3.5 HYDROLOGY AND WATER QUALITY

Introduction

This section discusses local and regional hydrology, including existing drainage facilities, flood hazards, water quality, erosion and sedimentation, and groundwater issues such as quantity, quality, availability, and recharge. Implementation of the proposed project could affect hydrology and water quality in the project area.

During the June 4, 2007 public scoping meeting before the Planning Commission, a commentor requested that the DEIR include consideration of the impacts of potential sea level rise at the project site. This issue is addressed in this section. No other hydrology and water quality issues were identified at the scoping meeting or in comment letters responding to the Notice of Preparation (see Appendix C). The Initial Study prepared for the project (see Appendix B) determined that the project would not place housing within a 100-year floodplain, because the project does not include a housing component, or result in an increased risk of inundation by seiche, tsunami, or mudflow. Therefore these issues are not addressed in this section.

Information presented in this section is based on the 2009 Preliminary Hydrology Report prepared for the Menlo Gateway development application ("Preliminary Hydrology Report," Philip Williams and Associates), the 2004 San Francisco Bay Basin Water Quality Control Plan ("Basin Plan," San Francisco Bay Regional Water Quality Control Board [RWQCB]), the 2005 Urban Water Management Plan ("UWMP," City of Menlo Park), the 2003 Citywide Storm Drainage Study ("Storm Drainage Study," City of Menlo Park), the 2006 Annual Water Quality Report (City of Menlo Park), the 2007 Grading and Drainage Guidelines and Checklist ("Drainage Guidelines," City of Menlo Park), and additional reference materials as noted in the text (e.g., USGS Topomaps, climate information).

Setting

Location

The project area is located in the City of Menlo Park near the US 101/Marsh Road interchange. The project area includes two sets of parcels that comprise the Independence site and the Constitution site. The Constitution site is approximately 8.9 acres and the Independence site is approximately 7.1 acres, for a total area of 16 acres. The project area falls within the U.S. Geological Survey (USGS) Palo Alto 7.5-minute series topographic quadrangle.

Regional Hydrology and Drainage

The project area is within a narrow alluvial plain defined by the Santa Cruz Mountains (to the west) and the San Francisco Bay (to the east). The project area has an elevation of about 5 feet above mean

sea level (msl), slopes gently to the north,[1] and is underlain by fill material.[2] The project area is in a developed area of the City and a majority of the ground surface is covered by pavement (roads and parking lots) and structures (office and commercial buildings). The total impervious area is approximately 11.4 acres, approximately 71 percent of the total site area.[3] The undeveloped portion of the project area includes two vacant parcels and areas of lawn and landscaping adjacent to roads and buildings.

The City has a Mediterranean climate characterized by dry, relatively cool summers and wet, mild winters. The City receives an average annual rainfall of approximately 15.5 inches per year, with most of the rainfall (89 percent) occurring from November through April.[4]

The project area is located within the Atherton Channel drainage basin. The Atherton Channel is a lined channel[5] that carries flow from the upper reaches of Atherton Creek, running in a south-north direction for approximately seven miles before draining into Flood Slough north of the Bayfront Expressway.[6] The Atherton Channel is approximately 400 feet west of the project area. Flood Slough flows east from a point of origin on the north side of the Bayfront Expressway, approximately 50 feet from the project area. Flood Slough is one of many sloughs that run through the salt ponds and salt marsh flats north of Bayfront Expressway and that interact with flow from San Francisco Bay. After passing through the salt marsh flats for approximately three miles (including channel meanders), Flood Slough drains into the San Francisco Bay. These drainages are not susceptible to hydrograph modification[7] effects (see Figure 2 in Appendix E). Other drainages in the vicinity of the project area include San Francisquito Creek, which runs in a north-south direction approximately 2 miles southeast of the project area, and Redwood Creek, which runs in a north-south direction approximately 2 miles west of the project area.[8]

The project area is served by the City's storm drainage system, which is maintained by the Menlo Park Public Works Department. Existing surface drainage from the project area is either directed to catch basins, or drains directly to the street before flowing into the storm drain system. The existing storm

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1 United States Geological Survey, *Palo Alto Quadrangle, California*, 7.5 Minute Series (Topographic), 1991.

2 Secor International, Inc., *Phase I Environmental Site Assessment Report: 155 Constitution Drive*, prepared on behalf of the David B. Bohannon Organization, 2007.

3 Philip Williams and Associates, *Preliminary Hydrology Report*, 2009 (see Appendix E).

4 Western Regional Climate Center, *Palo Alto, California Monthly Total Precipitation (inches) (046646)*, www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6646, accessed June 9, 2009.

5 The Atherton Channel is an alternating earth- and concrete-lined channel. The channel runs through a one-mile underground culvert immediately south of the project area.

6 Oakland Museum of California, *Atherton Channel Watershed Map,* 2005. www.museumca.org/creeks/1470-OMAtherton.html#, accessed April 24, 2008.

7 Hydrograph modification refers to the changes in runoff pattern (rate, volume, and timing of runoff) as a result of changes in site drainage patterns (e.g., more impervious surfaces, changes in slopes, and others). If runoff patterns are altered (hydrograph modification), it can alter bed and bank erosion, other channel-forming factors, and other aquatic habitat factors in susceptible surface waters, such as unlined channels and natural creeks.

8 United States Geological Survey, *Palo Alto Quadrangle, California*, 7.5 Minute Series (Topographic), 1961, photo revised 1968 and 1973.

drain system for the Constitution site consists of a 24-inch line through the northern portion of the site, an 18-inch line along Constitution Drive, and a 54-inch line along Chrysler Drive, to the east (Figure 3.5-1). These pipes deliver flow to a pump station at the northeast corner of the Constitution site.

The existing storm drain system for the Independence site includes a 48-inch pipe running along Chrysler Drive, and an 18-inch pipe at Independence Drive, running from 120 Independence Drive to the east (Figure 3.5-2). A 42-inch storm drain and drainage ditch are located along the southern edge of the site and drain in an eastward direction. The storm drain pipe connects to the 48-inch main line at Chrysler Drive.[9] Runoff from the Independence site is directed to the 48-inch line that ultimately delivers flows to a pump station at the northeast corner of the Constitution site, which discharges to the Atherton Channel and Flood Slough.

Existing runoff conditions were estimated for the project area using the Rational Method,[10] a copy of the Preliminary Hydrology Report, including runoff calculations, is provided in Appendix E. The Rational Method determines peak flows for storms of certain frequencies. Based on these calculations, the existing 10-year peak flow rate (Q_{10})[11] is approximately 7.6 cubic feet per second (cfs) for the Constitution site and approximately 3.9 cfs for the Independence site. The 100-year peak flow rate (Q_{100}) is approximately 11.5 cfs for the Constitution site and approximately 5.9 cfs for the Independence site.[12]

Flooding

The project area is not subject to flooding from tsunami, seiche, or dam failure inundation.[13] The project area and its vicinity are, however, subject to flooding from San Francisco Bay. The 100-year floodplain designated by the Federal Emergency Management Agency (FEMA) spans the northernmost portions of the City, including the northern half of the project area (north of Jefferson Drive). The Constitution site and a portion of the Independence site are located within an area designated Zone AE, which has a base flood elevation of 7.0 ft.[14] A portion of the Independence site is within an area designated Zone X, which is subject to flooding during a 500-year event or shallow flooding during the 100-year event.[15] Figure 3.5-3 shows the location of the 100-year and 500-year floodplains in relation to the project area.

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9 Philip Williams and Associates, *Preliminary Hydrology Report*, 2009.

10 Conducted by Phillip Williams and Associates, 2009. All hydrologic calculations are based on the City's engineering standards.

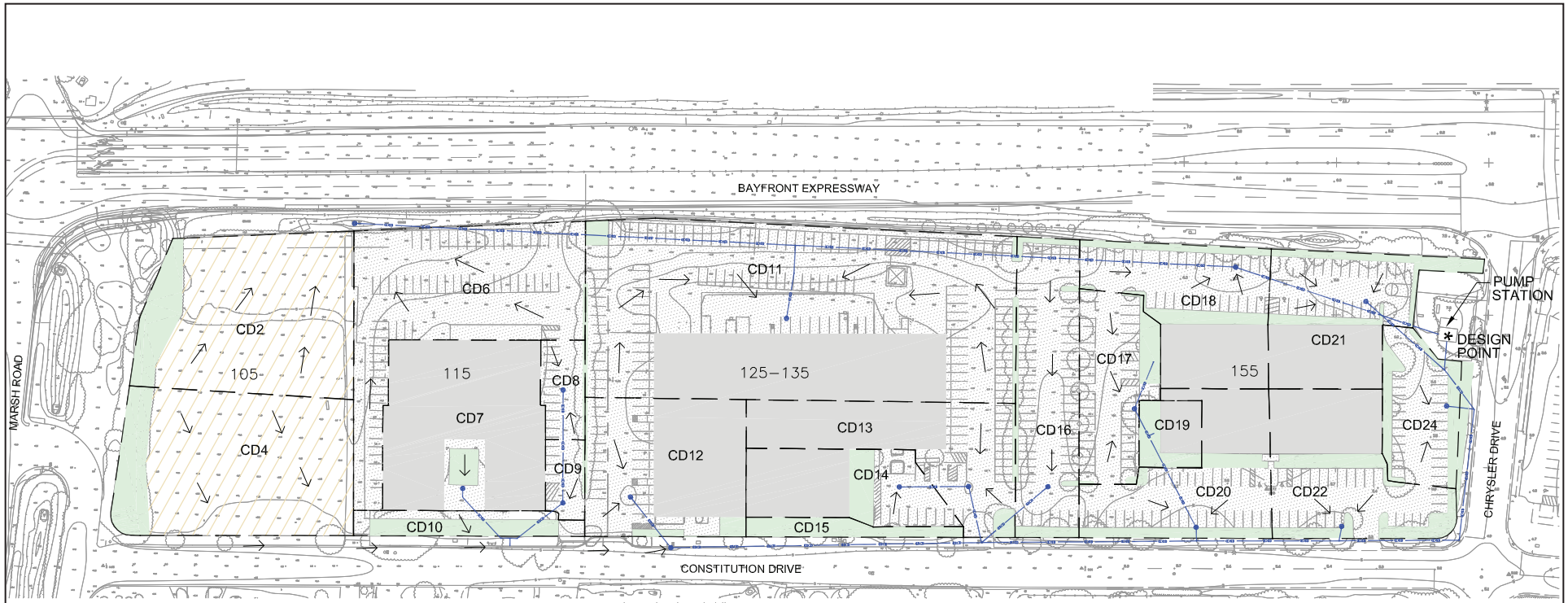
11 The intensity assumed for these design storms is based on the time of concentration, discussed in detail in the *Preliminary Hydrology Report*. The 10-year peak flow rate is the flow rate with a 10 percent chance of occurring in any given year. The 100-year peak flow rate is the flow rate with a 1 percent chance of occurring in any given year.

