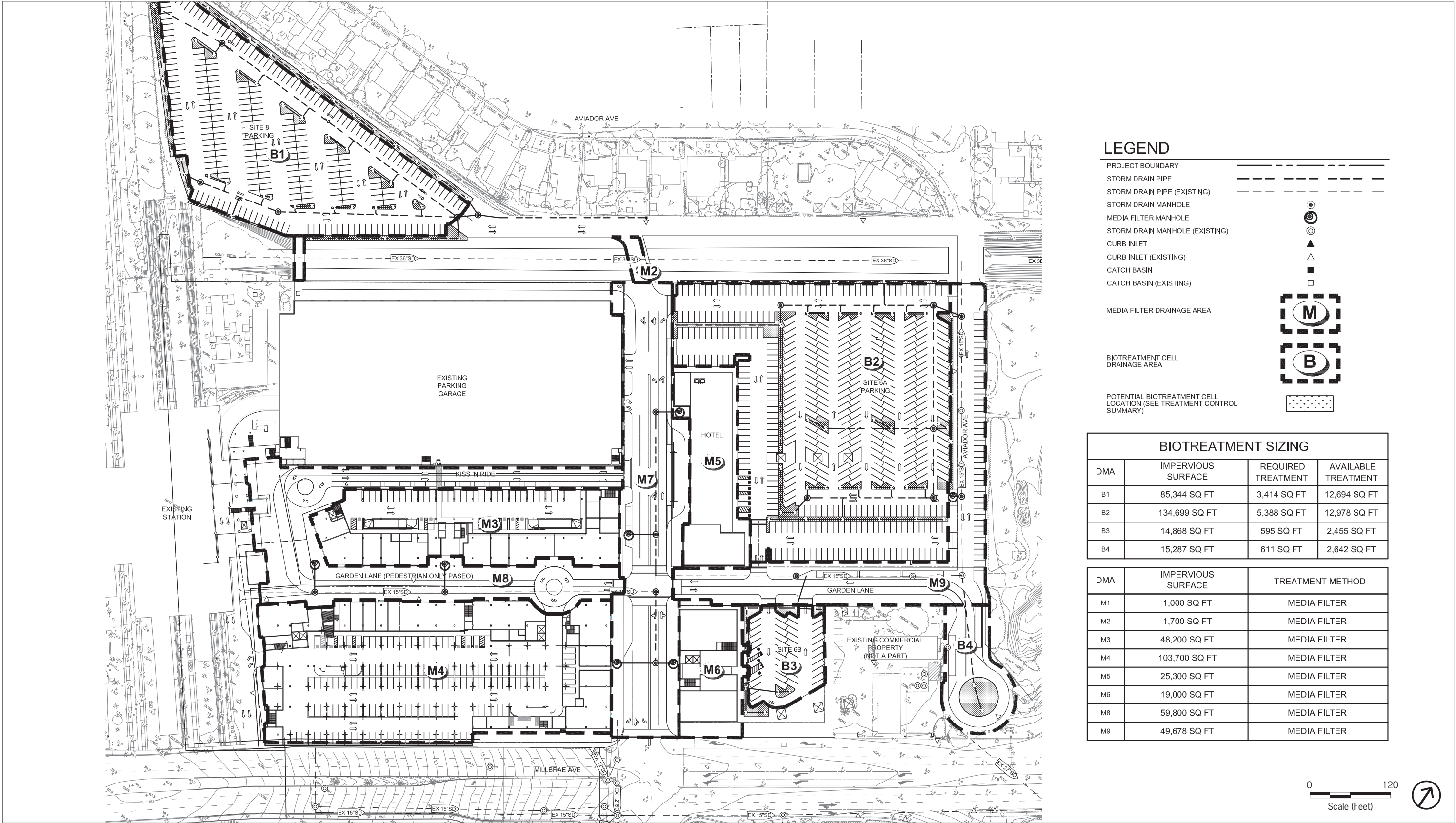
In addition, new development and redevelopment within the Specific Plan Area must comply with the SMCWPPP C.3 provisions and submit preliminary grading/drainage plans to the City for approval prior to the start of construction. Although detailed design calculations have not yet been prepared for the entire Specific Plan Area, compliance with C.3 provisions would result in less stormwater runoff being discharged to the storm drain system. Also, the installation of stormwater treatment measures would treat and further reduce the volume and flow rates of stormwater runoff from the Specific Plan Area. Potential BMPs include treatment and filtration facilities. With implementation of these requirements, there would be no significant increase in site runoff as compared to existing (pre-development) conditions. With the proposed storm drain improvements in the proposed TOD #1 and TOD #2 projects, as described below and in the previous sections, along with compliance with C.3 provisions in other parts of the Specific Plan Area, the existing storm drain system would be able to handle the stormwater flow from the Specific Plan Area and the impact to stormwater drainage systems would be *less than significant* and no mitigation measures are required.

