Section 3.8
Hydrology and Water Quality

Summary

Table 3.8-1 below provides a summary of the potential environmental impacts of the Proposed Project related to hydrology and water quality. As shown in Table 3.8-1, with implementation of mitigation measures, the Proposed Project would have less than significant impacts to hydrology and water quality within the project area.

Table 3.8-1. Summary of Potential Impacts on Hydrology and Water Quality

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact HYD-1: Impacts on Water Quality as a Result of Construction-Related Earth Disturbing Activities	Potentially Significant	Mitigation Measure HYD-1a: Comply with National Pollutant Discharge Elimination System (NPDES) Requirements Mitigation Measure HYD-1b: Clean Paved Areas with Street Sweeping Equipment	Less Than Significant
Impact HYD-2: Water Quality Impacts as a Result of Construction-Related Hazardous Materials	Potentially Significant	Mitigation Measure HYD-2: Implement a Spill Prevention and Control Program	Less Than Significant
Impact HYD-3: Water Quality Impacts from Construction below the Water Table	Potentially Significant	Mitigation Measure HYD-3: Implement Provisions for Dewatering	Less Than Significant
Impact HYD-4: Increased Amounts of Surface Runoff and Associated Impacts on Water Quality and Drainage Facilities during Operation	Potentially Significant	Mitigation Measure HYD-4: Design Adequate Storm Drain Capacity and Implement Best Management Practices to Maximize Stormwater Quality	Less Than Significant
Impact HYD-5: Decrease in Groundwater Recharge	No Impact	Mitigation not required.	N/A

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact HYD-6: Substantial Depletion of Groundwater Supplies	No Impact	Mitigation not required.	N/A
Impact HYD-7: Impacts on Groundwater and Surface Water from Infrastructure Failure	Less Than Significant	Mitigation not required.	N/A
Impact HYD-8: Water Quality Impacts from Discharges to CWA 303(d)-Listed Surface Water Bodies	Less Than Significant	Mitigation not required.	N/A
Impact HYD-9: Impacts on Housing from Placement in a 100-Year Floodplain	No Impact	Mitigation not required.	N/A
Impact HYD-10: Impacts on Flood flows from Structures in 100-Year Floodplain	No Impact	Mitigation not required.	N/A
Impact HYD-11: Flood Hazards associated with Levee or Dam Failure	Less Than Significant	Mitigation not required.	N/A

Introduction

This section describes the affected environment for hydrology and water quality, the regulatory setting associated with hydrology and water quality, the impacts on hydrology and water quality that would result from the project, and the mitigation measures that would reduce these impacts.

Sources of Information

The key sources of data and information used in the preparation of this section are listed and briefly described below.

- 2002 Union City General Plan
- Clean Water Act (CWA) Section 303(d) list of Impaired Waterbodies. (State Water Resources Control Board 2006)
- *California's Groundwater Bulletin 118, Update 2003* (Bulletin 118) (California Department of Water Resources 2006)
- Groundwater Monitoring Report (Alameda County Water District 2007)
- California Regional Water Quality Control Board, San Francisco Bay Region, *Municipal Regional Stormwater NPDES Permit*, Order R2-2009-

0074, NPDES Permit No. CAS612008 with Alameda County Clean Water Program, October 14, 2009

Regulatory Setting

Federal

Federal Clean Water Act

The Clean Water Act (CWA) is the primary federal law promulgated to protect the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. It operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool. The following paragraphs provide additional details on specific sections of the CWA.

CWA Permits for Fill Placement in Waters and Wetlands

CWA, Section 404 regulates the discharge of dredged and fill materials into "waters of the United States," which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Project proponents must obtain a permit from the Army Corps of Engineers (Corps) for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity. Before any actions that may impact surface waters are carried out, a delineation of jurisdictional waters of the United States must be completed, following Corps protocols in order to determine whether the Project area encompasses wetlands or other waters of the United States that qualify for CWA protection. These include any or all of the following:

- Areas within the ordinary high water mark of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned.
- Seasonal and perennial wetlands, including coastal wetlands.

Wetlands are defined for regulatory purposes as areas "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3, 40 CFR 230.3).

CWA, Section 404 permits may be issued only for the least environmentally damaging practicable alternative. That is, authorization of a proposed discharge is prohibited if there is a practicable alternative that would have less adverse impacts and lacks other significant adverse consequences. If the Proposed Project intends on dumping any fill material for grading purposes, then this permit will be applicable.

Permits for Stormwater Discharge (Section 402)

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination Systems (NPDES) program, administered by the Environmental Protection Agency (EPA). In California, the State Water Resources Control Board (SWRCB) is authorized by the EPA to oversee the NPDES program through the nine geographically separated Regional Water Quality Control Boards (RWQCBs) (see related discussion under "Porter-Cologne Water Quality Control Act" below). The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits. Relevant NPDES permits are discussed in more detail under "State Regulations," below.

Most construction projects that disturb 1 acre of land or more are required to obtain coverage under the NPDES General Permit for Construction Activities (General Construction Permit), which requires the property owner to file a Notice of Intent (NOI) to discharge stormwater and to prepare and implement a Storm Water Pollution and Prevention Plan (SWPPP). The SWPPP includes a site map and a description of proposed construction activities, along with demonstration of compliance with relevant local ordinances and regulations. The SWPPP must also describe the project specific best management practices (BMPs) that will be implemented to prevent or reduce the discharge of construction-related pollutants, including sediments, into stormwater runoff and surface drainage. Permittees are required to conduct monitoring and reporting to ensure that BMPs are correctly implemented and effective in controlling the discharge of construction-related pollutants into stormwater runoff. This permit will apply to the Proposed Project because the project involves developing up to 973 residential units on 6 acres.

