3.4 Hydrology and Water Quality

This section describes the existing conditions related to hydrology, drainage, groundwater and water quality within the project site and project area, and analyzes the potential impacts that would result from implementation of the proposed project. The analysis is based on the Groundwater Evaluation Technical Memorandum (AECOM 2018), the CEQA Drainage Study (Chang 2018a), and the Hydraulic Analysis (Chang 2018b), which are included in Appendix R of this EIR.

3.4.1 Existing Conditions

3.4.1.1 Regional Drainage and Climate

A watershed is defined as the area of land where all of the water that falls onto it and drains off of it goes to a common outlet; watershed boundaries within the United States are mapped by regulatory agencies (USGS 2016). According to San Diego County, the project site is located in the San Diego watershed (San Diego County 2014). This watershed originates east of the site in the Cuyamaca Mountains and flows southwesterly to the Pacific Ocean through Mission Valley. The watershed area totals 433 square miles and has an overall length of approximately 41 miles. The watershed is characterized by very steep hillsides with moderate vegetative cover in the upper reaches of the watershed and mixed land uses in the lower, less steep portions of the watershed near the San Diego River. The valley surrounding the San Diego River generally consists of low-density housing, farming, and open grasslands. Figure 3.4-1 shows the proposed project within the boundaries of the San Diego River watershed.

The climate experienced in the San Diego watershed is typical of Southern California. Approximately 70 percent of annual precipitation falls between December and March. Due to the vast differences in elevation, annual precipitation is unevenly distributed, ranging from approximately 35 inches in mountainous areas to 10 inches in coastal areas. Rainfall in the project area averages 15 inches per year but varies considerably from year to year.

3.4.1.2 Local Drainage

The project site is bisected by the San Diego River, and is located approximately 3 miles downstream of El Capitan Reservoir. The section of river downstream of the reservoir extending to the river's outlet in the Pacific Ocean is considered the Lower San Diego River (SDRPF 2015). Thus, the project site's direct receiving water body is the Lower San Diego River, and its downstream receiving water body is the San Diego River outlet. Downstream of the reservoir, including within the project site, the river is dry the majority of the year and collects storm water runoff from the surrounding watershed during large storm events. San Diego River's 100-year storm flow volume at the project site is 19,000 to 20,000 cubic

feet per second (cfs). Existing onsite and surrounding drainage patterns are shown in Figure 3.4-2.

The San Diego River in its pre-disturbed condition was characterized as ephemeral (dry during certain times of the year). Construction of the El Capitan Dam and the EI Capitan Reservoir significantly altered the natural flows in the riverbed. Currently, El Capitan Reservoir captures the vast majority of the drainage flows from areas upstream of the project site for water supply. The total drainage basin area for this reservoir is 190 square miles. El Capitan Reservoir has a capacity of 112,807 acre-feet (City of San Diego 2017).

EI Capitan Reservoir is owned and operated by the City of San Diego for municipal use and irrigation. Most of the water stored in EI Capitan accumulates from natural runoff. With the exception of infrequent high storm flows, water releases from the reservoir are generally to the City's water supply system. As such, normal operations do not provide runoff to the river channel. The dam has an uncontrolled spillway, and overtopping events occur when the water level exceeds the spillway crest. Since the completion of the dam, overtopping of the El Capitan reservoir has occurred rarely, in 1938, 1939, 1941, 1980, and 1993. An overtopping event has not occurred in 25 years. Water utilization policy for the City's reservoirs requires the use of local runoff first before imported water. The City's primary objective for the operation of these reservoirs is to maximize the capture and utilization of local runoff water. For this reason, the City Council has an established policy that requires EI Capitan Reservoir to maintain 60 percent of the annual water requirement as active available storage. This policy sets the lower level of storage. It is a normal practice to maintain minimum water storage in these reservoirs each fall, just before the winter rainy season. This policy has reduced the chances for water releases and for an overtopping even to occur.

3.4.1.3 Surface Water Quality

The Lower San Diego River and the river's outlet are both currently recognized by the State as being impaired by several pollutants. Table 3.4-1 summarizes these water quality impairments and the potential sources of these impairments. Impairments for both portions of the river include enterrocucus, fecal coliform, low dissolved oxygen, manganese, nitrogen, photosphorus, total dissolved solids (TDS), and toxicity.