Significance Without Mitigation: Less than significant.

TOD #1 Project

Implementation of the proposed TOD #1 project would result in 267,000 square feet of office, space, 32,000 square feet of retail space, and 500 residential units. The proposed TOD #1 project site is currently built out and developed with impervious surface and there would be no significant increase in stormwater runoff. However, the project applicant is proposing improvements to the existing storm drain system by relocating the existing 4-foot by 11-foot box culvert that cuts through the TOD #1 project site and adding a new surface drainage inlet structure in the north corner of the site. The relocated box culvert and the new 4-foot by 11-foot box culvert from the new inlet structure would be connected to the existing culverts under the BART/Caltrain railroad tracks. These existing culverts have sufficient capacity to carry the 100-year storm event. The location of the proposed storm drain structures is provided in Figure 4.8-3.

HYDROLOGY AND WATER QUALITY



Source: Republic Millbrae LLC; HMM.

Figure 4.8-8
TOD #2 Stormwater Control Measures

HYDROLOGY AND WATER QUALITY

In addition, implementation of the proposed TOD #1 project would require compliance with the SMCWPPP C.3 provisions and the installation of site design, source control, and treatment control measures, including LID, which would reduce the amount of stormwater runoff from the site. Although detailed design of these measures have not yet been developed, the City requires submittal of the NPDES Permit Impervious Surface Data Collection Worksheet for each new development or redevelopment project that creates and/or replaces 10,000 square feet of impervious surface as part of the plan approval process. All stormwater treatment measures must be sized in accordance with the C.3 Technical Guidance and an agreement of responsibility and funding for ongoing operation and maintenance of these measures must be included. For the construction phase of the proposed TOD #1 project, developers within the TOD #1 project site that disturbs one acre or more must submit PRDs and a SWPPP to the SWRCB as well as an erosion and sediment control plan and preliminary grading/drainage plans to the City. These documents will ensure that the capacity of the existing storm drain system will not be exceeded and that there are no additional substantial sources of polluted runoff. As such, the impacts to the existing storm drain system and water quality would be *less than significant* and no mitigation measures are required.

Significance Without Mitigation: Less than significant.

TOD #2 Project

Implementation of the proposed TOD #2 project would result in 164,535 square feet of office, space, 46,935 square feet of retail space, 321 residential units, a 116-room hotel, and additional parking lots. The TOD #2 project site is currently built out and developed with impervious surface so there would be no significant increase in stormwater runoff. There is an existing storm drain network within the area, including a 36-inch line that runs under the Highline Canal, a 15-inch storm drain beneath Garden Lane pedestrian paseo, and a 15-inch storm drain beneath Aviator Avenue. Proposed development within the TOD #2 project site includes construction of a new internal storm drain network and the installation of various biotreatment areas and storm drain manhole media filter inserts. Numerous biotreatment areas would be located within the proposed parking lots and at the cul-de-sac at the end of Aviator Avenue with new storm drains connecting these facilities to the existing storm drain system. The proposed stormwater treatment measures for the TOD #2 project are shown in Figure 4.8-8. The rest of the Specific Plan Area would include new interior storm drains that connect to the existing 15-inch storm drain system beneath Garden Lane and each new storm drain manhole would be equipped with a media filter insert. A new 15-inch storm drain is also proposed beneath Rollins Road. The location and layout for the proposed storm drain system for the proposed TOD #2 project is shown in Figure 4.8-4 and the stormwater control measures are shown in Figure 4.8-8.