Water Quality Certification (Section 401)

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval, such as the issuance of a Section 404 permit) also must comply with CWA Section 401.

Clean Water Act Section 303(d)

Section 303(d) of the federal CWA requires states to develop an impairment list that allows regulators to determine the priority schedule of the waterbodies need for a Total Maximum Daily Load (TMDL). A TMDL is the amount of loading that the waterbody can receive and still meet water quality standards. The relevant 303(d) listings for water bodies in the project vicinity are described under "Surface Water Quality."

Safe Drinking Water Act

The Safe Drinking Water Act, as amended in 1986 and 1996, requires the protection of drinking water and its sources (i.e., rivers, lakes, reservoirs, springs, and groundwater wells). The act authorizes the EPA to set national standards for drinking water to protect against pollutants. The EPA, states, and local agencies work together to enforce these standards.

Regulations Covering Development on Floodplains

Federal Flood Insurance Program

The National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 have been enacted to reduce the need for large, publicly funded flood control structures and disaster relief by restricting development on floodplains.

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA issues Flood Insurance Rate Maps (FIRMs) for communities participating in the National Flood Insurance Program. These maps delineate flood hazard zones in urbanized areas and in some rural areas. The locations of FEMA-designated floodplains in the Project area are included in the discussion of physical setting below.

Executive Order 11988

Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding to:

- Avoid incompatible floodplain development,
- Be consistent with the standards and criteria of the National Flood Insurance Program, and
- Restore and preserve natural and beneficial floodplain values.

This order will apply to the Proposed Project if construction related to the CWA, Section 404 permit falls under any of the bulleted categories listed above.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act), also known as the California Water Code, is California's statutory authority for the protection of water quality. Under this act, the state must adopt water quality policies, plans, and objectives that protect the state's waters. The act sets forth

the obligations of the SWRCB and RWQCBs pertaining to the adoption of water quality control plans (basin plans) and establishment of water quality objectives. Unlike the federal CWA, which regulates only surface water, the Porter-Cologne Act regulates both surface water and groundwater.

State Water Resources Control Board and San Francisco Bay Regional Water Quality Control Board

The SWRCB administers state water rights and water quality functions. The SWRCB and its nine RWQCBs administer water rights and enforce pollution control standards. The SWRCB and RWQCBs are responsible for ensuring implementation and compliance with the provisions of the federal CWA and California's Porter-Cologne Act.

The Proposed Project is situated within the jurisdiction of the San Francisco Bay RWQCB. The San Francisco Bay RWQCB has the authority to implement water quality standards through the issuance of permits for discharges to waters within its jurisdiction. It includes programs such as the CWA Section 401 Water Quality Certifications, and NPDES permitting that requires the development of Storrmwater Pollution Prevention Plan (SWPPP) to protect water quality during construction activities.

In October 2009, the San Francisco Bay Regional Water Quality Control Board adopted a Municipal Regional Permit (MRP) governing discharges from municipal storm drains operated by 76 local government entities, including those in Alameda County. Provision C.3 of the preceding permit included specific requirements for development projects and was in effect from 2005 until 2009. Additional requirements will be phased in during the 5-year term of the new MRP (2009–2014). The C.3 requirements are separate from, and in addition to, requirements for erosion and sediment control and for pollution prevention measures during construction.

Project site designs must minimize the area of new roofs and paving. Where feasible, pervious surfaces should be used instead of paving so that runoff can infiltrate to the underlying soil and ultimately the aquifer. Runoff from impervious areas must be captured and treated. The MRP specifies the sizes and types of facilities that may be used. In addition, project applicants must prepare plans and execute agreements to ensure the stormwater treatment and flow-control facilities are maintained in perpetuity.

The C.3 requirements are implemented through the Alameda Countywide Clean Water Program, which is described below.

Local

Alameda Countywide Clean Water Program

The Alameda Countywide Clean Water Program (ACCWP) was initiated with the goal of forging consistent, effective countywide strategies to control sources of stormwater pollution. In support of this program, the San Francisco Bay RWQCB (SFBRWQCB) has issued a joint municipal stormwater permit to the 17 agencies and cities participating in the ACCWP, recently reissued on October 14, 2009. The participating entities include Alameda County; the Alameda County Flood Control Department and its Zone 7; and the cities of Alameda, Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Newark, Oakland, Piedmont, Pleasanton, San Leandro, and Union City. The ACCWP is responsible for helping participant entities ensure that they are fulfilling their obligations under the permit and for preparing detailed reports that describe what each entity is doing to prevent stormwater pollution. The program coordinates its activities with other pollution prevention programs, such as wastewater treatment, hazardous waste disposal, and waste recycling.

Generally, new development and redevelopment projects must now incorporate on-site stormwater treatment devices into project designs. These requirements apply to projects creating or replacing more than 10,000 square feet of impervious surface area. The ACCWP published a guidance manual, which directs member agencies on application and implementation of stormwater control measures. Provision C.3 requirements of the ACCWP permit are enforced according to this guidance manual. In some cases, new development and redevelopment projects must also develop a hydrograph modification management plan (HMP) that includes analysis of the project's potential to modify the stormwater hydrograph. Specifically, projects must address potential increases in the frequency and duration of flow magnitude and runoff volume from increased impervious surfaces.