Enterrococcus and fecal coliform are types of bacteria that are found in feces; if present in water, these bacteria are indicators of fecal contamination (Boehm and Sassoubre 2014; NYDH 2011). Manganese occurs naturally in the earth's crust but can be present in excessive concentrations in water resulting from industrial emissions and soil erosion (WHO 2011). Excessive nitrogen and phosphorus in water are primarily sourced from human activities including agriculture, concentrated waste discharge from wastewater treatment systems, burning of fossil fuels, and use of fertilizers and detergents (EPA 2016). Total Dissolved Solvents (TDS) include inorganic salts and small amounts of organic matter and,

in drinking water, can originate from natural sources, sewage, urban runoff, industrial wastewater, chemicals used in the water treatment process, and from the nature of the piping or hardware used to convey the water (Oram 2014). Toxicity refers to toxic substances in concentrations that are lethal to or produce other detrimental responses in aquatic organisms (SFBRWQCB 2009).

The table also includes the anticipated total maximum daily load (TMDL) completion date. A TMDL is the maximum amount of a pollutant that a water body can receive and still meet water quality standards. Typically, a TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources.

Beneficial uses are defined as the uses of water necessary for the survival or well-being of people, plants, and wildlife and are specified by water quality (SDRWQCB 2012). Beneficial uses of the project site's receiving water bodies are determined by the San Diego Regional Water Quality Control Board (SDRWQCB 2012) and are listed in Table 3.4-2. The SDRWQCB also establishes water quality objectives for various water bodies within their jurisdiction. The objectives for the Lower San Diego River are listed below in Table 3.4-3.

3.4.1.4 Flooding

With a semi-arid climate and highly variable seasonal precipitation, flooding events are infrequent but can be significant. Flooding in Southern California most frequently occurs during winter storm events, between the months of November and April. It floods occasionally during the summer, when tropical storms make landfall in the region. Infrequent large bursts of rain can rush down steep canyons and flood areas unexpectedly. National Weather Service records of flooding and heavy rainfall events demonstrate that just 1 to 2 inches of rain over a few days can cause localized flooding, while events that bring three or more inches of precipitation will induce more severe flooding, including flash floods, mudflows, and landslides.

A majority of the project site is within the 100-year floodplain, as shown in Figure 3.4-2. Stormwater within the project site sheet-flows to the San Diego River riverbed, which drains the area from smaller storm events. Stormwater originating upstream from the project site passes through the site via the unimproved San Diego River channel. Since construction of the dam in 1935, the greatest flow in the river occurred on February 21, 1980 and the inflow to El Capitan Reservoir was estimated to be 40,000 cfs at the time. The Reservoir effectively controlled much of this inflow, with El Capitan reservoir discharging only 1,080 cfs. The 1980 flood was the first spill for El Capitan since 1941. As described above in Section 3.4.1.2, overtopping events have occurred infrequently with the most recent overtopping event occurring 25 years ago in 1993. Below El Capitan Reservoir, only a small watershed area contributes runoff to the San Diego River above the project site. As such, in most years, this small

watershed area does not yield sufficient runoff to cause substantial flow within the river channel through the project site.

Mudflows are considered a form of flooding, and are the most common disaster in San Diego County (San Diego County 2007). A mudflow occurs naturally as a result of heavy rainfall on a slope that contains loose soil or debris. Human activity, such as saturation of soil from a broken water pipe or incorrect diversion of runoff from developed areas, can also induce a mudflow. The loss of vegetation from natural disturbances like forest fires or human activities may result in destabilization of surface soil and an increase in velocity of surface water runoff, increasing the potential for mudflows.

Mudflows predominantly occur in mountainous areas underlain by geologic formations that produce sandy soils (San Diego County 2007). Soils with large amounts of clay that shrink and expand with exposure to water have a high potential for instability and sliding. Mudflows can be initiated on slopes as low as 15 degrees, but are more frequently found on slopes as steep as 45 degrees. The path of a mudflow is determined by local topography and typically follows existing drainage patterns. The fluidity and depth of the water/soil/debris mixture and the steepness of a channel are all variables that influence the rate of movement of a mudflow; mudflows can be capable of destroying buildings and roadways (San Diego County 2007).

3.4.1.5 Dam Failure

Failure of a major dam during an earthquake could cause serious loss of life and property damage. The project site is located within a dam inundation zone for the El Capitan dam and reservoir which is located upstream approximately 3 miles east of the project site. The El Capitan Reservoir was formed in 1935, with the completion of the El Capitan Dam, and has a maximum capacity of 112,807 acre-feet. However, such an event is considered unlikely because of state requirements that large dams receive seismic upgrades and routine inspections for safety. In California, the supervision, regulation, and inspection of all large dams that are not federally owned is the responsibility of the Division of Safety of Dams (DSOD). They conduct periodic inspections of dams to identify any deficiencies. The City of San Diego is required by DSOD to maintain the water level in El Capitan Reservoir at 30 feet below the spillway of the dam. With this storage limit, DSOD has certified the dam’s risk of failure is very low.