12 Philip Williams and Associates, *Preliminary Hydrology Report*, 2009, pp. 13-14.

13 County of San Mateo, San Mateo County General Plan Natural Hazards Map, 1986, www.sforoundtable.org/P&B/pb_general_plan.html.

14 Federal Emergency Management Agency (FEMA), *Flood Insurance Rate Map: City of Menlo Park, California, San Mateo County,* Panel 4 of 13, April 21, 1999. Cited in Philip Williams and Associates, *Preliminary Hydrology Report*, 2009.

15 FEMA, 1999.



Watershed	Area (ft^2)	Area (ac)	Runoff Coefficient C
CD2	31,873	0.73	0.57
CD4	32,467	0.75	0.57
CD6	30,782	0.71	0.90
CD7	26,292	0.60	0.88
CD8	4,157	0.10	0.88
CD9	2,979	0.07	0.88
CD10	5,489	0.13	0.68
CD11	72,759	1.67	0.89
CD12	21,622	0.50	0.88
CD13	19,006	0.44	0.88
CD14	13,272	0.30	0.85
CD15	3,229	0.07	0.50
CD16	18,434	0.42	0.86
CD17	12,958	0.30	0.85
CD18	19,494	0.45	0.84
CD19	4,077	0.09	0.71
CD20	17,854	0.41	0.84
CD21	18,427	0.42	0.83
CD22	20,126	0.46	0.82
CD24	10,559	0.24	0.79
Total	**385,854**	**8.86**	**0.81**

LEGEND:

- LANDSCAPING
- BUILDING
- PAVING
- VACANT
- ID3 WATERSHED ID
- (E) STORM DRAIN
- CATCH BASIN/ INLET
- FLOW PATH
- WATERSHED BOUNDARY

NOTE: STORM DRAIN LOCATIONS ARE APPROXIMATE

NORTH
NOT TO SCALE

Source: PWA, 2009

PBSJ

FIGURE 3.5-1
Constitution Site - Existing Conditions, Land Use, and Drainage

Watershed	Area (ft^2)	Area (ac)	Runoff Coefficient C
CD50	31,204	0.72	0.74
CD51	23,433	0.54	0.81
CD52	37,436	0.86	0.88
CD53	3,351	0.08	0.55
CD54	11,954	0.27	0.81
CD55	36,559	0.84	0.65
CD56	33,370	0.77	0.87
CD57	20,760	0.48	0.64
CD58	14,343	0.33	0.63
CD59	45,468	1.04	0.68
CD60	33,386	0.77	0.88
CD61	9,814	0.23	0.79
CD62	23,419	0.54	0.58
CD63	53,890	1.24	0.87
CD64	7,474	0.17	0.67
Total	**385,854**	**8.86**	**0.77**

LEGEND:

- LANDSCAPING
- BUILDING
- PAVING
- VACANT
- ID3 WATERSHED ID
- (E) STORM DRAIN
- CATCH BASIN
- FLOW PATH
- WATERSHED BOUNDARY

NOTE: STORM DRAIN LOCATIONS ARE APPROXIMATE

NORTH
NOT TO SCALE

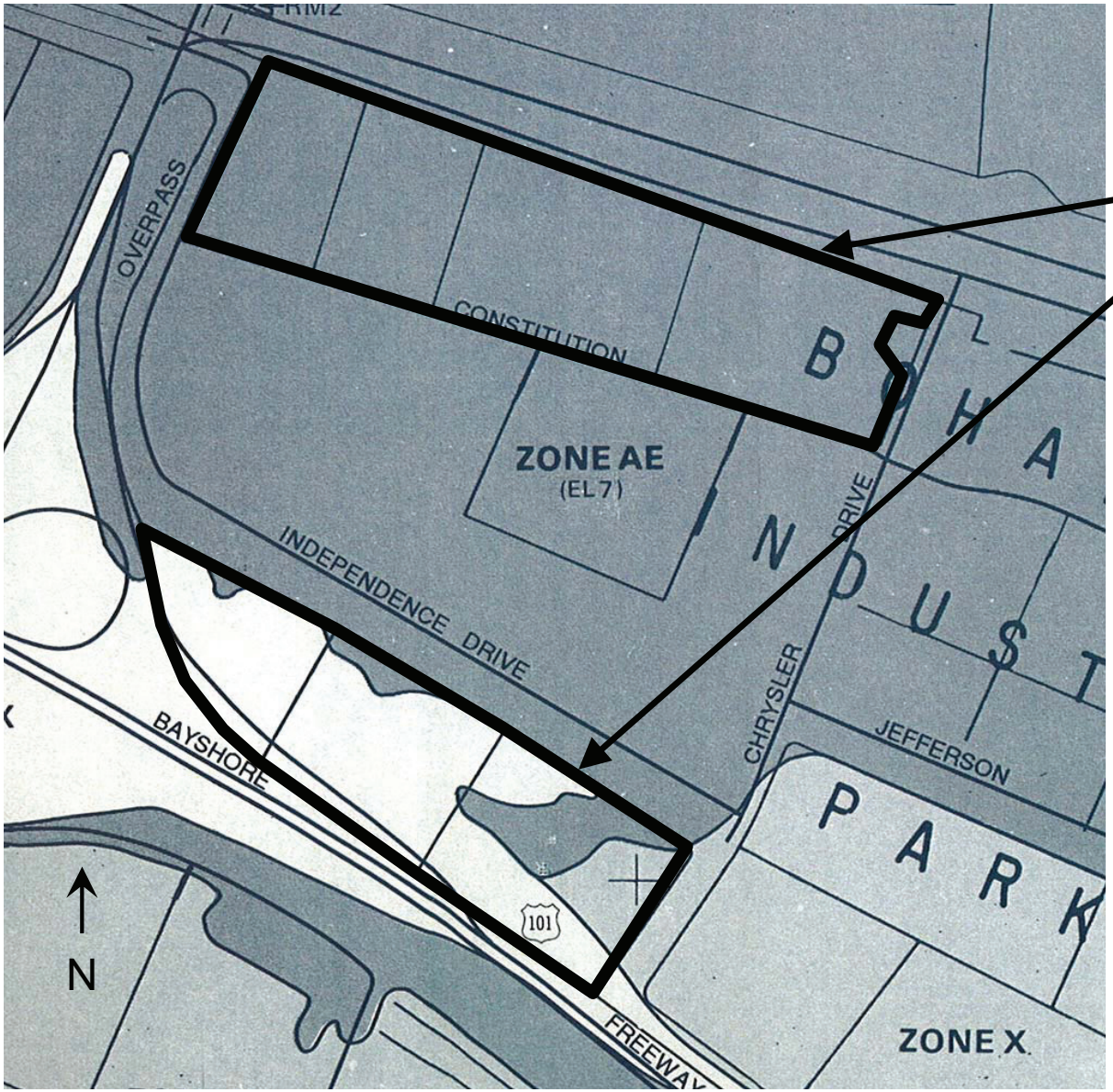
Source: PWA, 2009

PBSJ

FIGURE 3.5-2
Independence Site - Existing Conditions, Land Use, and Drainage

D411048.01

03291 | JCS | 09



LEGEND

Zone AE: An area inundated by 100-year flooding

Zone X: An area that is determined to be outside the 100- and 500-year floodplains

NORTH
NOT TO SCALE

Source: FEMA, City of Menlo Park, 2009

PBSJ

FIGURE 3.5-3
Project Area within Flood Hazard Zones

D411048.01

Menlo Gateway Draft EIR

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Surface Water Quality

Water quality of stormwater runoff varies with surrounding land uses, topography, and amount of impervious cover, as well as the intensity (energy) and frequency of irrigation or rainfall. Runoff may contain oil, grease, and metals accumulated in streets and driveways, as well as pesticides, herbicides, particulate matter, nutrients, animal waste, and other oxygen-demanding substances from landscaped areas. The highest pollutant concentrations are generally in stormwater runoff generated at the beginning of the wet season and during the so-called "first-flush." Approximately 80 percent of total accumulated pollutants are washed off surfaces with the first 0.5 inch of rainfall, with street surfaces as the primary source of pollutants in urban areas.[16]

The most common sources of stormwater pollution in urban areas are from construction sites, streets, parking lots, large landscaped areas, and household and industrial materials dumped into storm drains. In some areas, rooftops can also contribute a significant amount of stormwater pollution in urban areas. Grading and earthmoving activities associated with new construction can accelerate soil erosion, even in flat areas. Grease, oil, hydrocarbons, and heavy metals deposited by vehicles and heavy equipment can accumulate on streets and paved parking lots and are carried into storm drains by runoff. Pesticides, herbicides, and fertilizers used for landscape maintenance are washed into storm drains by over-watering (irrigation in excess of soil infiltration rates and plant uptake). Paints, solvents, soap products, and other toxic materials may be inadvertently or deliberately deposited in storm drains in residential and industrial areas. Deposition of particulate matter and dissolution of roofing material and other exposed materials can also contribute pollutants to urban stormwater. The federal Clean Water Act (CWA) requires local municipalities to implement measures to control these types of pollutants from entering their storm drainage systems. Further discussion of federal and local regulations and compliance is presented below in the Regulatory Setting.

The quality of the stormwater runoff from the project area is probably typical of urban watersheds with similar land uses and may contain constituents such as landscaping chemicals (e.g., nitrates, phosphates, herbicides, and pesticides), automobile and traffic pollutants (e.g., oil, grease, metal brake dust, metal wear), trash and debris, pathogens (e.g., wildlife and pet waste), sediment with associated attached pollutants from soil erosion or aerial deposition of dust, and chemicals leaching from structures (e.g., metals from metal roofs and architectural features, calcium from limestone).

The Central San Francisco Bay is listed by the EPA as impaired by pollutants from the following three sources: (1) chlordane, DDT, dieldrin, and mercury from nonpoint sources; (2) dioxin compounds, furan compounds, and mercury from atmospheric deposition; and (3) exotic species from ballast water. In addition, the bay is impaired by PCBs and dioxin-like PCBs from unknown nonpoint sources.[17] Industrial and municipal point sources, resource extraction, and natural sources also contribute to mercury and selenium degradation of the Central San Francisco Bay.

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[16] Shueler, T. R., First Flush of Stormwater Pollutants Investigated in Texas, Article 9 in The Practice of Watershed Protection, Center for Watershed Protection, 2000.

[17] San Francisco Regional Water Quality Control Board (SFRWQCB), *2006 CWA Section 303(d) List of Water Quality Limited Segments Requiring TMDLs*, approved by the USEPA June 28, 2007.