Union City General Plan

The Public Facilities and Services Element of the Union City General Plan include the following policy and implementation measures to help reduce urban contaminants from polluting receiving water bodies.

Public Facilities and Services Element

Goal PF-E.1 To collect and dispose of stormwater in a manner that minimizes inconvenience to the public, minimizes potential water-related damage, and enhances the environment.

Policy PF-E.1.3: The City shall promote sound soil conservation practices and carefully examine the impact of proposed urban developments with regard to water quality and effects on drainage courses.

Policy PF-E.1.4: The City shall improve the quality of runoff from urban and suburban development through use of appropriate and feasible mitigation measures including, but not limited to, artificial wetlands, grassy swales, infiltration/sedimentation basins, riparian setbacks, oil/grit separators, and other best management practices.

Policy PF-E.1.5: New development shall have surface drainage disposal accommodated in one of the following ways:

a. Positive drainage to a City-approved storm drain, stream, creek, or other natural water course.

b. On-site drainage that is retained within the development.

Policy PF-E.1.10: The City shall encourage project designs that minimize coverage with impermeable surfaces.

Policy PF-E.2 The City shall continue the user fee-based funding program and shall regularly review the fee schedule to ensure that revenues are adequate for operating and maintaining the storm drain system.

Environmental Setting

Surface Water Hydrology

The only water feature near the project site is the Alameda County Flood Control and Water Conservation District (ACFCWCD) Line M Channel, which is a culverted flood control facility on the southern edge of the project area. Line M drains to Alameda Creek.

As shown in Figure 3.8-1 Water Features in the Project Vicinity, Alameda Creek is the main drainage feature in the region. Imported water from the State Water Project (SWP) is released from the South Bay Aqueduct and combines with local runoff from the Alameda Creek watershed (15 percent of water supply) to flow down Alameda Creek into the Alameda Creek Flood Control Channel. Alameda Creek flows east to west and eventually drains directly into the San Francisco Bay.

Groundwater Hydrology

The Proposed Project lies within the Niles Cone subbasin, which is part of the Santa Clara Valley Groundwater Basin. The Niles Cone subbasin has a surface area of 65,800 acres, or 103 square miles (California Department of Water Resources, 2006). The subbasin is drained by Alameda Creek as it runs from the Diablo Range down into San Francisco Bay (California Department of Water Resources, 2006). Water bearing formations of significance in this subbasin include an alluvial fan created by Alameda Creek, the Dry Creek alluvial fan, and the Newark, Centerville, Fremont, and Deep aquifers, created by transgression