3.4.1.6 Hydrogeology and Groundwater

As detailed in the Groundwater Evaluation Technical Memorandum included in Appendix R, aquifer watershed boundaries are generally assumed to be consistent with surface topographic boundaries within El Monte Valley. The project site is part of the larger El Monte Basin watershed (tributary watershed) that begins at the toe of the El Capitan dam on the east and exits to the larger San Diego River watershed to the west, as shown in Figure 3.4-1.

Sparse groundwater level records have been maintained in the tributary watershed. According to the Technical Memorandum, inspection of the El Monte #14 hydrograph reveals that the groundwater rose to an elevation of roughly 446 feet above mean sea level, or 6 feet below ground surface, in 1984, 1994, 1995, and 1996. This elevation is roughly equal to the ground surface elevation within the San Diego River at that cross-section, indicating the groundwater basin was essentially full (AECOM 2018).

Current annual groundwater consumption within the study area includes a combination of residential water usage; Helix Water District pumping; City of San Diego pumping; County of San Diego pumping for El Monte Regional Park; and agricultural irrigation, transpiration of groundwater-dependent vegetation, and surface water evaporation in Hanson Pond. Annual groundwater consumption within the tributary watershed the last 40 years has fluctuated based on area wide water levels affecting pond evaporation and phreatophyte demand, gradual buildout of the residential water demand, and changes in Helix Water District and City of San Diego pumping. Total groundwater demands over the last 40 years have ranged from approximately 1,240 afy to approximately 2,300 afy with a 40-year average annual groundwater demand of approximately 1,700 afy.

Sources of groundwater recharge include precipitation, runoff, soil moisture, El Capitan Dam periodic overtopping, and streambed infiltration. The average annual rainfall for the project site has been about 16 inches per year over the last 40 years, and has ranged between 5 and 31 inches (AECOM 2018). As stated above, the most recent overtopping event was in 1993 and thus, groundwater levels have been declining thereafter for the past 15 years. Based on this declining trend, groundwater levels have declined by approximately 1.7 feet per year (ft/yr) on average, with existing levels being about 390 to 425 feet above mean sea level, which is approximately 40 to 50 feet below ground surface (bgs) (AECOM 2018). Dam releases are governed by the City of San Diego as a means to manage excess water stored in El Capitan Reservoir. It is in the interest of the City to limit the frequency of releases and thus maximize water in storage within the reservoir.

3.4.1.7 Regulatory Framework

<u>Federal</u>

Federal Emergency Management Agency

FEMA is the primary agency in charge of administering programs and coordinating with communities to establish effective flood plain management standards. FEMA is responsible for preparing Flood Insurance Rate Map (FIRM) for communities, which delineate both the areas of special flood hazards and the risk premium zones applicable to the community. It is the responsibility of State and local agencies to implement regulations, ordinances, and policies in compliance with FEMA requirements, to adequately address floodplain

management issues and attempt to prevent loss of life and property, health and safety hazards, and other adverse effects to public health and safety as a result of flooding.

National Flood Insurance Act

This legislation established the National Flood Insurance Program (NFIP). The 1968 Act provided for the availability of flood insurance within communities that were willing to adopt floodplain management programs to mitigate future flood losses. The act also required the identification of all floodplain areas within the U.S. and the establishment of flood-risk zones within those areas.

Federal Water Pollution Control Act (Clean Water Act)

The principle federal law pertaining to the regulation of water quality is the 1972 Federal Water Pollution Control Act (Clean Water Act) (EPA 2015). The Clean Water Act strives to restore and maintain the chemical, physical, and biological integrity of the nation's water. The act sets up a system of water quality standards, discharge limitations, and permits. The fundamental purpose of this law is the protection of designated beneficial uses of water resources. Sections 106, 205(g), 205(j), 208, 303, and 305 of the Clean Water Act establish requirements for state water quality planning, management, and implementation with regard to surface waters. The Clean Water Act requires that states adopt water quality standards to protect public health or welfare, enhance the quality of water, and serve the purposes of the Clean Water Act.

The Clean Water Act was amended in 1987 to include urban and stormwater runoff, which required many cities to obtain a NPDES permit for stormwater conveyance system discharges. Section 402(p) of the Clean Water Act prohibits discharges of pollutants contained in stormwater runoff, except in compliance with an NPDES permit.

<u>State</u>

Porter-Cologne Water Quality Control Act

California's Porter-Cologne Water Quality Control Act (1969), which became Division 7, Water Quality of the State Water Code, establishes the responsibilities and authorities of the nine Regional Water Quality Control Boards (previously called Water Pollution Control Boards) and the State Water Resources Control Board (SWRCB). The Porter-Cologne Act names these Boards and designates them as "the principal State agencies with primary responsibility for the coordination and control of water quality" (Section 13001). Each Regional Board is directed to "formulate and adopt water quality control plans for all areas within the region." A water quality control plan for the waters of an area is defined as having three components: (1) beneficial uses which are to be protected, (2) water quality objectives which protect those uses, and (3) an implementation plan which accomplishes those objectives

(Section 13050). In California, all surface waters and groundwater are considered to be "Waters of the State."