Groundwater Storage[18]

The project area is located above the Santa Clara Valley groundwater basin and San Mateo subbasin (ID 2-9.03). The San Mateo subbasin is bounded by the Santa Cruz Mountains to the west, the San Francisco Bay to the east, San Francisquito Creek to the south, and the Westside basin to the north. The subbasin's underlying water bearing formations include Quaternary and Plio-Pleistocene alluvial deposits composed of gravel, sand, silt, and clay. A relatively shallow water table aquifer overlies confined and semi-confined aquifers near the margins of the San Francisco Bay, with most wells drawing from the deeper deposits. Shallow groundwater is expected to be encountered in the project area at depths of less than 10 feet below ground surface.[19] The direction of groundwater flow is generally to the north.[20]

Recharge of the subbasin occurs through infiltration into stream beds and through infiltration of precipitation on the valley floor. Little is known about the actual storage capacity of the subbasin or existing groundwater levels, but it is estimated that groundwater levels have rebounded somewhat since the early twentieth century when groundwater was used as the primary source for drinking and irrigation.

The majority of water supplies serving the City are obtained from the San Francisco Public Utilities Commission (SFPUC - Hetch-Hetchy). However, a small amount of connections are served by local groundwater. The O'Connor Tract Co-operative Water Company is a small municipal water supplier that services parts of Menlo Park and East Palo Alto. This company operates two groundwater wells that are 250 to 500 feet deep and are located over 2 miles up-gradient from the project area.

Groundwater Quality[21]

The USGS and the Town of Atherton, which is approximately 2 miles west of the project area, conducted a water quality study of wells in the project area in 1997. The study found that the water is a calcium magnesium carbonate bicarbonate type and has a pH of approximately 7.3. The water contains 471 milligrams per liter (mg/L) of CaCO3 and is classified as very hard. Some of the wells in the project vicinity have a high concentration of sodium, which makes the water unsuitable for irrigation, while other samples exceeded the nitrate-nitrogen primary maximum contaminant level set by the US EPA.

Regulatory Setting

Water resources are regulated by a variety of statutes at the local, State, and federal levels. Agencies with regulatory and enforcement jurisdiction in the City of Menlo Park include the City, the San Mateo

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[18] California Department of Water Resources (DWR), *California Groundwater Bulletin 118; Santa Clara Valley Groundwater Basin, San Mateo Subbasin*, 2004. www.dpla2.water.ca.gov/publications/groundwater/bulletin118/basins/pdfs_desc/2-9.03.pdf, accessed April 24, 2008.

[19] Secor, 2007.

[20] Secor, 2007.

[21] Information in this section is from DWR, 2004.

Countywide Water Pollution Prevention Program (SMCWPPP), the San Mateo County Flood Control District (SMCFCD), the State Water Resources Control Board (SWRCB), the San Francisco Bay RWQCB, the California Department of Fish and Game, FEMA, the US Army Corps of Engineers, and the US Environmental Protection Agency (EPA). Plans, policies, and regulations pertaining to hydrology and water quality in the project area are outlined below.

Clean Water Act (CWA). The CWA was enacted with the primary purpose of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters. The CWA directs states to establish water quality standards for all "waters of the United States" and to review and update such standards on a triennial basis. The EPA has delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs, such as the National Pollutant Discharge Elimination System (NPDES) Program, to the SWRCB and the RWQCB for water quality control planning and control programs, such as the NPDES Program.

Responsibility for the protection of water quality in California rests with the SWRCB and nine RWQCBs. The SWRCB establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and state water quality statutes and regulations. The RWQCBs develop and implement Water Quality Control Plans (Basin Plans) that consider regional beneficial uses, water quality characteristics, and water quality problems. The San Francisco Bay RWQCB (Region 2) implements a number of federal and state laws, the most important of which are the state Porter-Cologne Water Quality Control Act and the federal CWA. The project area is located within Region 2 and is subject to CWA requirements.

Section 303(d) and Total Maximum Daily Loads (TMDLs). The CWA contains two strategies for managing water quality. One is a technology-based approach that includes requirements to maintain a minimum level of pollutant management using the best available technology. The other is a water quality-based approach that relies on evaluating the condition of surface waters and setting limitations on the amount of pollution that the water can be exposed to without adversely affecting the beneficial uses of those waters. Section 303(d) of the CWA bridges these two strategies. Section 303(d) requires that the states make a list of waters that are not attaining standards after the technology-based limits are put into place. For waters on this list (and where the EPA administrator deems they are appropriate), the states are to develop total maximum daily loads or TMDLs. TMDLs are established at the level necessary to implement the applicable water quality standards. The CWA does not expressly require the implementation of TMDLs. However, federal regulations require that an implementation plan be developed along with the TMDL and Section 303(d), 303(e), and their implementing regulations require that approved TMDLs be incorporated into water quality control plans. The EPA has established regulations (40 CFR 122) requiring that NPDES permits be revised to be consistent with any approved TMDL. All discharges associated with proposed project buildout would be subject to the Urban Pesticide TMDL, Mercury TMDL, and any other approved TMDLs at the time of development.

Discharges to Atherton Creek associated with the proposed project are subject to the Urban Pesticide TMDL that has been incorporated into the San Francisco Bay Area Basin Water Quality Control Plan (SWRCB Order No. R2-3005-0063). Numeric targets have been established for pesticide-related toxicity and diazinon concentrations to protect cold and warm freshwater habitats at all urban creek

locations, including those near storm drain outfalls where urban runoff enters receiving waters. The diazinon concentration target in urban creeks shall not exceed 100 ng/l as a one-hour average. The target addresses both acute and chronic diazinon-related toxicity.

A Mercury TMDL has been established for the San Francisco Bay and approved by the SWRCB (Resolution 2007-0045). TMDLs for the other constituents contributing to impairment are scheduled to be completed by 2019.

National Pollutant Discharge Elimination System (NPDES). The NPDES permit system was established in the CWA to regulate point source discharges. Point sources include a municipal or industrial discharge at a specific location or pipe. Nonpoint pollution sources are diffuse and originate over a wide area rather than from a definable point. Nonpoint pollution often enters receiving water in the form of surface runoff and is not conveyed by way of pipelines or discrete conveyances. As defined in the federal regulations, such nonpoint sources are generally exempt from federal NPDES permit program requirements. Urban stormwater runoff and construction site runoff are diffuse sources regulated under the NPDES permit program because they are conveyed in a discrete system and discharge at a specific location(s).

For individual point source discharges, each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge; however, the project area would not be considered such an individual point source for NPDES permit purposes because the source of discharge is diffuse. For stormwater runoff, the NPDES program establishes a comprehensive stormwater quality program to manage urban stormwater and minimize pollution of the environment to the maximum extent practicable. The NPDES program consists of (1) characterizing receiving water quality, (2) identifying harmful constituents, (3) targeting potential sources of pollutants, and (4) implementing a comprehensive Stormwater Management Program. The EPA implemented the NPDES stormwater program in two phases. Phase I addressed large dischargers and construction activities that affect 5 acres or greater, while Phase II, which was implemented in 1999, adds smaller dischargers and construction activities that affect 1 or more acres.

To meet the goals of the NPDES permit, each local stormwater program and each permittee within a program establishes a Stormwater Management Plan (SWMP). These SWMPs provide specific local requirements targeted to meet the environmental needs of each watershed, as well as to reflect the political consensus of each community. The goal of the NPDES diffuse source (stormwater) regulations is to improve the quality of stormwater discharged to receiving waters to the "maximum extent practicable" (MEP)[22] through the use of best management practices (BMPs).

BMPs can include the development and implementation of various practices including educational measures (e.g., workshops informing public of what impacts result when household chemicals are

[22] BMPs are intended to reduce impacts to the Maximum Extent Practicable (MEP), a general standard created by Congress to allow regulators the flexibility necessary to tailor programs to the site-specific nature of municipal stormwater discharges. Regulations do not define a single MEP standard, but reducing impacts to the MEP generally relies on BMPs that emphasize pollution prevention and source control, with additional structural controls as needed.

dumped into storm drains), regulatory measures (e.g., local authority of drainage facility design), public policy measures (e.g., label storm drain inlets as to impacts of dumping on receiving waters), and structural measures (e.g., filter strips, grass swales, and detention ponds). The proposed project would be subject to the NPDES permit system through the following NPDES permits:

- *San Mateo Countywide Municipal NPDES Permit (Municipal Stormwater NPDES Permit)*. The County of San Mateo and its incorporated cities form the SMCWPPP and are permitted under Phase I for municipal stormwater and urban runoff discharges under NPDES Permit No. CAS0029921, Order No. 99-059/R2–2003–0023. The SMCWPPP addresses six minimum control measures associated with construction and operational activities, including (1) public education and outreach; (2) public participation/involvement; (3) illicit discharge detection and elimination; (4) construction site stormwater runoff control for sites greater than 1 acre; (5) post-construction stormwater management in new development and redevelopment; and (6) pollution prevention/good housekeeping for municipal operations. These control measures are addressed by BMPs.

  This NPDES stormwater permit requires development and implementation of a Stormwater Management Plan (Provision C.3). Appendix B of the SMCWPPP Stormwater Management Plan contains numeric performance standards while the C.3 provisions include numeric sizing criteria for pollutant treatment systems, operations and maintenance of treatment measures, limitations on increases in peak runoff discharge rates when such rates would adversely impact streams and aquatic habitat conditions (subject to the Hydrograph Modification Plan requirements),[23] and limitations on the use of infiltration treatment practices.

  One of the primary objectives of the regulations for nonpoint source discharges is the reduction of pollutants in urban stormwater discharge through the use of structural and nonstructural BMPs. New development projects, such as the proposed project, are required to implement BMPs laid out in the SMCWPPP C.3 Stormwater Technical Guidance manual, as appropriate. San Mateo County requires permanent post-construction BMPs to reduce surface runoff; landscape measures that provide on-site water quality treatment are considered the preferred approach under the program.

  As of August 2006, projects 10,000 square feet and greater must provide permanent/post-construction treatment controls for stormwater according to specific calculations. This means that stormwater in the project area would need to be filtered through a treatment system before being released to the public stormwater conveyance system. The amount of water that must be treated is defined by specific numeric sizing criteria based on the size and type of development. Projects are required to implement appropriate source control and site design measures and to design and implement stormwater treatment measures, to reduce the discharge of stormwater pollutants to the maximum extent practicable.

  During the development review process, local agencies apply stormwater requirements to all projects, as described below:

  – Site design measures to maximize pervious areas.

[23] Changes in the timing, flow rate, and/or volume of runoff from a site are known as "hydrograph modification" or "hydromodification."

- Source control measures to help keep pollutants out of stormwater.
- Construction BMPs.
- Post-construction treatment measures, to the maximum extent practicable.
- Reporting on the amount of impervious surface created/replaced.

Requirements applicable to project based on project size/location include:

- Larger projects require post-construction treatment measures.
- Projects with treatment measures require maintenance agreements.
- In most locations, larger projects will require hydromodification controls.