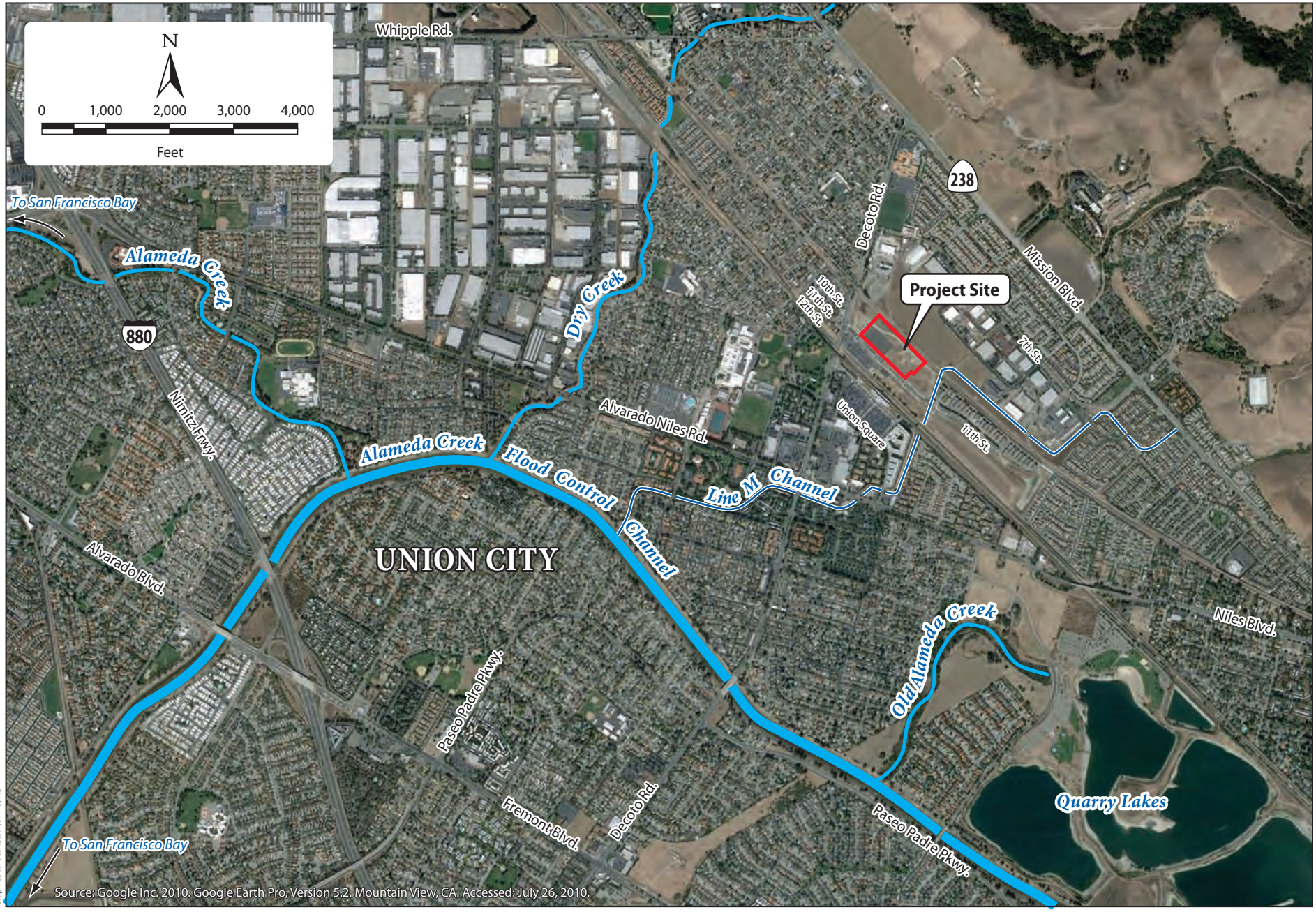

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Figure 3.8-1
Water Features in the Project Vicinity

and regression of San Francisco Bay's shoreline (California Department of Water Resources, 2006). The Hayward Fault cuts across the top of the Alameda Creek alluvial fan, impeding flow of groundwater and divides the basin into the Below Hayward Fault (BHF) and Above Hayward Fault (AHF) subbasins. The impermeable nature of the Hayward fault is characterized by the discrepancies in water levels on either side of the fault line (California Department of Water Resources, 2006). The project lies in the AHF subbasin.

Groundwater levels have seen a recent decline due to overdraft, making it necessary to obtain water from the State Water Project to recharge groundwater levels in the basin (California Department of Water Resources, 2006). Between 2006 and 2007, water levels have dropped in the AHF Aquifer indicator well from 35.9 feet to 29.2 feet, a decrease of 6.7 feet (Chen, 2008). According to the ACWD, groundwater elevation currently ranges from ground level to 76 feet below ground surface (bgs). The current estimated storage capacity corresponding to mean sea level is 47,000 acre-feet (af) (California Department of Water Resources, 2006).

Surface Water Quality

The San Francisco Bay RWQCB defines the beneficial uses for certain creeks, rivers, lakes and bays. Beneficial uses of waterways can be impaired from pollutants. Beneficial use impairments result from several factors but are generally due to point-source and non-point-source pollutants. Generally, surface water quality in Union City's boundaries are considered sufficient for wildlife, urban, agricultural, and recreational activities. Point-source pollutants include discharges of wastewater from municipal sewage treatment plants, and industrial and commercial facilities. Non-point-sources include urban runoff containing oils, grease, and toxic chemicals; construction runoff; livestock and animal wastes; and runoff from agricultural and residential areas.

Alameda Creek was listed as impaired in 1998 for diazinon according to Section 303(d) of the CWA (see the "Regulatory Setting" section), but was removed in 2006 due to a completed U.S. Environmental Protection Act (USEPA) approved TMDL (State Water Resources Control Board, 2007). CWA Section 303(d) establishes the TMDL process to assist in guiding the application of state water quality standards, requiring states to identify streams with "impaired" water quality (those affected by the presence of pollutants or contaminants) and establish the TMDL or the maximum quantity of a particular constituent that a water body can assimilate without experiencing adverse effects. In general, the water quality of Alameda Creek is representative of urban runoff. Urbanized environments can capture pollutants from many sources such as oil from vehicles and tires. Other sources may include household chemicals such as pesticides and fertilizers. During the dry season, such chemicals collect on impervious surfaces. Many of the chemicals may break down prior to a storm event; however, some chemicals breakdown products are often resilient in the environment and can impact beneficial uses. During the first major storm event, water quality is often degraded in urbanized environments due to all the pollutant build up during the dry season.

Groundwater Quality

The western and central sections of the Niles Cone Subbasin are predominated by a sodium chloride groundwater type, while the eastern section is characterized by a sodium bicarbonate groundwater type (California Department of Water Resources 2006). Water quality samples were taken from 113 wells in the region. Total dissolved solids ranged from 286 to 39,734 milligrams per liter (mg/L), and averaged about 2,204 mg/L (California Department of Water Resources 2006).

Saline water intrusion was first noted in the 1920's in the Newark Aquifer. Water overdraft over several decades has increased the inland migration of saline water that now reaches as far as the Hayward Fault. Since the Hayward Fault acts as a barrier between the AHF and BHF aquifers, the AHF has never been affected by saline intrusion. However, saline water has traveled into deeper aquifers and other areas of the alluvial fan where aquitards dividing the aquifers are weak or nonexistent (California Department of Water Resources, 2006).

Flooding

The proposed building sites are located in Zone X outside of the 100-year flood zone as defined by FEMA's Flood Insurance Rate Map (FIRM). The ACFWCD Line M Channel is located on the southern edge of the project, but the project will not encroach on the channel. The Line M channel contains the 100-year flow within the channel (FEMA, 2000). The AFWCD is responsible for flood control in the project area.

However, according to the Dam Inundation Areas Map from the Association of Bay Area Governments (ABAG), the southeastern edge of the project site overlaps the inundation area of two different dams.[1]

Groundwater Supply

Union City receives its water supply from two sources: groundwater from local municipal wells and surface water imported from the SWP (55percent of water supply) and the Hetch Hetchy Reservoir near Yosemite (30percent of water supply). Over several decades chronic overdraft lowered groundwater levels to below sea level, but have since been recharged due to water imported from the SWP. Artificial recharge has been improved through the construction of three inflatable dams in Alameda Creek that divert water to the Quarry Lakes where surface water percolates down to recharge the groundwater basin (Alameda County Water District, 2007).