Compliance with the SMCWPPP C.3 provisions, the installation of site design, source control, and treatment control measures, and the construction of additional storm drainage features would ensure that the proposed development would not exceed the carrying capacity of the existing storm drain system. Also, compliance with the NPDES permit requirements, preparation of a SWPPP, and preparation of erosion and sediment control plans for submittal to the City prior to the start of construction would ensure that no additional substantial sources of polluted runoff would occur during construction. As such, the impacts to the existing storm drain system and water quality would be *less than significant* and no mitigation measures are required.

Significance Without Mitigation: Less than significant.

HYDROLOGY AND WATER QUALITY

HYDRO-5	The proposed Project would not otherwise substantially degrade water quality.
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Specific Plan Update

Pollutants commonly associated with construction sites that can impact stormwater are sediments, nutrients, trace metals, pesticides, oil, grease, fuels, and miscellaneous construction wastes. Pollutants generated from the operational phase of future development under the Specific Plan Update may include sediment, nutrients, organic compounds, trash and debris, oxygen-demanding substances, bacteria and viruses, oil and grease, and pesticides/herbicides.

As required by the City and San Mateo County C.3 provisions, Best Management Practices (BMPs) must be implemented within the Specific Plan Area during both the construction and operational phases of the Project. These BMPs will control and prevent the release of sediment, debris, and other pollutants into the storm drain system. Implementation of BMPs during construction will be in accordance with the provisions of the SWPPP, which will minimize the release of sediment, soil, and other pollutants, and the applicant will be required to submit an erosion and sediment control plan to the City for approval prior to the start of construction. Operational BMPs will be required to meet the C.3 provisions of the SMCWPPP. These requirements include the incorporation of site design, source control, and treatment control measures to treat and control runoff before it enters the storm drain system. These include bioretention and biotreatment features that will also reduce the volume and improve the quality of stormwater runoff.

With implementation of these BMPs in accordance with the City's ordinances and SMCWPPP C.3 requirements, the potential impact on water quality will be *less than significant* and no mitigation measures are required.

Significance Without Mitigation: Less than significant.

TOD #1 Project

As stated above in Impact HYDRO-5, Specific Plan Update discussion, BMPs would be implemented within the TOD #1 project site during the construction phase of the proposed TOD #1 project to control and prevent the release of sediment, debris, and other pollutants into the storm drain system, as per the requirements of the GCP and SWPPP. Operational BMPs will be required to meet the C.3 provisions of the SMCWPPP. These requirements include the incorporation of site design, source control, and treatment control measures to treat and control runoff before it enters the storm drain system. Compliance with these requirements would result in a *less than significant* impact to water quality and no mitigation measures are required.

Significance Without Mitigation: Less than significant.

TOD #2 Project

The potential impacts to water quality with implementation of the proposed TOD #2 project would be the same as described above in Impact HYDRO-5, Specific Plan Update discussion and the proposed TOD #1 project.

HYDROLOGY AND WATER QUALITY

Therefore, compliance with the SWPPP and C.3 provisions of the SMCWPPP would result in *less than significant* impacts to water quality for development of the proposed TOD #2 project and no mitigation measures are required.

Significance Without Mitigation: Less than significant.

HYDRO-6	The proposed Project would not place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, or place within a 100-year flood hazard area structures which would impede or redirect flood flows.
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Specific Plan Update

The entire Specific Plan Area is within FEMA flood hazard Zone X, which means that it is outside of the 100-year floodplain. There are two areas designated as Zone A (i.e. subject to inundation in the event of a 100-year flood) that border the Specific Plan Area to the northwest and southwest.²⁰ These areas coincide with the locations of the Highline Canal and the El Portal Canal, respectively. However, the FEMA map indicates that the 100-year flood would be fully contained within the channels of these canals. Therefore, development within the Specific Plan Area will not place structures within a 100-year floodplain and there will be *no impact* associated with this threshold of significance and no mitigation measures are required.

Significance Without Mitigation: No impact.

TOD #1 Project

The TOD #1 project site is not within a 100-year or 500-year floodplain and there are no canals that border the Specific Plan Area. No housing or structures will be placed within a 100-year floodplain and there is *no impact* associated with flooding and no mitigation measures are required.