- *NPDES General Construction Activity Stormwater Permit (Construction General Permit)*. The SWRCB permits all regulated construction activities under NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Order No. 98-08-DWQ (1999). This Order requires that, prior to beginning any construction activities, the permit applicant must obtain coverage under the General Construction Permit by preparing and submitting a Notice of Intent (NOI) and appropriate fee to the SWRCB. Additionally, coverage would not occur until an adequate Stormwater Pollution Prevention Plan (SWPPP) has been prepared. A separate NOI shall be submitted to the SWRCB for each construction site.

  Construction activities subject to the NPDES Construction General Permit includes clearing, grading, and disturbances to the ground, such as stockpiling or excavation, that result in soil disturbances of at least 1 acre of total land area. Any future construction under the proposed project that would cumulatively disturb more than 1 acre would be subject to these permit requirements.

  The SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges, and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges. The SWPPP must include BMPs that address source control, and, if necessary, must also include BMPs that address specific pollutant control. Typical construction BMPs include, but are not necessarily limited to, scheduling or limiting activities to certain times of year; prohibiting certain construction practices; implementing equipment maintenance schedules and procedures; implementing a monitoring program; implementing other management practices to prevent or reduce pollution, such as using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks do not enter the storm drain system or surface waters; developing and implementing a spill prevention and cleanup plan; installing traps, filters, or other devices at drop inlets to prevent contaminants from entering storm drains; and using barriers, such as straw bales or plastic, to minimize the amount of uncontrolled runoff that could enter drains or surface water. Typical operational BMPs include, but are not necessarily limited to, controlling roadway and parking lot contaminants by installing oil and grease separators at storm drain inlets, cleaning parking lots on a regular basis, incorporating peak-flow reduction and infiltration features (such as grass swales,

infiltration trenches, and grass filter strips) into landscaping, and implementing educational programs.

- *Individual NPDES Permits (Potentially Required).* An individual permit is tailored for a specific discharge that does not fall under one of the General Permit categories (e.g., substantial amounts of construction or post-construction dewatering). The SWRCB or RWQCB issues a permit for that particular discharge based on information (type of activity, nature of discharge, receiving water quality, etc.) contained in the application. If discharge is not directly related to surface water, a state Waste Discharge Requirement (WDR) is used instead of an NPDES permit to regulate the discharge (discussed below under State regulation). The proposed project is not expected to need an individual NPDES permit/WDR.

Floodplain Development. FEMA is responsible for determining flood elevations and floodplain boundaries based on Corps studies. FEMA is also responsible for distributing the Flood Insurance Rate Maps (FIRMs), which are used in the National Flood Insurance Program (NFIP). These maps identify the locations of special flood hazard areas, including the 100-year floodplain.

FEMA allows non-residential development in the floodplain; however, construction activities are restricted within the flood hazard areas depending upon the potential for flooding within each area. Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations (CFR), which enables FEMA to require municipalities that participate in the NFIP to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains. Because the City participates in the NFIP, the proposed project would be subject to FEMA regulations for development within a floodplain.

Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act establishes the SWRCB and each RWQCB as the principal State agencies for coordinating and controlling water quality in California. Specifically, the Porter-Cologne Water Quality Control Act authorizes the SWRCB to adopt, review, and revise policies for all waters of the state (including both surface water and groundwater) and directs the RWQCBs to develop regional Basin Plans. Section 13170 of the California Water Code also authorizes the SWRCB to adopt water quality control plans on its own initiative.

The San Francisco Bay RWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within its jurisdiction. Water quality objectives for the San Francisco Bay and its tributaries are specified in the San Francisco Bay Basin Water Quality Control Plan Basin (Basin Plan) prepared by the RWQCB in compliance with the federal CWA and the State Porter-Cologne Water Quality Control Act. Because the City of Menlo Park is located within the San Francisco RWQCB's jurisdiction, all discharges to surface water or groundwater are subject to the Basin Plan requirements.

The principal elements of the Basin Plan are a statement of beneficial water uses protected under the plan; water quality objectives necessary to protect the designated beneficial water uses; and strategies and time schedules for achieving the water quality objectives. The water quality objectives are achieved primarily through the establishment and enforcement of WDRs. WDRs may include effluent

limitations or other requirements that are designed to implement applicable water quality control plans, including designated beneficial uses and the water quality objectives established to protect those uses and prevent the creation of nuisance conditions.

The designated beneficial uses for the South San Francisco Bay, specified in Table 2-1 of the Basin Plan, are industrial processing, shellfish harvesting, ocean, commercial and sport fishing, preservation of rare and endangered species, estuarine and other wildlife habitat, fish migration, navigation, and water contact and noncontact water recreation. Cold and warm freshwater habitats and fish spawning are also listed as potential beneficial uses. Designated beneficial uses for the San Mateo Plain Subbasin are municipal and domestic water supply, industrial processes water supply, industrial services water supply, and potential agricultural water supply.

Together, the narrative and numerical objectives define the level of water quality that shall be maintained within the region. Beneficial uses and their associated water quality objectives, together, comprise the relevant water quality standards. In instances where water quality is better than that prescribed by the objectives, the state Antidegradation Policy applies (State Board Resolution 68-16: Statement of Policy with Respect to Maintaining High Quality of Waters in California). This policy is aimed at protecting relatively uncontaminated aquatic systems where they exist and preventing further degradation. The state's Anti-degradation Policy is consistent with the federal Anti-degradation Policy, as interpreted by the SWRCB in State Board Order No. 86-17.

Waste Discharge Requirements. The RWQCBs have the primary responsibility for issuing WDRs. All discharges are regulated under WDRs for discharge to land surfaces or NPDES permits for discharge to surface waters (the NPDES permit also serves as a WDR). The RWQCBs may issue individual WDRs to cover individual discharges or general WDRs to cover a category of discharges. As noted previously, the proposed project is not expected to need an individual NPDES permit/WDR, although there is a possibility if extensive dewatering were necessary.

California Toxics Rule (CTR). Numeric criteria are required by the CWA for many priority toxic pollutants. However, in 1994, a state court overturned the state's water quality control plans containing water quality criteria for priority toxic pollutants. To fill in the gap between the water quality control plans and CWA requirements, on May 18, 2000, the EPA promulgated the California Toxics Rule based on the Administrator's determination that numeric criteria are necessary in the State of California to protect human health and the environment. These federal criteria are numeric water quality criteria for priority toxic pollutants and other provisions for water quality standards legally applicable in the State of California for inland surface waters, enclosed bays, and estuaries for all purposes and programs under the CWA. Although the proposed project would not be expected to directly discharge priority toxic pollutants to water resources, the CTR comprises water quality criteria for meeting applicable water quality objectives and water quality standards. Additionally, the proposed project may result in higher amounts of priority toxic pollutants in stormwater runoff (e.g., metals, pesticides, and others).

California Water Code. All projects resulting in discharges, whether to land or water, are subject to Section 13263 of the California Water Code. Section 13260 states that persons discharging or

proposing to discharge waste that could affect the quality of waters of the state, other than into a community sewer system, shall file a Report of Waste Discharge containing information that may be required by the appropriate RWQCB. The projects are then required to obtain approval of WDRs from the appropriate RWQCB. Land and groundwater-related WDRs (i.e., non-NPDES WDRs) regulate discharges of privately or publicly treated domestic wastewater and process and wash-down wastewater. WDRs for discharges to surface waters also serve as NPDES permits, which are further described below.

Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan, or SIP). In March of 2000, the State Water Board adopted the SIP in Resolution No. 2000-015, which establishes the following: (1) implementation provisions for priority pollutant criteria promulgated by the EPA through the National Toxics Rule (40 CFR 131.36) (promulgated on December 22, 1992 and amended on May 4, 1995) and through the California Toxics Rule (40 CFR 131.38) (promulgated on May 18, 2000 and amended on February 13, 2001), and for priority pollutant objectives established by Regional Water Boards in their basin plans; (2) monitoring requirements for 2,3,7,8-TCDD (dioxin) equivalents; and (3) chronic toxicity control provisions. In addition, this policy includes special provisions for certain types of discharges and factors that could affect the application of other provisions in this policy. A list of priority pollutants and associated criteria can be found in the CFR, Section 40, Part 131.

City of Menlo Park Municipal Code. Several ordinances in the Menlo Park Municipal Code pertain to hydrology and water quality. These include the following:

Chapter 7.38. discusses general water conservation principals and adopts water conservation as a citywide goal.

Chapter 7.42. officially adopts the SMCWPPP Stormwater Management Plan and its provisions as City policy.

Chapter 12.42. contains methods and provisions designed to prevent flood damage. Under Section 12.42.41, a development permit is required before grading activities in a flood hazards area can begin. The standards of construction listed in Section 12.42.51 include anchoring, the use of flood damage-resistant construction materials and methods, and elevation and floodproofing standards.

Chapter 12.44. defines water-efficient landscaping standards that must be employed by new developments.

City of Menlo Park General Plan. The Menlo Park General Plan contains several policies pertaining to hydrology and water quality. These include the following:

Policy I-F-1. Industrial development shall be allowed only in already established industrial areas and shall not encroach upon Bay wetlands.

Policy I-H-3. Plant material selection and landscape and irrigation design for City parks and other public facilities and in private developments shall adhere to the City's Water Efficient Landscaping Ordinance.

Policy I-H-7. The use of reclaimed water for landscaping and other feasible uses shall be encouraged.

Policy I-H-9. Urban development in areas with geological and earthquake hazards, flood hazards, and fire hazards shall be regulated in an attempt to prevent loss of life, injury, and property damage.

Policy I-H-10. The City shall continue to participate in the National Flood Insurance Program. To this end, the City shall work to keep its regulations in full compliance with standards established by the Federal Emergency Management Agency.

Impacts and Mitigation Measures

Standards of Significance

The proposed project would result in a significant impact if it would:

- **Impact Criterion #1**: Violate any water quality standards or waste discharge requirements;
- **Impact Criterion #2**: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be 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);
- **Impact Criterion #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 or siltation on- or off-site;
- **Impact Criterion #4**: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate of amount of surface runoff in a manner which would result in flooding on- or off-site;
- **Impact Criterion #5**: Create or contribute runoff water which would exceed pre-project levels or provide substantial additional sources of polluted runoff;
- **Impact Criterion #6**: Otherwise substantially degrade water quality;
- **Impact Criterion #7**: Place within a 100-year flood hazard area structures which would impede or redirect flood flows; or
- **Impact Criterion #8**: 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.

Project Evaluation

The following analysis discusses potential impacts of the proposed project that would be allowed under the GPA/ZOA and the Menlo Gateway project compared to existing baseline conditions.

Impact HY-1: *The proposed project would not violate any water quality standards or waste discharge requirements. Accordingly, this impact would be less than significant. (LTS)*

The pertinent NPDES permits are the Construction General Permit (General Permit for Discharges of Storm Water Associated with Construction Activity [Construction General Permit, Order No. 99-08-DWQ]) and Municipal Stormwater NPDES Permit permits (the San Mateo Countywide NPDES General Permit [Order No. 99-059, NPDES Permit No. CAS0029921]). If substantial groundwater dewatering is required during or after construction, an individual NPDES Permit/WDR may be required. The relevant water quality standards are listed in the Basin Plan.