State Industrial General Permit

The SWRCB adopted the most recent version of the NPDES General Permit for Storm Water Discharges Associated with Industrial Activities (Industrial General Permit) in July of 2015. The purpose of this permit is to protect water quality during industrial operations; the permit specifies discharge prohibitions, effluent limitations, receiving water limitations, total maximum daily loads, training qualifications, and monitoring requirements. A Storm Water Pollution Prevention Plan (SWPPP) must also be prepared for compliance with the Industrial General Permit. The SWPPP must include best management practices (BMPs) to be implemented throughout the site operation. The permit specifies minimum BMPs to be implemented at each industrial facility regardless of facility type. These BMP types include good housekeeping, preventative maintenance, spill and leak prevention and response, material handling and waste management, erosion and sediment control, quality assurance, and record keeping. An Employee Training Program is also a minimum BMP to ensure all team members implementing compliance activities are properly trained. The permit lists advanced BMPs that should also be implemented onsite to the extent feasible. As a mining facility, the proposed project falls under number 3 of the facilities covered by the Industrial General Permit specified in the Permit's Attachment A (SWRCB 2014).

State Construction General Permit

The SWRCB and the nine RWQCBs have the primary responsibility for the protection and enhancement of water quality in California. The Porter-Cologne Water Quality Control Act acts in cooperation with the CWA to establish the SWRCB, which oversees the nine RWQCB. The RWQCB monitors and enforces the NPDES stormwater permitting for the region. The SWRCB administers the NPDES Permit Program through its General NPDES Permit. Construction activities of 1 acre or more are subject to the permitting requirements of the NPDES General Permit for Discharges of Stormwater Runoff Associated with Construction Activity (General Construction Permit). The project sponsor must submit a Notice of Intent (NOI) to the SWRCB and prepare a SWPPP in order to be covered by the General Permit prior to the beginning of construction.

The General Permit establishes three possible risk levels for a construction site. Risk levels are a combination of the site's sediment risk (or potential for sediment loss) and the site's receiving water risk (sensitivity of the site's receiving waters to sediment). The potential for sediment loss is based on the location and duration of construction activities. The sediment sensitivity of the site's receiving waters is based on whether a project drains to a sediment-sensitive water body either, (1) on the most recent 303d list for water bodies impaired for sediment, (2) that has an EPA-approved TMDL implementation plan for sediment, or (3) that has the beneficial uses of COLD (cold freshwater habitat), SPWN

(spawning, reproduction and/or early development), and MIGR (migration of aquatic organisms). The risk level calculated for a project will dictate monitoring and sampling requirements. The General Permit defines technology-based Numeric Action Levels (NALs) and Numeric Effluent Limitation (NELs) for pH and turbidity. Risk Level 2 projects are subject to NALs and Risk Level 3 projects are subject to NELs. Risk Level 2 and Risk Level 3 projects are required to conduct effluent monitoring and reporting for pH and turbidity in storm water discharges. Additionally, Risk Level 3 projects should sample receiving water when NELs are exceeded.

The SWPPP has two major objectives: to help identify the sources of sediment and other pollutants that affect the quality of storm water discharges, and to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in both stormwater and in non-stormwater discharges. SWPPPs typically include project risk determination, visual inspection requirements, identification of sampling locations, collection and handling procedures (for Risk Level 2 and Risk Level 3 projects), and specifications for BMPs to be implemented during project construction for the purpose of minimizing the discharge of pollutants in stormwater from the construction area. In addition, a SWPPP includes measures to minimize the amount of pollutants in runoff after construction is completed, and identifies a plan to inspect and maintain project BMPs and facilities at the end of the construction project. This plan includes information regarding how the SWPPP was met.

There are two types of BMPs: structural and nonstructural. Structural BMPs are the specific construction, modification, operation, maintenance, or monitoring of facilities that would minimize the introduction of pollutants into the stormwater system or would remove pollutants from the stormwater system. Nonstructural BMPs are activities, programs, and other nonphysical measures that help reduce pollutants from nonpoint sources. BMP implementation must take into account changing weather conditions and construction activities, and various combinations of BMPs may be used over the life of the project to maintain compliance with the CWA. The General NPDES Permit gives the owner the discretion to determine the most economical, effective, and innovative BMPs to achieve the performance-based goals of the General NPDES Permit.