Groundwater is obtained from the Newark, Centerville, and Fremont aquifers, which with the recharge from the SWP have provided a safe, reliable, and sustainable supply since the 1960's when the importation of water began. Additionally, the Aquifer Reclamation Program (ARP) has installed nine wells

[1] ABAG website accessed in September 2008. http://gis.abag.ca.gov/?go=floodplain

that pump intrusive saline water from the basin into San Francisco Bay to create increased usable storage and prevent further intrusion of salt water into ACWD wells (California Department of Water Resources, 2006).

Estimated groundwater annual inflows include natural recharge of 8,400 af, artificial recharge from imported water of 33,000 af, and applied recharge of 8,400 af. There are no known sources of subsurface inflow. Annual groundwater outflows for urban extraction are considered to be 23,000 af, and an additional 300 af/year is dedicated to agricultural use. Approximately 6,300 af of water is extracted from the ARP. Subsurface outflow is estimated to be about 7,400 af with an additional 10,900 af being suspect to have been discharged to surface water sources within the basin (California Department of Water Resources, 2006).

Sixteen wells in the area are used to extract groundwater and are capable of extracting a maximum of 47.5 million gallons/day. Once extracted, this water is blended with water from the Hetch Hetchy Reservoir prior to distribution (Alameda County Water District, 2007).

Impact Analysis

Thresholds of Significance

Thresholds of significance were determined based on Appendix G of the State CEQA Guidelines and by using professional judgment and standard practices. An impact was considered to be significant if it would:

- violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality;
- substantially deplete groundwater supplies or substantially interfere with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site;
- create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- otherwise substantially degrade water quality;
- place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;

- place within a 100-year flood hazard area structures that would impede or redirect flood flows; or,
- 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.

Review of the thresholds of significance indicated the Proposed Project would not cause exposure of persons or property to increased risks involving seiche, tsunami, or mudflow because of the project area's distant location from the ocean and the relatively flat topography of the area. Therefore, further discussion of these topics in this EIR was determined to not be necessary.

Impacts and Mitigation Measures

Impact HYD-1: Impacts on Water Quality as a Result of Construction-Related Earth Disturbing Activities

Construction-related earth disturbing activities would occur during the development of the Proposed Project. These construction activities would introduce the potential for increased erosion and sedimentation, with subsequent effects on water quality. During site grading, trenching, and other construction activities create areas of bare soil that can be exposed to erosive forces for long periods of time. Bare soils are much more likely to erode than vegetated areas because of the lack of dispersion, infiltration, and retention properties created by covering vegetation. Construction activities involving soil disturbance, excavation, cutting/filling, stockpiling, and grading could result in increased erosion and sedimentation to surface waters, if proper BMPs are not used.

While existing activities at the project site may already result in the release of sediment, the extent of earth disturbance resulting from construction of the project is anticipated to result in a new and intensified potential for the release of sediments. Specific proposed activities with the potential to generate construction-related water quality effects include the construction of the housing developments, parking lots, roads, and community facilities; and trenching for sewer and stormwater facilities. If precautions are not taken to contain or capture sedimentation, earth-disturbing construction activities could result in substantial sedimentation in stormwater runoff and result in a significant impact on the existing surface water quality. The implementation of Mitigation Measures HYD-1a and HYD-1b would minimize the potential erosion- and sedimentation-related water quality impacts and would reduce this impact to a less-than-significant level.

Mitigation Measure HYD-1a: Comply with NPDES Requirements

The City will require the project contractors to obtain coverage under the General Construction Permit before the onset of any construction activities, where the disturbed area is 1 acre or greater in size. A SWPPP will be developed by a qualified engineer or erosion control specialist in accordance with the San Francisco Bay RWQCB requirements for NPDES compliance and implemented

prior to the issuance of any grading permit before construction. The SWPPP will be kept on site during construction activity and will be made available upon request to representatives of the San Francisco Bay RWQCB.

Compliance and coverage with the General Construction Permit will require controls of pollutant discharges that utilize BMPs and technology to reduce erosion and sediments to meet water quality standards. BMPs may consist of a wide variety of measures taken to reduce pollutants in stormwater and other non-point-source runoff. Measures range from source control, such as reduced surface disturbance, to the treatment of polluted runoff, such as detention basins.

BMPs to be implemented as part of the General Construction Permit (and SWPPP) may include the following practices.

- Temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) will be employed to control erosion from disturbed areas.
- Use a dry detention basin (which is typically dry except after a major rainstorm, when it will temporarily fill with stormwater), designed to decrease runoff during storm events, prevent flooding, and allow for off-peak discharge. Basin features will include maintenance schedules for the periodic removal of sediments, excessive vegetation, and debris that may clog basin inlets and outlets.
- Cover, or apply nontoxic soil stabilizers to, inactive construction areas (previously graded areas inactive for 10 days or more) that could contribute sediment to waterways.
- Enclose and cover exposed stockpiles of dirt or other loose, granular construction materials that could contribute sediment to waterways.
- Ensure that no earth or organic material will be deposited or placed where it may be directly carried into a stream, marsh, slough, lagoon, or body of standing water.
- Prohibit the following types of materials from being rinsed or washed into the streets, shoulder areas, or gutters: concrete, solvents and adhesives, thinners, paints, fuels, sawdust, dirt, gasoline, asphalt and concrete saw slurry, and heavily chlorinated water.
- Ensure that grass or other vegetative cover will be established on the construction site as soon as possible after disturbance.