Construction. Development associated with the proposed project would include construction activities, such as clearing and grubbing, pavement removal and replacement, excavation and trenching for foundations and utilities, soil compaction, cut and fill activities, and grading, all of which would temporarily disturb soils. Disturbed soils are susceptible to high rates of erosion from wind and rain, resulting in sediment transport from the project area. Erosion and sedimentation affect water quality through interference with photosynthesis, oxygen exchange, and the respiration, growth, and reproduction of aquatic species. Other pollutants, such as nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported with sediment to downstream locations. Sediment-associated pollutants could also cause or contribute to degradation of water quality.

The delivery, handling, and storage of construction materials and wastes, as well as the use of construction equipment, could also introduce a risk for stormwater contamination that could impact water quality. Spills or leaks from heavy equipment and machinery can result in oil and grease contamination, and some hydrocarbon compound pollution associated with oil and grease can be toxic to aquatic organisms at low concentrations. Staging areas or building sites can be sources of pollution because of the use of paints, solvents, cleaning agents, and metals during construction. Impacts associated with metals in stormwater include toxicity to aquatic organisms, such as bioaccumulation, and the potential contamination of drinking supplies. Pesticide use (including herbicides, fungicides) associated with site preparation work (as opposed to pesticide use for landscaping) is another potential construction activities source of stormwater contamination. Pesticide impacts to water quality include toxicity to aquatic species and bioaccumulation in larger species. Larger pollutants, such as trash, debris, and organic matter, are additional pollutants that could be associated with construction activities. Impacts include health hazards and aquatic ecosystem damage associated with bacteria, viruses, and vectors and physical changes to the aquatic ecosystem. Construction impacts on water quality are potentially significant and could lead to exceedance of water quality objectives or criteria.

All construction activities, including installation and realignment of utilities, would be subject to existing regulatory requirements. The NPDES Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must list BMPs that the discharger will use to protect stormwater runoff, including the placement and timing of those BMPs. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs; and a

sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

This SWPPP would include, but would not necessarily be limited to, many of the following erosion control methods:

- Keep disturbed areas (areas of grading and related activities) to the minimum necessary for demolition or construction of the project;
- Keep runoff away from disturbed areas during grading and related activities;
- Stabilize disturbed areas as quickly as possible, either by vegetative, mechanical and/or physical methods;
- Trap sediment before it leaves the site with such techniques as check dams, sediment ponds, or straw wattles including perimeter protection;
- Use dirt and sediment tracking BMPs, including stabilized construction entrances and wheel washes;
- Implement routine street sweeping;
- Cover exposed soils and material stockpiles to prevent wind erosion;
- Use interceptor ditches, drainage swales, or detention basins to prevent storm runoff from transporting sediment into drainage ways and to prevent sediment-laden runoff from leaving any disturbed areas;
- Use landscaping and grading methods that lower the potential for down-stream sedimentation. Modified drainage patterns, longer flow paths, encouraging infiltration into the ground, and slower storm-water conveyance velocities are examples of effective methods;
- Control landscaping activities carefully with regard to the application of fertilizers, herbicides, pesticides or other hazardous substances. Provide proper instruction to all landscaping personnel on the construction team;
- During the installation of the erosion and sediment transport control structures, the erosion control professional must be on the site to supervise the implementation of the designs, and the maintenance of the facilities throughout the grading and construction period; and
- Routine monitoring of erosion control facilities during construction and during/after rain events.

The City's Municipal Code and permit review process would require preparation and approval of a SWPPP and Grading and Drainage Plan.

Additionally, because of the project area's high water table, it is likely that construction activities, which would include trenching to install subgrade utilities and excavation of building foundations to install footings, would require dewatering and potential discharge of this water to surface waterbodies. Such activities could adversely affect surface water and groundwater quality. This extracted water would likely reflect similar characteristics of nearby Bay waters because of its close proximity to the Bay and likely subsurface interaction with the Bay. If substantial construction dewatering is required

and disposal would be to land or surface water, an individual WDR must be obtained from the RWQCB. The WDR will specify the specific treatment (e.g., desedimentation, filtration, flocculation, and others) and discharge (e.g., maximum rate and volume of discharge) requirements, if any, necessary to ensure discharges do not cause or contribute to water quality degradation. The WDR would require testing to make sure that discharged waters do not pose a substantial risk to water quality. Minor construction dewatering would be covered under the Construction General Permit. Additionally, approval from the San Francisco Bay RWQCB is required for all discharges of water from construction dewatering activities.

Preparation of an approved SWPPP and Grading and Drainage Plan, as required by the City, would ensure that the Construction General Permit WDR is not violated. The SWRCB has identified compliance with the Construction General Permit requirements as protective of water quality during construction activities. Therefore, the proposed project would not violate water quality standards. With existing regulatory requirements and City approval process, construction impacts on violation of WDRs and water quality standards would be less than significant.

Operation. The proposed project would replace existing land uses that have historically been more light industrial in nature with uses that are generally more commercial in nature. Table 3.5-1 lists median storm event concentrations for various pollutants for both commercial and industrial land uses. These data are based on the National Storm Water Quality Database.

With the exception of fecal coliforms and biochemical oxygen demand, most pollutants are found in equal or higher concentrations in stormwater runoff from light industrial land uses compared to stormwater runoff from commercial land uses. These data indicate that the concentration of pollutants in runoff would likely be similar, or slightly less than, existing conditions following implementation of the proposed project.

The project sponsor would be required to submit the SMCWPPP checklist to show compliance with the NPDES Permit requirements. This submittal would include identification of site design measures to minimize impervious areas; source control measures to minimize the potential introduction of pollutants into stormwater runoff; and stormwater treatment control measures to removed pollutants from stormwater runoff.

The SMCWPPP is designed to prevent violation of water quality standards through mitigation and control of pollutant transport in stormwater runoff and infiltrating waters. Under NPDES Permit C.3. provisions dischargers must:

- Incorporate treatment measures and other appropriate source control measures (such as pesticide reduction strategies) and site design measures to manage increases in runoff flows to the maximum extent practicable;
- Implement site design/landscape characteristics to maximize infiltration (where appropriate), provide retention or detention, slow runoff, and minimize impervious land coverage to reduce post-development pollutant loads to the maximum extent practicable;

Table 3.5-1 Typical Pollutant Concentrations in Stormwater for Industrial and Commercial Land Uses			
Constituent of Concern (COC)	**Event Mean Concentration (EMC)**		
	Units	**Industrial**	**Commercial**
Oil and Grease	*mg/L*	5.0	4.7
Total Dissolved Solids	*mg/L*	92	74
Total Suspended Solids	*mg/L*	78	42
Biochemical Oxygen Demand	*mg/L*	9	11
Fecal Coliforms	*mpn/100 mL*	2500	4300
Total Nitrogen	*mg/L*	2.13	2.12
Total Kjeldahl Nitrogen	*mg/L*	1.4	1.6
Nitrate + Nitrite	*mg/L*	0.73	0.60
Heavy Metals			
Total Cadmium	*µg/L*	2.0	0.89
Dissolved Cadmium)	*µg/L*	0.6	0.3
Total Chromium	*µg/L*	14	2.0
Dissolved Chromium	*µg/L*	3.0	2.0
Total Copper	*µg/L*	22	17
Dissolved Copper	*µg/L*	8.0	7.6
Total Lead	*µg/L*	25	18
Dissolved Lead	*µg/L*	5.0	5.0
Total Mercury	*µg/L*	0.2	0.2
Dissolved Mercury	*µg/L*	NA	NA
Total Nickel	*µg/L*	16	7.0
Dissolved Nickel	*µg/L*	5.0	3.0
Total Zinc	*µg/L*	210	150
Dissolved Zinc	*µg/L*	112	59
Source: NSQD Version 1.1 http://unix.eng.ua.edu/~rpitt/Research/ms4/mainms4.shtml.			

- For new and redevelopment projects that discharge directly to water bodies listed as impaired by pollutants pursuant to CWA Section 303(d), ensure that post-project runoff does not exceed pre-project levels for such pollutants, through implementation of the control measures addressed in this provision;[24] and
- Prevent a net increase in flow where such an increase would increase erosion or otherwise degrade stream habitat (this is not required where increased flows would not cause degradation).

[24] The project area drains to the Lower San Francisco Bay, which is listed as a 303(d) impaired water body by the US EPA.

Treatment BMPs must be sized based on one of the following considerations:

- Treatment BMPs whose primary mode of action depends on volume capacity, such as detention/retention units or infiltration structures, must be designed to treat the volume of annual stormwater runoff for the area or achieve 80 percent or more capture.[25]
- Treatment measures whose primary mode of action depends on volume capacity, such as detention/retention units or infiltration structures, shall be designed to treat stormwater runoff equal to:
    1. The maximized stormwater capture volume for the area, based on historical rainfall records, determined using the formula and volume capture coefficients set forth in *Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998)*, pages 175-178 (e.g., approximately the 85th percentile 24-hour storm runoff event); or
    2. The volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with the methodology set forth in Appendix D of the *California Stormwater Best Management Practices Handbook, (1993)*, using local rainfall data.
- Treatment BMPs whose primary mode of action depends on flow capacity (e.g., swales, sand filters, or wetlands) must be sized to treat:
    - 10 percent of the 50-year peak flow rate; or
    - The flow of runoff produced by a rain event equal to at least two times the 85th percentile hourly rainfall intensity for the applicable area, based on historical records of hourly rainfall depths; or
    - The flow of runoff resulting from a rain event equal to at least 0.2 inches per hour intensity.

BMPs included in site designs and plans for the proposed project would be reviewed by City of Menlo Park engineering staff to assure appropriateness and adequate design capacity, prior to permit issuance. Dischargers must provide annual reports to the RWQCB to demonstrate compliance with the requirements of Provision C.3.

Implementation of the BMPs below would assure compliance with potential NPDES permit regulations.

Site Planning BMPs

- Minimize directly connected impervious surfaces using site lot design, such as alternative pavement materials, providing landscaping, etc. Pervious paving materials may also be incorporated to further decrease impervious surface area. These BMPs apply to development in the entire project area.
- Provide source controls for stormwater pollutants, such as roofed trash areas, covered material storage, etc.

[25] Calculation methods are specified in the SMCWPPP Stormwater Management Plan.

- Landscaping shall be used around buildings to trap and filter contaminants before stormwater reaches the storm drain system. This BMP applies to all proposed buildings in the project area.
- Use the Bay Area Stormwater Management Agencies Design Guidance Manual to modify roadway and landscaping improvement projects, incorporating recommended design elements such as sediment traps, gravel strips and/or trenches, concave planting areas, permeable substrate, and infiltration basins and/or vaults at the end of downspouts.