Cobey-Alquist Flood Plain Management Act

This act encourages local governments to plan, adopt, and enforce land use regulations for floodplain management in order to protect people and property from flooding hazards. This act also identifies requirements that jurisdictions must meet in order to receive state financial assistance for flood control.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) became effective in 2015 to strengthen local groundwater management of basins that are critical to the State's water needs. SGMA requires local public agencies to become groundwater sustainability agencies (GSAs) that develop and implement groundwater sustainability plans (GSPs) to achieve long-term groundwater sustainability. The State designated four of San Diego County's basins as medium priority, including the San Diego River Valley groundwater basin. The deadline for completion of the San Diego River Valley GSP is 2022 (San Diego County 2017a). The GSA for the San Diego River Valley is comprised of the County, City of San Diego, Lakeside Water District, and the Padre Dam Municipal Water District (San Diego County 2017b).

Local

County of San Diego Watershed Protection, Stormwater Management and Discharge Control Ordinance

The most current Watershed Protection Ordinance (WPO) and Stormwater Standards Manual (SSM) were adopted in January 2016 with the purpose of protecting the health, safety and general welfare of the County of San Diego residents, to protect water resources and to improve water quality, to cause the use of management practices by the County and its citizens that will reduce the adverse effects of polluted runoff discharges on waters of the state, to secure benefits from the use of stormwater as a resource, and to ensure the County is compliant with applicable state and federal law. The WPO contains discharge prohibitions, and requirements that vary depending on type of land use activity and location in the County.

The Stormwater Standards Manual (SSM) is Appendix A of the WPO and sets out in more detail, by project category, what dischargers must do to comply with the WPO and to receive permits for projects and activities that are subject to the WPO. The WPO and SSM define the requirements that are legally enforceable by the County in the unincorporated area of San Diego County. In addition, the County has adopted its BMP Design Manual (DM) for Land Development and Public Improvement Projects. The BMP-DM is focused on project design requirements and related post-construction requirements for land development and capital improvement projects, and addresses WPO requirements for these project types.

Order R9-2015-0100 directs the County to design and implement requirements of the Hydromodification Management Plan (HMMP) and Low Impact Development (LID) BMP to reduce stormwater runoff from project sites by promoting infiltration and minimizing impervious areas. The County WPO and BMP-DM will be updated to fulfill the requirements of this new order.

San Diego Municipal Separate Storm Sewer System Permit

Per Federal regulations, the State issues a Municipal Stormwater permit (also known as a NPDES permit) to municipalities which must be renewed every five years. Under this permit, each municipality must develop a stormwater management program designed to control the discharge of pollutants into and from the municipal separate storm sewer systems (MS4) (or from being discharged directly into the MS4). The purpose is to protect local water bodies since storm drains typically discharge their water into streams, bays, and/or the ocean without treatment. Order R9-2013-0001 was adopted by the RWQCB San Diego Region on May 8, 2013 and established waste discharge requirements for discharge of urban runoff from the MS4 of the County of San Diego, the 18 incorporated cities of San Diego County, the San Diego Unified Port District, and the San Diego County Regional Airport Authority. Order R9-2015-0001 was adopted on February 11, 2015, amending the Regional MS4 Permit to extend coverage to the Orange County Co-permittes. Order R9-2015-0100 was adopted on November 18, 2015, amending the Regional MS4 Permit to extend coverage to the Riverside County Co-permittes (SDRWQCB 2016).

San Diego County General Plan

Conservation Element

Goal COS-4: Water Management. A balanced and regionally integrated water management approach to achieve the long-term viability of the County's water quality and supply.

Policies

Policy COS-4.1: Require development to reduce the waste of potable water through use of efficient technologies and conservation efforts that minimize the County's dependence on imported water and conserve groundwater resources.

Policy COS-4.2: Require efficient irrigation systems and in new development encourage the use of native plant species and non-invasive drought tolerant/low water use plants in landscaping.

Policy COS-4.3: Maximize stormwater filtration and/or infiltration in areas that are not subject to high groundwater by maximizing the natural drainage patterns and the retention of natural vegetation and other pervious surfaces. This policy shall not apply in areas with high groundwater, where raising the water table could cause septic system failures, moisture damage to building slabs, and/or other problems.

Policy COS-4.4: Require land uses with a high potential to contaminate groundwater to take appropriate measures to protect water supply sources.

Policy COS-4.5: Promote the use of recycled water and gray water systems where feasible.

Goal COS-5 Protection and Maintenance of Water Resources. Protection and maintenance of local reservoirs, watersheds, aquifer-recharge areas, and natural drainage systems to maintain high-quality water resources.

Policies

Policy COS-5.1: Restrict development in floodways and floodplains in accordance with policies in the Flood Hazards section of the Safety Element.

Policy COS-5.2: Require development to minimize the use of directly connected impervious surfaces and to retain stormwater run-off caused from the development footprint at or near the site of generation.