Significance Without Mitigation: No impact.

²⁰ Federal Emergency Management Agency (FEMA). FIRM Map No. 06081C0132E. Dated October 16, 2012.

HYDROLOGY AND WATER QUALITY

TOD #2 Project

There is an area within the TOD #2 project site that is designated as a 100-year floodplain. However, the designated floodplain area is entirely within the confines of the Highline Canal. In addition, the FEMA floodplain map indicates that during a 100-year storm event, all flood discharge would be contained within the confines of the Highline Canal channel. No housing or structures would be placed within a 100-year floodplain and there is *no impact* associated with flooding; no mitigation measures are required.

Significance Without Mitigation: No impact.

HYDRO-7	The proposed Project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.
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Specific Plan Update

A review of Cal OES dam inundation maps indicates that the Specific Plan Area is not located within a dam inundation zone. San Mateo County also has maps showing dam failure inundation areas within the County. There are no mapped dam inundation areas within the city or within the Specific Plan Area. Accordingly, there would be *no impact* associated with this potential hazard and no mitigation measures are required.

Significance Without Mitigation: No impact.

TOD #1 Project

There are no dam inundation areas or levees within the TOD #1 project site. Accordingly, there would be *no impact* associated with this potential hazard and no mitigation measures are required.

Significance Without Mitigation: No impact.

TOD #2 Project

There are no dam inundation areas or levees within the TOD #2 project site. Accordingly, there would be *no impact* associated with this potential hazard and no mitigation measures are required.

Significance Without Mitigation: No impact.

HYDROLOGY AND WATER QUALITY

HYDRO-8 The proposed Project would not be inundation by seiche, tsunami, or mudflow.

Specific Plan Update

According to the Tsunami Inundation Map for San Mateo Quadrangle, the Specific Plan Area is not within the mapped tsunami inundation area. Therefore, it will not be subject to flooding from a tsunami. There are no nearby reservoirs or aboveground storage tanks that could result in a seiche impacting the Specific Plan Area, and if a seiche were to occur in San Francisco Bay, it would not impact the Specific Plan Area, because the impact would not extend beyond the tsunami inundation zone. The Specific Plan Area is relatively flat and the ABAG debris flows map shows that debris flows would not occur within or in the vicinity of the Specific Plan Area. Accordingly, there would be *no impact* associated with this potential hazard and no mitigation measures are required.

Significance Without Mitigation: No impact.

TOD #1 Project

Because there is no potential for tsunamis, seiches, or mudflows within the Specific Plan Area, there also is no potential for these hazards to occur within the TOD #1 project site. Accordingly, there would be *no impact* associated with this potential hazard and no mitigation measures are required.

Significance Without Mitigation: No impact.

TOD #2 Project

Because there is no potential for tsunamis, seiches, or mudflows within the Specific Plan Area, there also is no potential for these hazards to occur within the TOD #2 project site. Accordingly, there would be *no impact* associated with this potential hazard and no mitigation measures are required.

Significance Without Mitigation: No impact.

4.8.4 CUMULATIVE IMPACTS

HYDRO-9 The proposed Project, in combination with past, present, and reasonably foreseeable projects, would result in less than significant cumulative impacts with respect to water quality.

Development of the Specific Plan Area in conjunction with construction activities, increases in impervious surfaces, and alterations to drainage patterns associated with other development within the city could increase stormwater runoff and contribute to decreased water quality in receiving waters. However, the Specific Plan Area is located in an area that is already built out and is not expected to generate stormwater runoff in excess of present

HYDROLOGY AND WATER QUALITY

volumes. All new development or redevelopment projects in the city would also be required to comply with San Mateo County's C.3 provisions that require BMPs to be implemented. These BMPs include site design, source control, and treatment control measures that provide both flow control and treatment to runoff before it enters the storm drain system. As a result, impacts to stormwater flow volumes and water quality will be less than significant.

Given the developed nature of the surrounding area and the requirement for all projects to implement site BMPs, the volume, velocity, and peak runoff quantities of runoff to the storm drain system associated with other projects within the City should not be substantially different from pre-project conditions. Therefore, cumulative impacts to hydrology and water quality would be *less than significant*

Significance Without Mitigation: Less than significant.