Post-Construction BMPs

- The project sponsor or developer shall distribute educational materials to the first and all subsequent tenants of all commercial properties included in the project. These materials shall address good housekeeping practices relating to stormwater quality, prohibited discharges, and proper disposal of hazardous materials.
- The business park association or other similar entity responsible for any common landscaped areas shall implement a program of efficient irrigation and proper maintenance including minimizing use of fertilizer, herbicides and pesticides.
- The business park association or other similar entity responsible for maintaining common areas shall implement a trash management, recycling, and litter control program to mitigate the impacts of gross pollutants on stormwater quality. This program shall include litter patrol, emptying trash receptacles in common areas, and reporting and investigating and trash disposal violations.
- Any new storm drain inlets shall be labeled with the phrase "No dumping – flows to Bay," or a similar phrase to mitigate the impact of potential for discharges of pollutants to the storm drain system.
- Measures shall be incorporated into drainage projects (storm drains, conduits, collection points, and outlets) to maximize infiltration, permeability, trapping of pollutants and sediment from stormwater runoff. These measures may include structural BMPs, including vortex separators (Stormceptor©, Vortechnics©, etc.), to separate oil and solids (contaminants, sediment, etc.) from stormwater runoff and design based on the anticipated type and quantity of pollutants to be removed and the flow rate to be treated.
- Properly designed vegetated filter strips shall be installed wherever feasible in the project to mitigate sediment and pollutant transport from stormwater sheetflow.
- The restaurant shall be designed with contained areas for cleaning mats, containers, and sinks connected to the sanitary sewers. Grease shall be collected and stored in a contained area and will be removed regularly by a disposal recycling service. This BMP would mitigate potential impacts due to oil and grease.
- Streets in the project area shall be swept immediately prior to and once during the storm season. If the City of Menlo Park does not agree to accept responsibility for street sweeping, the developer would arrange for this service within the project area for developed portions of the project.
- A pesticide reduction plan shall be developed and implemented. This plan will include recommendations for landscape planting to minimize pesticide use.

The Menlo Gateway development application has incorporated site design measures to minimize impervious surfaces; the proposed development plan would reduce the amount of impervious surfaces by about 3 percent compared to existing conditions (reduced impervious surfaces to 68 percent) and includes pervious pavement, which would need to be properly maintained in perpetuity, within surface parking areas.[26] Additionally, the proposed development plan would incorporate flow-through planters to treat the majority of runoff from rooftops and would incorporate vegetated swales to treat runoff from some of the parking areas.[27] Tree planters would also be used to store and treat stormwater runoff from sidewalks and other areas where flow through planters and swales cannot be incorporated because of drainage and area constraints.[28] Because of the high groundwater table, no infiltration BMPs are proposed.[29] Where site area and drainage constraints limit the incorporation of surface water quality treatment devices, the Menlo Gateway development would incorporate subgrade (underground) stormwater quality treatment devices [30] that must be approved by the City, and potentially the RWQCB during the final design phase.

Maximum development under the proposed GPA/ZOA could increase the amount of impervious surfaces. However, compliance with existing City regulations would still be required, including the above mentioned site design and source control BMPs. Additionally, the proposed project would be required to implement stormwater quality treatment BMPs that must be approved by the City during the permit review process.

The SFBRWQCB has incorporated requirements in the Municipal Stormwater NPDES Permit to be protective of water quality and approved the SMCWPPP as being in compliance with the Municipal Stormwater NPDES Permit. The City review and permitting process would ensure that the Municipal Stormwater NPDES Permit WDR is not violated for either the Menlo Gateway project or any other development under the proposed GPA/ZOA.

Furthermore, as mentioned above, the type and amount of pollutants in stormwater runoff would not be expected to be substantially different than existing conditions (see Table 3.5-1). Consequently, incorporation of site design, source control, and treatment BMPs would be expected to reduce the amount of pollutants in stormwater runoff compared to existing conditions.

As a result of these measures, the proposed project would not violate water quality standards or WDRs during operation, and water quality impacts would be less than significant.

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[26] Philip Williams and Associates, *Preliminary Hydrology Report*, 2009.

[27] Ibid.

[28] Ibid.

[29] Ibid.

[30] Ibid.

Impact HY-2: *The proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be net deficit in aquifer volume or a lowering of the local groundwater table level. As a result, this impact would be less than significant. (LTS)*

As described in the Setting, natural groundwater recharge of the San Mateo Subbasin occurs primarily by infiltration of water from streams. Additional recharge occurs by percolation of precipitation that falls directly on the ground surface. While the City-wide local water supply does contain some groundwater, the majority of the water supplied to the project area is from surface water sources. Additionally, no new groundwater wells would be implemented as part of the proposed project.

It is anticipated that dewatering activities would be necessary during the construction phase of the proposed project. This would locally and temporarily lower the local aquifer table and reduce aquifer volume. Dewatering would not continue after construction, so that long-term effects on the groundwater depth or volume would not occur. Large underground structures may be built to accommodate subgrade flow control and stormwater quality treatment devices. These structures would not substantially reduce the aquifer volume such that there would be a lowering of the local groundwater table; groundwater volume would simply be displaced by the underground structures if structures extend to within the local groundwater table, and the groundwater table levels would remain primarily controlled by upland recharge and interaction with the Bay. Therefore, direct impacts on the local aquifer would be temporary and less than significant.

The proposed project would not significantly increase the amount of impervious surface area within the project area. Under existing conditions, the project area contains over 71 percent impervious surface area. Other remaining undeveloped areas have compacted fill soils and very low permeability. Therefore, existing groundwater recharge potential within the project area is minimal. The Menlo Gateway project would reduce the amount of impervious surfaces by about 3 percent. Maximum development under the proposed GPA/ZOA would result in an increase of impervious cover compared to existing conditions. Therefore, post-construction groundwater recharge potential would be similar to existing conditions and indirect impacts to the local groundwater table would be less than significant.

Impact HY-3: *The proposed project would not substantially alter the existing drainage pattern of the project area, including alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site. Accordingly, this impact would be less than significant. (LTS)*

Construction activities associated with the proposed project would alter existing drainage patterns and could result in substantial erosion or siltation. However, the project would be required to comply with existing NPDES permits (General Permit and Construction General Permit) and the City's Municipal Code sections for construction and stormwater management (Chapter 7.42 Storm Water Management Program) including preparation of a Grading and Drainage Plan and incorporation of erosion and sediment controls during construction. Operation of the proposed project would also require soil stabilization (e.g., vegetation, other protective cover, and stabilized slopes and fills) in accordance with the SMCWPPP, SWPPP, and City Municipal Code (Chapter 7.42 Storm Water Management

Program). Therefore, potential on-site erosion and sediment transport during project construction or operation would not be substantial.

Development in accordance with the Menlo Gateway project would increase the amount of stormwater runoff from the project area. Flow rates would increase from 7.6 cfs to 8.2 cfs at the Constitution site and 3.9 cfs to 6.1 cfs for the Independence site for the 10-year storm event.[31] Flow rates would increase from 11.5 cfs to 12.3 cfs for the Constitution site and 5.9 cfs to 9.0 cfs for the Independence site for the 100-year storm event.[32] However, the Menlo Gateway project would be required to detain the increased flow rates and reduce off-site flow to existing conditions levels. In accordance with City requirements, about 800 cubic feet (ft^3) of storage would be required for the Constitution site and 3,000 ft^3 of storage would be required for the Independence site.[33] Furthermore, the project area does not drain to an area where hydrograph modification[34] controls may be required; the project area drains to the Atherton Channel and San Francisco Bay.[35] Therefore, drainage from the project area is not expected to cause or contribute to off-site erosion in channels or creeks. Additionally, all project area runoff would be routed through new and existing on-site storm drainage systems to existing off-site storm drains/channels, so that off-site overland erosion would not occur.

The maximum development allowed under the GPA/ZOA could also increase stormwater runoff rates and volumes, depending upon the final design configuration. As with the Menlo Gateway development plan, an increase in flow rate above existing 10-year flow rates would require on-site detention; flow would be routed to existing off-site storm drains; and the off-site storm drain system is not considered susceptible to hydrograph modification. Therefore, as with the Menlo Gateway development plan, the maximum development associated with the proposed GPA/ZOA would not substantially cause or contribute to off-site erosion.

As explained under Impact HY-1, compliance with existing regulations and project area drainage characteristics would be expected to reduce potential erosion and siltation impacts to a less-than-significant level.

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31 Philip Williams and Associates, *Preliminary Hydrology Report*, 2009.

32 Ibid.

33 Ibid.

34 Hydrograph modification refers to changes in the peak flow, volume, or amount of stormwater runoff; a change in the runoff hydrograph. Where hydrograph modification could cause or contribute to stream bed or bank erosion or otherwise alter the flow regime such that aquatic and riparian habitat and channel form or function could be adversely affected, controls are required to mitigate runoff characteristics to existing flow characteristics. Flows up to and including the 10-year storm event flow rates are the most important for maintaining channel form and function.

35 Philip Williams and Associates, *Figure 2 Project Location within Menlo Park Storm Drain System, Preliminary Hydrology Study*, 2009.

Impact HY-4: *The proposed project would not substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. Thus, this impact would be less than significant. (LTS)*

The proposed project would not alter the course of an existing stream or river, because there are no natural drainage features onsite. Changes to existing drainage patterns could increase the rate and/or amount of stormwater runoff, contributing to on- or off-site flooding; however, as addressed under Impact HY-3, implementation of the proposed project would not significantly increase the amount of impervious surface cover within the project area.

As also described under Impact HY-3, the Menlo Gateway development plan would increase the peak flow rates for the 10-year and 100-year storm events; flow rates would increase by up to 8 percent for the Constitution site and by up to 56 percent for the Independence site. However, the City would require detention of excess flow for the 10-year storm event, which would also somewhat reduce excess flow for the 100-year storm event. Additionally, the Atherton Channel drains into the Flood Slough, which runs through the salt ponds and salt marsh flats north of Bayfront Expressway and increased 100-year flow rates would not be expected to substantially cause or contribute to flood effects within the salt marsh flats.

While full buildout under the maximum development under the GPA/ZOA could convert the currently vacant land (approximately 15 percent of the project area) to impervious surface cover. Currently, only 13 percent of the project area is landscaped. Because landscaping would be more permeable than the compacted fill soils found on the vacant lands of the project area, it is anticipated that surface runoff flows would be slightly attenuated under the maximum development of the proposed project.

As required by City, no net-increase over the existing condition in drainage to City streets is allowed. In accordance with the Menlo Gateway development plan, all sidewalk drainage in excess of existing flow rates would be detained and any resultant on-site drainage would be routed through new and existing storm drains to the existing off-site main storm drains that ultimately discharge to the Atherton Channel. Project plans would be reviewed to ensure that on-site drainage is adequate to prevent on-site flooding.