Policy COS-5.3: Require development to be appropriately sited and to incorporate measures to retain natural flow regimes, thereby protecting downslope areas from erosion, capturing runoff to adequately allow for filtration and/or infiltration, and protecting downstream biological resources.

Policy COS-5.4: Encourage the removal of invasive species to restore natural drainage systems, habitats, and natural hydrologic regimes of watercourses.

Policy COS-5.5: Require development projects to avoid impacts to the water quality in local reservoirs, groundwater resources, and recharge areas, watersheds, and other local water sources.

Safety Element

Goal S-9 Protection of Life and Property. Minimized personal injury and property damage losses resulting from flood events.

Policy S-9.1: Manage development based on federal floodplain maps. County maps shall also be referred to and in case of conflict(s) between the County floodplain maps and the federal floodplain maps, the more stringent of restrictions shall apply.

Policy S-9.2*:* Limit development in designated floodplains to decrease the potential for property damage and loss of life from flooding and to avoid the need for engineered channels, channel improvements, and other flood

control facilities. Require development to conform to federal flood proofing standards and siting criteria to prevent flow obstruction.

Policy S-9.3: Require development within mapped flood hazard areas be sited and designed to minimize on and off-site hazards to health, safety, and property due to flooding.

Policy S-9.5 Development in the Floodplain Fringe. Prohibit development in the floodplain fringe when located on Semi-Rural and Rural Lands to maintain the capacity of the floodplain, unless specifically allowed in a community plan. For parcels located entirely within a floodplain or without sufficient space for a building pad outside the floodplain, development is limited to a single family home on an existing lot or those uses that do not compromise the environmental attributes of the floodplain or require further channelization.

Goal S-10 Floodway and Floodplain Capacity. Floodways and floodplains that have acceptable capacity to accommodate flood events.

Policy S-10.1: Limit new or expanded uses in floodways to agricultural, recreational, and other such low-intensity uses and those that do not result in any increase in flood levels during the occurrence of the base flood discharge, do not include habitable structures, and do not substantially harm, and fully offset, the environmental values of the floodway area. This policy does not apply to minor renovation projects, improvements required to remedy an existing flooding problem, legal sand or gravel mining activities, or public infrastructure.

Policy S-10.2: Require the use of natural channels for County flood control facilities except where necessary to protect existing structures from a current flooding problem and where natural channel use is deemed infeasible. The alternative must achieve the same level of biological and other environmental protection, such as water quality, hydrology, and public safety.

Policy S-10.3: Require flood control facilities to be adequately sized, constructed, and maintained to operate effectively.

Policy S-10.4: Require development to incorporate low impact design, hydromodification management, and other measures to minimize stormwater impacts on drainage and flood control facilities.

Policy S-10.5: Require development to provide necessary on- and off-site improvements to stormwater runoff and drainage facilities.

Policy S-10.6: Ensure development avoids diverting drainages, increasing velocities, and altering flow rates to off-site areas to minimize adverse impacts to the area’s existing hydrology.

County of San Diego Flood Damage Prevention Ordinance

This ordinance was established to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas throughout the County. Pursuant to this ordinance, Special Flood Hazard Areas (SFHA) in the County are identified as areas having a special flood or flood-related erosion/sedimentation hazard and shown on a FIRM, on a County flood plain map as within a 100-year floodplain or on an alluvial fan map within an alluvial fan area. This ordinance defines methods to accomplish the goals of reducing flood losses, including: restricting uses which are dangerous to health, safety and property due to erosion or water hazards; requiring uses vulnerable to floods to be protected against flood damage at the time of construction; controlling the alteration of natural flood plains; controlling filling, grading, or dredging which may increase flood damage; and preventing construction of flood barriers which will divert flood waters or increase flood hazards in other areas. This ordinance also provides for provisions for standards of construction and standards for subdivisions in areas of special flood hazards. By complying with the requirements of the Flood Damage Prevention Ordinance, projects are considered to be in compliance with FEMA regulations.

County of San Diego Resource Protection Ordinance

The RPO prohibits development of permanent structures for human habitation or as a place of work in a floodway. Uses permitted in a floodway pursuant to Article IV, Section 3 of this ordinance include agricultural, recreational, and other such low intensity uses, provided, however, that no use shall be permitted which will substantially harm the environmental values of a particular floodway area. Mineral resource extraction is also permitted in a floodway, with an approved MUP and Reclamation Plan, provided that mitigation measures are required that produce any net gain in the functional wetlands and riparian habitat. Modifications to the floodway must meet design criteria, and concrete or rip rap flood control channels are allowed only when specific findings are made. Additionally, Article IV, Section 4 of the RPO allows uses permitted by zoning and those that are allowable in the floodway in the floodplain fringe, when the specific criteria are met.