The City, its contractors, or applicants for specific development projects within the Proposed Project, will select a combination of BMPs that is expected to minimize runoff flows and remove contaminants from stormwater discharges. The final selection of BMPs will be subject to approval by the RWQCB. The City will verify that an NOI has been filed with the SWRCB and that a SWPPP has been developed before allowing construction to begin. The City will perform inspections of the construction area, to verify that the BMPs specified in the SWPPP are properly implemented and maintained. The City will notify

contractors immediately if there is a noncompliance issue and will require compliance. If necessary, the City will require that additional BMPs be designed and implemented if those originally constructed do not achieve the identified performance standard.

Mitigation Measure HYD-1b: Clean Paved Areas with Street Sweeping Equipment

To minimize the amount of pollutants entering the storm drain system during construction, project roadways and other paved areas will be cleaned regularly using street-sweeping equipment. Additionally, litter and debris that may accumulate on the streets of the project site will be regularly collected and properly disposed of. These activities will be the responsibility of the developer or its contractors, subject to review by the City.

Impact HYD-2: Water Quality Impacts as a Result of Construction-Related Hazardous Materials

Due to the proximity of the project site to storm drain inlets, construction equipment and activities for the Proposed Project would have the potential to leak hazardous materials, such as oil and gasoline, and potentially affect surface or groundwater quality. Improper use or accidental spills of fuels, oils, and other construction-related hazardous materials, such as construction-borne sediment, hydrocarbons, and heavy metals from vehicles, also could pose a threat to water quality. While water quality at the project site may currently be affected by contaminants in urban runoff, construction of the project would represent a different type of potential contaminant release associated with construction-related hazardous materials.

Leaks or spills of the construction-related materials described above, if not contained, would be considered a potentially significant impact on groundwater and surface water quality, specifically in Alameda Creek and its tributaries, as well as jurisdictional wetlands. The implementation of Mitigation Measure HYD-2 would reduce this impact to a less-than-significant level.

Mitigation Measure HYD-2: Implement a Spill Prevention and Control Program

As part of requiring compliance with the NPDES General Construction Permit, the City will require that project contractors develop and implement a spill prevention and control program to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during all construction activities. The NPDES General Construction Permit requires the spill prevention and control program. The program will be completed before any construction activities begin.

The City will review and approve the spill prevention and control program before the onset of construction activities. The City will inspect the construction area routinely to verify that the measures specified in the spill prevention and control program are properly implemented and maintained. The City will notify contractors immediately if there is a noncompliance issue and will require compliance.

The federal reportable spill quantity for petroleum products, as defined in 40 CFR 110, is any oil spill that:

- Violates applicable water quality standards,
- Causes a film or sheen upon or discoloration of the water surface or adjoining shoreline, or
- Causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.

If a spill is reportable, the contractor will notify the City's Fire Department and the State Department of Toxic Substances Control (DTSC), which has a spill response and cleanup ordinances to govern emergency spill response. A written description of reportable releases must be submitted to the San Francisco Bay RWQCB and the DTSC. This submittal must include a description of the release, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred, and a description of the steps taken to prevent and control future releases. The releases would be documented on a spill report form.

Impact HYD-3: Water Quality and Hydrogeology Impacts from Construction below the Water Table

Because of the possibility of presence of shallow groundwater within the project area (estimates in the region are surface level to 76 feet bgs), trenching and excavation activities associated with the various project facilities could reach a depth that could expose the water table, which immediately and directly would become available for contaminants to enter the groundwater system. Similarly, if construction is initiated in an area with direct contact with surface water, then the potential for contaminants to enter the surface water system increases. The discharge of construction-related dewatering effluent also could result in the release of contaminants to surface water. Primary construction-related hazardous materials that could be discharged include oil and grease and construction-related hazardous materials. In addition, short-term water quality impacts are possible, such as local changes in turbidity and possibly changes in dissolved oxygen. This impact would be significant, but the implementation of Mitigation Measure HYD-3, as applicable, would reduce this impact to a less-than-significant level.

Mitigation Measure HYD-3: Conduct Geology Study and Implement Provisions for Dewatering

The Applicant shall conduct a Geology Study (or update existing technical reports that cover the Proposed Project site) to determine if any portion of the parking garage that is underground will impact the hydrogeology or the water quality of the aquifer. The study should determine the depth to groundwater and make recommendations on how clay layers will be maintained.

If groundwater is encountered, dewatering effluent will be discharged to the ACFCWCD drainage system. Before discharging any substance that could reach surface waters, the applicant's contractors will obtain an NPDES permit and WDRs from the San Francisco Bay RWQCB. Depending on the volume and

characteristics of the discharge, coverage under the RWQCB's General Construction Permit or General Dewatering Permit is possible. As part of the permit, the contractors will design and implement measures as necessary so that the discharge limits identified in the relevant permit are met. In addition, ACWD regulates the installation and destruction of dewatering wells, and requires permits for installation and destruction of dewatering wells. At this time in the projects design phase, the location and amount of dewatering wells needed for the project is not known. However, before any drilling, the City or its contractor will obtain a drilling permit from ACWD Engineering Department. As a performance standard, these measures will be selected to achieve the maximum sediment removal and represent the best available technology (BAT) that is economically achievable. Implemented measures may include the retention of dewatering effluent until particulate matter has settled before it is discharged, the use of infiltration areas, and other BMPs. The final selection of water quality control measures will be subject to review by the City.