Therefore, on- and off-site flooding impacts associated with alterations of on-site drainage patterns would be less than significant.

Impact HY-5: *The proposed project would not create or contribute runoff which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. As a result, this impact would be less than significant. (LTS)*

Flooding has occurred in the project vicinity because of overflows of the Atherton Channel. However, such events are primarily associated with San Francisco Bay inflows and are not the result of

insufficient storm drainage capacity. According to the City's 2003 Drainage Study, storm drainage facilities are sufficient to manage existing flows from the project area.[36]

Following buildout of the Menlo Gateway development plan, the peak runoff at the Constitution site would increase from 7.6 cfs to 8.2 cfs for a 10-year storm event and from 11.5 cfs to 12.3 cfs for a 100-year event.[37] The peak runoff at the Independence site would increase from 3.9 cfs to 6.1 cfs for a 10-year storm event and from 5.9 cfs to 9.0 cfs for a 100-year event.[38] Although the two sites are not contiguous and separate structural BMPs would be installed at each of the two sites, both sites drain to the pump station located at the northeast corner of the Constitution site. The Menlo Gateway development plan would therefore generate a net increase in stormwater runoff of up to 3.9 cfs for the 100-year storm event, prior to the implementation of BMPs. Buildout under the GPA/ZOA may also slightly increase runoff rates because it could further increase the amount of impervious surfaces by up to 2 percent and alter drainage patterns for more efficient conveyance of stormwater from the project area. The City requires detention of stormwater runoff such that discharges do not exceed existing flow rates.

As explained under Impact HY-1, structural and non-structural BMPs would reduce the concentrations of pollutants reaching surface water bodies and groundwater. Because the project area drains to the San Francisco Bay, the BMPs must ensure that post-project runoff does not exceed pre-project levels for pollutants that impair the Bay (as listed on the Section 303(d) list). These pollutants include chlordane, DDT, dieldrin, and mercury. Structural BMPs would remove these substances from runoff, while non-structural BMPs, such as integrated pesticide management practices, would assist with source reduction. Because required BMPs would also attenuate increased flows, treat potentially polluted surface runoff, and contribute to reductions in key pollutants, and because the City requires no net-increase in stormwater flow rates, impacts associated with project runoff would be considered less than significant.

Impact HY-6: *The proposed project would not otherwise substantially degrade water quality. Thus, this impact would be less than significant. (LTS)*

The groundwater table is shallow in the project area, and pollutants and chemicals associated with construction activities could migrate or percolate into the groundwater and contribute to degradation of the local groundwater aquifer. Implementation of construction BMPs such as spill prevention and good housekeeping BMPs would be included in the SWPPP (described under Impact HY-1) and would prevent significant impacts to groundwater quality during construction.

Following completion of the proposed project, during project operation, implementation of the SMCWPPP would prevent substantial degradation of groundwater quality through adherence to source control and non-structural BMPs. Treatment BMPs proposed for the maximum development permitted under the GPA/ZOA would require approval by the City prior to implementation. The Menlo Gateway

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36 BKF, *Citywide Storm Drainage Survey, City of Menlo Park,* 2003. Prepared for the City of Menlo Park.

37 Philip Williams and Associates, *Preliminary Hydrology Study,* 2009.

38 Ibid.

development application does not include infiltration BMPs that could result in migration of stormwater pollutants to groundwater and any proposed treatment BMPs would also require City approval. Consequently, water quality impacts would be less than significant during both construction and operation of the Menlo Gateway project or under the GPA/ZOA.

Impact HY-7: *Structures placed within the 100-year flood hazard area as a result of the proposed project could impede or redirect flood flow, which would be a potentially significant impact. (PS)*

FEMA allows non-residential development in a 100-year floodplain; however, construction activities are restricted within flood hazard areas depending upon the potential for flooding to occur. The City of Menlo Park and the County of San Mateo have adopted local standards for construction in floodplain areas pursuant to Title 44, Part 60 of the CFR. The project area does not fall within an active flood control zone governed by the SMCFCD. As documented in the Setting, the project area is located within the 100-year flood zone (Special Flood Hazard Area [SFHA]) but is not located within a Dam Failure Inundation Area.

The proposed project would involve substantial fill to elevate structures above the 100-year flood hazard elevation. In order for the project area or structures to be considered outside the floodplain and no longer subject to special flood hazard development requirements, the project sponsor would have to submit an application to FEMA for a Letter of Map Revision – Fill (LOMR-F) after fill has been placed. After FEMA has revised the Flood Insurance Rate Map (FIRM) to show that the filled land is outside the SFHA, the City would no longer be required to apply the minimum NFIP floodplain management standards to structures built on the land and the mandatory flood insurance purchase requirements would no longer apply.

Until FEMA revises the FIRM, the floodplain development standards apply. Additionally, although a structure built on a site that has been elevated by the placement of fill may be removed by FEMA from the SFHA, the structure may still be subject to damage during the base flood and higher-magnitude floods. A structure with a basement (subgrade area) adjacent to or near the floodplain may still be impacted by subsurface flooding brought on by surface flooding.

Construction within SFHAs is governed by the City's Municipal Code Chapter 12, Section 12.42.51, Standards of Construction, which sets forth the standards for development within SFHAs that would minimize flood hazard risks, including anchoring and flood-proofing; limitations on use for structures below the base flood elevation; use of materials and utility equipment resistant to flood damage; the requirement that electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities are designed and/or located to prevent water from entering or accumulating within the components during flood conditions; and the requirement that all new and replacement water supply and sanitary sewage systems be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from systems into floodwaters. Compliance with these City Municipal Code regulations would reduce potential flood hazards to the proposed project to less-than-significant levels.

As noted in the Setting, the base flood elevation on the Constitution site and a portion of the Independence site is 7 feet above mean sea level (msl). The project area is currently about 5 feet above

msl and has several buildings that contribute to floodwater displacement within the flood zone. If substantial additional fill is used to elevate the project area or structures to above the base flood elevation, this additional fill material could have a substantial effect on local flooding; water displaced from the study area could increase flood depths on adjacent properties or redirect flood flows to adjacent properties, which would be a potentially significant impact.

MITIGATION MEASURES. Mitigation Measure HY-7.1 would remove the project area from the floodplain (SFHA) and ensure that effects on the base flood elevation are not substantial and would reduce potential impacts to less-than-significant levels. (LTS)

HY-7.1 *Prepare and obtain a CLOMR-F from FEMA prior to issuance of a grading or building permit*. In accordance with the National Flood Insurance Program (NFIP) (Code of Federal Regulations (CFR) 44 Part 65), Section 65.6 (Revision of base flood elevation determinations) supporting data must include relevant hydraulic and hydrologic analyses, delineation of floodplain boundaries and all other information required by FEMA to review and evaluate the request for a CLOMR-F. The project sponsor shall perform this work. The analyses submitted by the project sponsor shall clearly show revised and new floodplain boundaries, for the project area and adjacent areas not affected by the revision.

A CLOMR-F is FEMA's comment on a proposed project that would, upon construction, affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing base flood elevations or the SFHA. The conditional letter does not revise an effective NFIP map; however, it indicates whether the project, if built as proposed, would be recognized by FEMA as being outside the SFHS. Once the project has been completed, the project sponsor must request a LOMR-F from FEMA to reflect the project's "As-built" certification. Additional data may be required to support the revision request.

Impact HY-8: *The proposed project could expose people or structures to a significant risk of loss, injury, or death involving flooding, resulting in a less than significant impact. (LTS)*

Levees are located throughout the salt ponds north of the project area. However, because the elevations of the levees are at sea level, lower than the elevation of the project area, failure of the salt pond levees would not result in substantial flooding of the project area. Furthermore, as described under Impact HY-7, the project area is not located within a Dam Failure Inundation Area. In addition, Municipal Code Chapter 12, Section 12.42.51 Standards of Construction, includes requirements for development in flood hazard areas to minimize risks from flooding.

However, measurements taken in the San Francisco Bay indicate that the current rate of sea level rise is about 3.5 inches per century.[39] A higher mean sea level would increase flood depth and area of inundation within the project area. Additionally, the California Climate Change Center predicts that accelerated sea level rise, because of climate change, could result in a sea level rise in California of 4.3 to 27.6 inches above the existing mean sea level (msl) by 2099.[40] The California Climate Action Team projects that sea levels would rise between 20 and 55 inches by the year 2100.[41] Different scenarios and models used to predict sea level rise result in different estimates of the magnitude of sea level rise; regardless, an increase in mean sea level would have a substantial effect on flooding within the project area. When combined with astronomical tides, even a 1-foot increase in msl would result in the 100-year event high tide peak occurring at the 10-year event frequency.[42] In other words, the frequency of a current 100-year high tide (about 9.5 feet above current msl) would occur 10 times more often when sea levels increase to 1 foot above current msl.

The project area, like much of the City of Menlo Park east of El Camino Real, could be inundated with a sea level rise of 16 inches, which might be expected to occur by mid-century, depending upon the sea level rise scenario.[43] In order to comply with flood hazard area development regulations, the proposed project would have to be flood-proofed to or elevated above the base flood elevation of 7 feet; however, sea level rise flooding could still occur. While the project area is about 5 feet above msl and would remain above msl with a .83-foot sea level rise (in year 2025), the base flood elevation would also be expected to rise by at least .83 feet. The Menlo Gateway project purposes to raise the project area by approximately two feet to 8.1 feet, which is over a foot above the 7 foot base flood elevation. Therefore, the risks to people would not be substantial.

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[39] Floyd, M., M. Anderson, M. Roos, R. Peterson, M. Perrone, and D. Todd. 2006. Chapter 2: Potential Impacts of Climate Change on California's Water Resources, Table 2-6 Relative Sea Level Trends for Eight Tide Gauges Along the Coast of California with 50 Years or More of Record. p. 2-43. In Medelin, J., J. Harou, M. Olivares, J. Lund, R. Howitt, S. Tanaka, M. Jenkins, K. Madani, and T. Zhu (Eds), Climate Warming and Water Supply Management In California: White Paper. A Report From Climate Change Center CEC-500-2005-195-SF.

[40] Cayan, D., P. Bromirski, K. Hayhoe, M. Tyree, M. Dettinger, and R. Flick. 2006. Projecting Future Sea Level: Table 3 Projected global sea level rise (SLR) (cm) for the SRES A1fi, A2, and B1 greenhouse gas emission scenarios. SLR for A2 and B1 scenarios is estimated by combining output recent global climate change model simulations with MAGICC projections for the ice melt component. SLR estimates for A1fi estimated from MAGICC based on A2 temperature changes scaled according to those in A1fi. A Report From the California Climate Change Center CEC-500-2005-2002-SF. p. 19.

[41] San Francisco Bay Conservation and Development Commission, Climate Change, 2007, www.bcdc.ca.gov/planning/climate_change/climate_change.shtml.