San Diego County Groundwater Ordinance

The County currently manages anticipated future groundwater demand through the County Groundwater Ordinance, which became effective in 2004. This Ordinance does not limit the number of wells or the amount of groundwater extraction of existing landowners. However, the Ordinance does require analysis of potential groundwater impacts for projects requiring specified discretionary permits. Existing land uses are not subject to the Ordinance unless a listed discretionary permit is required and the use of groundwater is proposed. Section 67.722 of the Ordinance regulates all areas within the County outside Borrego Valley and any future groundwater impacted basins.

Board of Supervisors Policy I-45: Definition of Watercourses in the County of San Diego Subject to Flood Control

The purpose of this policy is to define those watercourses in the County that are subject to flood control so that appropriate responsibility can be determined. Watercourses subject to flood control are defined as those that serve 1 square mile or more of watershed shown on the map on file with the Clerk of the Board as Document #468904. The policy was developed because consideration of flood control methods is essential in the land use decision-making process and the failure of flood control systems may result in property damage and loss of life. The policy provides for maps that specifically designate the watercourses subject to flood control, thus eliminating the uncertainty and providing a clear and easily accessible record of the flood control district's area of concern.

Board of Supervisors Policy I-68: Proposed Projects in Flood Plains with Defined Floodways

This policy was developed to identify procedures to be used when proposed projects impact floodways as defined on County floodplain maps. The policy defines procedures to be implemented for the following types of proposals: major construction that would change the flood plain or floodway; relocation of a floodway; partial filling of the flood plain fringe; erosion and sedimentation in a flood plain; increased flood flows; and concrete or rip rap facilities.

3.4.2 Analysis of Project Effects and Determination as to Significance

For the purpose of this EIR, the identified significance thresholds are based on criteria provided in the San Diego County Guidelines for Determining Significance for Hydrology (County Guidelines for Hydrology) approved July 30 2007; the San Diego County Guidelines for Determining Significance for Surface Water Quality (County Guidelines for Surface Water Quality) approved July 30, 2007; and the San Diego County Guidelines for Determining Significance for Groundwater Resources (County Guidelines for Groundwater Resources) approved March 19, 2007.

3.4.2.1 *Issue 1: Water Quality Standard/Waste Discharge Requirement* Violation

<u>Guidelines for the Determination of Significance</u>

According to the County Guidelines for Surface Water Quality, the proposed project would have a significant impact if it would:

- Drain to a tributary of an impaired water body listed on the Clean Water Act Section 303(d) list, and will contribute substantial additional pollutant(s) for which the receiving water body is already impaired.

- Contribute pollution in excess of that allowed by applicable State or local water quality objectives or will cause or contribute to the degradation of beneficial uses.

- Not conform to applicable Federal, State or local "Clean Water" statutes or regulations including but not limited to the Federal Water Pollution Control Act, California Porter-Cologne Water Quality Control Act, and the County of San Diego Watershed Protection Stormwater Management, and Discharge Control Ordinance.

Analysis

As described above under Existing Conditions, the project site's direct receiving water body and downstream receiving water body are impaired for various pollutants. Both receiving water bodies also have beneficial uses and water quality objectives established by the SDRWQCB. Impacts to water quality from mining operations and reclamation activities could create new or exacerbate existing effects to the water quality of the receiving water bodies. Site preparation, mining and reclamation would involve ground disturbing activities (e.g., grading and excavation) and the use of heavy equipment, and movement of sand. Particulates from the extraction, sediment from roadways and slopes, and chemicals associated with mining equipment could be discharged into receiving waters and impact water quality. Therefore, these practices could release sediment and other pollutants into stormwater capable of degrading water quality by impairing beneficial uses and violating water quality objectives. However, compliance with federal, State and local Clean Water statutes would reduce potential impacts to water quality as described below.

During site preparation, which constitutes an incrementally short period of ground disturbance, the proposed project would be required to comply with the State Construction General Permit, that requires implementation of a site-specific SWPPP to reduce potential impacts to water quality. This SWPPP requires assessment of the site and implementation of all feasible erosion and sediment control BMPs that are designed to help prevent erosion and the mixing of sediment with stormwater. Source control, good housekeeping, and waste management BMPs would help contain chemicals associated with equipment, fuel, and chemicals onsite, thereby preventing them from being discharged into receiving waters. Required BMPs for temporary disturbances are specified in the County WPO. Therefore, impacts to water quality during site preparation would be less than significant.