The City will verify that coverage under the appropriate NPDES permit has been obtained before allowing dewatering activities to begin. The City or its agent will perform routine inspections of the construction area to verify that the water quality control measures are properly implemented and maintained. The City will notify the contractors immediately if there is a noncompliance issue and will require compliance.

As a performance standard, the measures will maintain basin plan standards for turbidity, as follows:

- Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases will not exceed 1 NTU.
- Where natural turbidity is between 5 and 50 NTUs, increases will not exceed 20 percent.
- Where natural turbidity is between 50 and 100 NTUs, increases will not exceed 10 NTUs.
- Where natural turbidity is greater than 100 NTUs, increases will not exceed 10 percent.

Where the Proposed Project has potential to result in elevated turbidity, monitoring will be performed at least twice daily at upstream and downstream locations to determine whether the standards outlined above have been met. In the event that they are not being met, the turbidity-generating activities will cease until turbidity is within the identified limits, and construction methods or turbidity control measures will be modified to ensure that turbidity limits continue to be met.

Impact HYD-4: Increased Amounts of Surface Runoff and Associated Impacts on Water Quality and Drainage Facilities during Operation

The Proposed Project would involve creation of a substantial amount of new impervious surface, which would increase the amount of surface runoff as well as convey non-point-source contaminants to surface waters via drainage facilities during storm events. Additional runoff could contribute to the flood potential of natural stream channels, accelerate soil erosion and stream channel scour, and provide a more effective means of transport for pollutants to enter the waterways.

During the dry season, vehicles and other urban activities release contaminants onto the impervious surfaces, where they will accumulate until the first storm event. During this initial storm event, or first flush, the concentrated pollutants will be transported via runoff to stormwater drainage systems. Anticipated runoff contaminants associated with the Proposed Project include sediment, pesticides, oil and grease, nutrients, metals, bacteria, and trash. It bears noting that some of these contaminants may be expected in the existing urban runoff from the project site.

This impact is considered potentially significant. However, the Proposed Project would include BMPs to maximize stormwater quality consistent with the City's NPDES Phase II Stormwater Permit (and therefore the additional requirements of Provision C.3). The BMPs would include a combination of source control, structural improvements, and treatment systems to the extent required to ensure compliance with the applicable CWA regulations. Furthermore, the Applicant has identified potential storm treatment methods that would also reduce the effect of stormwater and runoff including: permeable pavers, stormwater flow through planter boxes, vegetated roofs, rain barrels/cisterns, vegetated filter strips, infiltration trenches, bioretention cells, and grassy swales. These are detailed on page AO.3 of the Phase 1 Submittal included in Appendix D. Implementation of Mitigation Measure HYD-4 would reduce impacts to a less-than-significant level.

Mitigation Measure HYD-4: Incorporate Site-Specific Water Quality Treatment Devices into Site Drainage Plan and Implement Best Management Practices

Before the beginning of the construction phase, the project developer shall determine the adequate storm drain capacity needed for the Proposed Project so onsite flooding does not occur. This could be done with a Location Hydraulic Study that uses the Rational Method to calculate flows from the Proposed Project from an increase in the impervious surface. In addition, the Study should also use a HEC-RAS model to determine if the outfall to which the storm drain ends has sufficient capacity to handle the additional flow.

To reduce or eliminate water quality effects from polluted runoff from the project, the developer or Applicant will incorporate stormwater treatment devices into the site design per C.3 provisions and implement multiple BMPs in areas with a potential to drain into storm drainage systems or surface waters.

BMPs may include the practices and methods of treatment below:

- Paved project roadways and parking areas will be cleaned regularly using street sweeping equipment. Additionally, litter and debris that may accumulate on the project site will be regularly collected and properly disposed of. These measures will be carried out at least monthly if construction occurs during the rainy season (October–April).
- Dry detention basins, which are typically dry except after a major rainstorm when they temporarily fill with stormwater, will be created and designed to decrease runoff during storm events, prevent flooding, and allow for off-peak discharge. Basin features will include maintenance schedules for the periodic removal of sedimentation, excessive vegetation, and debris that may clog basin inlets and outlets.
- Grass buffer strips, high infiltration substrates, tree box filters, and grassy swales will be used where feasible throughout the project site to reduce runoff, serve as biofilters, and provide initial stormwater treatment. This type of treatment will apply particularly to parking lots.
- Physical devices will be placed at outlets of pipes and channels to reduce the velocity or the energy of exiting water. Outlet protection helps to prevent scour and minimize the potential for downstream erosion by reducing the velocity or energy of concentrated stormwater flows.
- Methods of treatment that could be used in combination to provide additional stormwater treatment include use of permeable pavers, planters, vegetated roofs, rain barrels and cisterns, vegetated filter strips, infiltration trenches, bioretention cells, and grassed swales (detailed in Appendix D).

The project developer shall select a combination of BMPs that is expected to remove contaminants from stormwater discharges. The final selection and design of BMPs will provide maximum contaminant removal, represent the best available technology that is economically achievable, and explicitly identify the expected level of effectiveness at contaminant removal.

The City will conduct inspections following the construction to ensure that all identified BMPs have been properly installed. The project will adopt a regular maintenance and monitoring schedule to ensure that these BMPs function properly during project operations. If necessary, the City will require that additional BMPs be designed and implemented if those originally constructed do not achieve the identified performance standard.