[42] Floyd, M., M. Anderson, M. Roos, R. Peterson, M. Perrone, and D. Todd. 2006. Chapter 2: Potential Impacts of Climate Change on California's Water Resources, Figure 2.32 Impact of One Foot Sea Level rise on the Relative Effect of Astronomical tides in the Delta. p. 2-53. In Medelin, J., J. Harou, M. Olivares, J. Lund, R. Howitt, S. Tanaka, M. Jenkins, K. Madani, and T. Zhu (Eds), Climate Warming and Water Supply Management In California: White Paper. A Report From Climate Change Center CEC-500-2005-195-SF.

[43] San Francisco Bay Conservation and Development Commission, *Climate Change Bay Area Regional Map*, 2009, www.bcdc.ca.gov/planning/climate_change/index_map.shtml

In the future, precipitation events are predicted to vary in terms of timing, intensity and volume according to many climate change models.[44] Extreme storm events may occur with greater frequency.[45] The effect on peak runoff is not known because most climate change models have not used a temporal (or spatial) scale necessary to identify effects on peak flows, and existing precipitation/runoff models for assessing the effects of climate change do not yet adequately predict rainfall/runoff scenarios.[46] Changes in rainfall and runoff could affect flows in surface water bodies, causing increased flooding and runoff to the storm drain system or, alternatively, reduce the amount of runoff and flood potential. The effect that future changes on the hydrologic cycle may have on the project area is speculative and is not addressed further in this section. However, because the project area would be raised above the base flood elevation the impact is less than significant.

Cumulative Impacts

The context for the analysis of cumulative surface water quality and hydrology impacts includes future growth and development within the Atherton Channel watershed for surface water and the San Mateo subbasin for groundwater quality impacts. Those issues for which the proposed project would have no impact are not analyzed, because the proposed project would have no potential to contribute to cumulative impacts.

Global climate change could alter the local hydrology and change the seasonal and annual rainfall and runoff patterns in the area; rainfall and runoff could increase, decrease, change in pattern and frequency, or not change at all. The scale of global climate models is too large to identify potential local or even regional effects and there is no agreement on the nature or magnitude of this change. Therefore, the analysis of potential cumulative impacts because of alterations in hydrology would be entirely speculative and no further analysis is provided.

Impact HY-1CM: *The proposed project combined with future development within the Atherton Channel watershed for surface water would not substantially degrade water quality. This cumulative impact would be less than significant. (LTS)*

The Atherton Channel watershed starts in the Town of Woodside and is primarily within the Town of Atherton, although some portions are within the City of Menlo Park. Development within this region would expand as growth continues. Development or redevelopment could affect water quality if the land use changes, the intensity of land use changes, and/or drainage conditions are altered to facilitate the introduction of pollutants to surface or groundwater resources. Changes in land use would alter the associated type and amount of pollutants in stormwater runoff (e.g., higher fecal coliform

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[44] EPA, 2008. Climate Change Science: Precipitation and Storm Changes. www.epa.gov/climatechange/science/recentpsc.html, accessed January 16, 2009.

[45] EPA, 2008. Climate Change Science: Precipitation and Storm Changes. www.epa.gov/climatechange/science/recentpsc.html, accessed January 16, 2009.

[46] Anderson. M. 2006. Chapter 6: Climate Change Impacts on Flood Management p. 6-22 and 6-27. In Medelin, J., J. Harou, M. Olivares, J. Lund, R. Howitt, S. Tanaka, M. Jenkins, K. Madani, and T. Zhu (Eds), Climate Warming and Water Supply Management In California: White Paper. A Report From Climate Change Center CEC-500-2005-195-SF.

concentrations in runoff from residential lands compared to commercial lands). Increased intensity of land use would increase the potential pollutant loads. Alterations in drainage patterns could increase pollutant loads by increasing the amount of stormwater runoff transporting pollutants in stormwater runoff; could cause or contribute to erosion if the rate of runoff is increased; or could expose vulnerable areas to infiltration or runoff.

Future growth and development would not be expected to greatly alter the existing land use, land use intensity, or overall drainage patterns within the Atherton Channel watershed. The Atherton Channel watershed is considered already 99 percent built out with an estimated 69 percent impervious cover.[47] Consequently, potential growth would likely occur as redevelopment, with little infill. The existing land use within the watershed east of Interstate 280 (I-280) is primarily undeveloped, with some residential and commercial lands. However, the Town of Woodside General Plan for the northwestern half of this largely undeveloped area is rural residential and special conservation planning with four or more development constraints. Land uses between I-280 and US 101 are primarily residential, with some concentrated commercial/industrial development between Bohannon Drive, US 101, and Marsh Road. Land uses east of US 101 are primarily commercial/industrial. These land uses would not be expected to be greatly altered with future growth and development within the watershed, and future development and growth is not expected to cause or contribute to substantial increases in pollutants to water resources and degradation of water quality.

New and re-development within the County of San Mateo is subject to requirements of the SMCSPPP and associated Municipal NPDES Permit and Hydromodification Management Plan (HMP), the statewide Construction General Permit, and local municipal and county codes. If substantial dewatering is required, an individual permit would be required. These WDRs have been developed to protect water quality standards and require implementation of stormwater quality BMPs. The HMP ensures that potential increases in stormwater discharge do not adversely affect the habitat, form, or function of susceptible creek systems; where discharges are to a susceptible stream or creek, hydromodification controls are required if there would be an increase in impervious area and/or flow rate or flow volume.

In addition to the City of Menlo Park Municipal Code regulating pollutants in stormwater, other jurisdictions within the Atherton Channel watershed have similar codes and ordinances to protect water quality from new development and re-development and ensure that WDRs are complied with. These similar codes include Town of Atherton Chapter 8.54 Grading, Erosion and Sediment Control, Chapter 8.50 Storm Water Management And Discharge Control; Town of Woodside Title XV: Site Development; Chapter 151 Site Development, Section 151.03 Purpose - Protect public and private lands from erosion, earth movement, flooding, and degradation of water quality and ensure the maximum preservation of the natural and scenic character of the Town by establishing minimum standards and requirements relating to land grading, excavations and fills, erosion control and sedimentation control, quality of materials, and installations of driveways, swimming pools, tennis courts, and creek crossings and by establishing procedures by which such standards and requirements

[47] San Mateo Countywide Stormwater Pollution Prevention Program, *Hydromodification Management Plan* Table 3-4, May 12, 2005.

may be enforced; and County of San Mateo Title 4 Sanitation and Health Chapter 4.100 Storm Water Management and Discharge Control Sections 4.100.110 Reduction of pollutants in storm water, 4.100.140 Best Management Practices for new Development and Redevelopment, 4.100.150 Compliance with Best Management Practices, and 4.100.160 Water Course Protection.

Additionally, development projects would have to go through the environmental review process, which would identify any site- or project-specific potential impacts. All of these programs have been designed and implemented to be protective of water quality. Implementation of TMDLs for pollutants listed as contributing to impairment of water resources would further protect water resources from water quality degradation. Continued monitoring of receiving waters by the SFRWQCB and SMCSPPP ensure that these programs remain effective and protective of water quality. Therefore, cumulative effects of potential future growth and development on degradation of water quality through discharge of pollutants to surface or groundwater, or by increased erosion and sedimentation, would be less than significant.

Impact HY-2CM: *The proposed project combined with future development within the San Mateo subbasin would not substantially degrade groundwater supplies. As a result, cumulative impacts on the subbasin would be less than significant. (LTS)*

Groundwater recharge in the area occurs primarily through streambeds with some direct recharge from percolating precipitation. Future growth and development could require increases in water supplies; however, water supplies in the area are primarily surface water. Development and growth within the area would also be subject to the applicable urban water management plan for water supplies and major development would require a water supply assessment to ensure that adequate water supplies are available without depleting water resources.

The environmental review process and water supply assessment (for major developments) would identify where and when new groundwater wells could be required or implemented. Because the San Mateo subbasin is not actively managed to control groundwater levels, new development and growth could result in greater groundwater use resulting in a potential cumulative impact.

Future growth and development would not be expected to substantially increase the amount of impervious surfaces, thereby impeding groundwater recharge from percolating rainfall and indirectly lowering the local groundwater table. The existing impervious amount of the watershed is about 69 percent and the watershed is estimated to be about 99 percent built out. Existing zoning regulations preclude a substantial increase in new impervious area (primarily rural residential and low density residential). Additionally, potential increases in impervious surface from future growth and development that would likely increase surface runoff (and thereby, reduce direct groundwater recharge through percolation of rainfall) would have a minimal effect on groundwater recharge. Reduced recharge from rainfall percolation would not be substantial because runoff waters would continue to recharge the underlying groundwater basin as they travel through the streams and channels. Indirect cumulative impacts to groundwater supplies would be less than significant.

The proposed project would not directly alter the groundwater table by development of any groundwater wells and potential direct impacts would be less than significant. Furthermore, the creation of impervious surfaces would not significantly reduce groundwater recharge potential from the project area; soils within the site do not readily allow percolation of rainfall for groundwater recharge and the proposed project would create 0.32 acres of impervious surfaces within an area of the groundwater basin that is highly influenced by the San Francisco Bay. Therefore, indirect impacts from the proposed project would be less than significant. As a result, the proposed project's impacts on groundwater would not be cumulatively considerable and the project's contribution would be less than significant.

Impact HY-3CM: *The proposed project, combined with future development within the Atherton Channel watershed, would not substantially contribute to flooding but could be substantially affected by flooding. The proposed project's contribution to cumulative impacts would be less than significant. (LTS)*

Portions of the project area and Atherton Channel watershed are within a FEMA defined 100-year flood plain. However, flooding that has occurred in the Atherton Channel watershed has been primarily a function of water levels in the San Francisco Bay. Floodplain and floodway development within the Atherton Channel watershed is regulated by the Towns of Woodside (Chapter 55: Floodplain Management) and Atherton (Chapter 16.32: Improvements, Section 16.32.050 Drainage requirements), as well as the City of Menlo Park (Chapter 12.42: Flood Damage Protection), in addition to FEMA development requirements. These regulations include requirements for maintenance of flood flow conveyance and floodplain storage, as well as flood protection for public health and safety and risk to properties. However, in areas to the east of El Camino Real, sea level rise of 1.67 feet by 2050 could inundate areas beyond those that are currently identified as existing flood hazard areas and to greater depths than currently identified. This change would also affect the flow gradient within Atherton Channel such that there could be greater upstream flooding. The expansion of the flood hazard area would be a potentially significant cumulative impact.

Without incorporation of stormwater detention BMPs, the proposed project would increase the peak flow rates from the project area. However, like all projects within the City of Menlo Park, the project applicant would be required to implement stormwater detention to reduce flows to pre-project conditions and implement stormwater quality BMPs to reduce pollutants in stormwater runoff. In addition, the project area would be raised to above the base flood elevation. Therefore, the proposed project's contribution to cumulative impacts would not be considerable resulting in a less-than-significant cumulative impact.