As a performance standard, measures to be implemented will be designed to meet C.3 requirements to ensure no net increase in off-site flow velocities. All flow from the project will be captured and treated per the requirements of Provision C.3.

Impact HYD-5: Decrease in Groundwater Recharge

The Proposed Project would involve an increase in impervious surfaces (e.g., roads and structures), which would reduce the infiltration of groundwater to the

underlying aquifer on the project site. However, the project area (approximately 6 acres) is less than 1 percent of the total Niles Cone Subbasin surface area (65,800 acres) and would not interfere with the overall recharge of the subbasin. The majority of runoff from the project area would drain to local drainage facilities and the channel extending south of the rail station site. Therefore, there would be no impact on groundwater recharge.

Impact HYD-6: Substantial Depletion of Groundwater Supplies

Union City water is currently supplied by the ACWD, which obtains 15 percent of its water from groundwater sources, and imports 85 percent of its water from the SWP and Hetch-Hetchy Reservoir. Approximately 33,000 af/year is used for groundwater recharge, which has raised regional groundwater levels consistently and restored the significant overdraft from previous decades and restored groundwater supplies (Alameda Water District, 2007). A majority of the water the project would use would be from imported water and would therefore have a less-than-significant impact on groundwater supplies.

Impact HYD-7: Impacts on Groundwater and Surface Water from Infrastructure Failure

The Proposed Project would include the installation of infrastructure such as water supply and wastewater pipelines. The possibility of a pipeline rupturing because of exceedances of pipeline capacity, improper design, installation, maintenance, seismic activity, or other catastrophic events could pose a temporary negative impact on water quality resulting from increased erosion and sediment, as well as discharge of any contaminants contained in the water released from the pipeline (e.g., sewage from influent pipelines). However, the infrastructure system(s) would be designed and engineered with sufficient capacity to accommodate anticipated peak flows, minimizing the potential for upset. In addition, infrastructure would be designed to relevant seismic and other standards to minimize the potential for upset from seismic activity or other geologic hazards. Because all facilities would be adequately sized, and designed and constructed to current standards that are considered adequately protective (i.e., the Uniform Building Code), including standards related to seismic safety and geologic hazards, these impacts are considered less than significant.

Impact HYD-8: Water Quality Impacts from Discharges to CWA 303(d)-Listed Surface Water Bodies

Surface water runoff from the Proposed Project ultimately could be discharged into Line M which flows into Alameda Creek—which is on the CWA 303(d) list of water quality limited segments being addressed by USEPA approved TMDLs for diazinon. Alameda Creek was moved to this list from the CWA 303(d) list of impaired water bodies because of a completed USEPA approved TMDL.

The approved TMDL addresses not only diazinon, but also other pesticides used in the urban watersheds with the goal of reducing pesticide-related toxicity in

urban creeks and San Francisco Bay. Diazinon is no longer used in most commercial applications.

The Proposed Project will mostly have impervious surfaces, but will contain limited areas of landscaping, that may require pesticide applications. However, all site runoff will be treated through the design means adopted for stormwater runoff prior to discharge into waterways or the storm sewer. Pesticide use will be done in compliance with all applicable state and federal requirements. Given the limited amount of landscaping, water quality treatments, and compliance with pesticide application regulations, the project would have a less than significant impact on water quality related to pesticide uses.

Impact HYD-9: Impacts on Housing from Placement in a 100-Year Floodplain

The building footprint of the project lies in Zone X, which is outside the 100-year flood zone. The Line M channel contains the 100-year flood within the channel. There would be no impact on housing from placement in a 100-year floodplain.

Impact HYD-10: Impacts on Flood Flows from Structures in 100-Year Floodplain

The project is not located in the 100-year floodplain and would not encroach on the 100-year floodplain associated with Line M and thus there is no impact related to 100-year floodplain encroachment.

Impact HYD-11: Flood Hazards associated with Levee or Dam Failure

Flooding as a result of the failure of one or more of the levees on either side of Alameda Creek could result from structural failure or a major and catastrophic seismic event. The only dams that could affect the area are the SFPUC dams on San Antonio and Calaveras dams in Sunol. Review of the ABAG dam failure map indicates that the southeast corner of the project site could be included in the very edge of the inundation zone. Therefore, although the risk of dam failure and its potential effect on the project site is remote, it could occur.

As a result of this risk, the ACFCWCD, inspects dams, local floodways, the predicted pattern/direction of floodwaters, evacuation plans, and designated City evacuation routes for adequacy of evacuation procedures. Because of the relatively small potential for such failure, and the existing emergency evacuation procedures, this impact is considered less than significant.

Cumulative Impacts

As described above, all stormwater from the Proposed Project will be treated prior to being discharged into local waterways or the storm sewer in accordance with existing water quality regulations. Similarly, due to the existing urbanized

environment, cumulative increases in stormwater runoff from other cumulative projects will be addressed by designing adequate storm drainage facilities that take into account all drainage capacities and any existing planned development. The Proposed Project will comply with the NPDES Phase II Stormwater permit. Thus the Proposed Project will not make a considerable contribution to potentially significant cumulative impacts associated with water quality.

The project is not located in a flood zone and the project will be designed in compliance with the C.3 requirements to avoid any increase in stormwater runoff rates beyond existing rates and thus the project will not contribute considerable to cumulative flooding impacts.

As described above, the project will not result in significant impairment of groundwater water supplies or recharge and thus will not contribute considerably to a cumulative impact on water supplies or recharge.

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