During the proposed mining operations and subsequent reclamation activities, compliance with the Industrial General Permit would be required. Permit compliance includes preparation of a SWPPP that specifies various BMPs to be implemented by appropriately trained personnel to avoid impacts to water quality. These BMPs include the required minimum BMPs specified by the permit as well as advanced BMPs that are feasible and applicable to the project site and its

proposed operations. Monitoring and annual evaluations required by the permit would also ensure that water quality would be protected during mining activities**.** Required BMPs for industrial activities are also specified in the County WPO. Impacts to water quality during mining operations and reclamation activities of the proposed project would be less than significant.

Once mining operations have been completed, the mining footprint would be entirely restored as established by the Reclamation and Revegetation Plans. The presence of natural open space would stabilize the mining footprint area, decrease the amount of runoff being discharged from the project site, and serve as a natural filtration system for stormwater runoff. Thus, the project site would be restored to revegetated open space and would have similar effects to water quality as in existing conditions. Impacts to water quality after completion of the proposed project would be less than significant.

In summary, compliance with all applicable federal, State, and local water quality-related regulations would minimize impacts to the water quality of surrounding receiving waters during all phases of the proposed project. Therefore, the proposed project would not contribute additional pollutants to an impaired waterbody, would not contribute pollution in excess of that allowed by State or local objectives, and would conform to applicable Federal, State and local “Clean Water” statues or regulations. Impacts related to water quality would be **less than significant**.

3.4.2.2 Issue 2: Groundwater Storage/Well Interference

Guidelines for the Determination of Significance

According to the County Guidelines for Groundwater Resources, the proposed project would have a significant impact on groundwater if it would:

- Result in a 50 percent reduction of groundwater in storage (Water Balance Analysis) for proposed projects in fractured rock basins, a soil moisture balance, or equivalent analysis, conducted using a minimum of 30 years of precipitation data, including drought periods, concludes that at any time groundwater in storage is reduced to a level of 50 percent or less as a result of groundwater extraction.

Analysis

As detailed in the Groundwater Evaluation Technical Memorandum within Appendix R, the potential for a reduction to 50 percent or more of the basin storage is analyzed based upon the “water budget” of the tributary watershed (i.e., the amount of water entering the groundwater basin and the amount of water leaving the groundwater basin) with implementation of the proposed project. The project proposes to mine and export sand material from within a 228-acre excavation area with maximum depths of 33 feet bgs (west) to 41 feet bgs (east). Current groundwater surface elevations are 40 feet below the existing

site surface elevation in the western portion of the site and 50 feet below the current ground surface in the eastern portion of the site. Mining below the surface elevation of the groundwater is not proposed, and the distance to the groundwater surface elevation from the proposed mine pit floor is anticipated to increase over time based on the observed decline in groundwater levels. After the cessation of the mining operation, the proposed project would restore and revegetate the excavation pit in accordance with the Reclamation and Revegetation Plans prepared for the project site. While the proposed project would not use onsite surface water or groundwater, effects from the proposed project would result in changes to the "water budget", as described further below.

Three factors were used to assess the "water budget" of the tributary watershed with implementation of the proposed project. These include: (1) stormwater runoff from precipitation events that flow into the excavation pit; (2) potential evaporation losses if exposed water stands within the excavation pit; and (3) potential changes in the amount of evapotranspiration[1] (ET) of on-site groundwater dependent habitat, which is comprised of Phreatophytes[2]. Refer to Appendix R, Groundwater Evaluation Technical Memorandum (AECOM 2018) for the detailed discussion and calculations of each of these three factors.

Based on the groundwater impact analysis presented in the Groundwater Evaluation Memorandum, the components of inflows and outflows of groundwater at the project site in existing and future conditions are summarized in **Table 3.4-4** below. Existing conditions represent inflows and outflows prior to mining excavation, while future conditions represent components of inflow and outflow in post mining conditions. As shown in Table 3.4-4, the future conditions with the excavation pit on the project site (along with during active mining) would capture and retain stormwater runoff and as such would allow for additional water to infiltrate and be stored in the groundwater basin, which would otherwise be discharged offsite as surface water. Further, once the excavation pit has been fully restored and revegetated per the Reclamation and Revegetation Plans, approximately 368 acre feet per year (afy) is anticipated to be retained by the restored excavation pit and stored within the groundwater basin. Thus, the first factor in this assessment of the groundwater budget would add on average approximately 368 afy to the groundwater basin.

Table 3.4-4 also indicates that evaporation losses would occur from standing water within the excavated pit from wet years under future conditions. According to the Groundwater Evaluation Memorandum, evaporation losses from potential standing water in the excavation pit are estimated at 4.55 afy per acre of exposed water (AECOM 2018). As groundwater levels in the basin fluctuate, so would the volume of groundwater within the excavation pit until groundwater is deeper than the pit floor and thus evaporative loss each year could vary.

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1 Evapotranspiration is the process by which water is transferred from the land to the atmosphere by evaporation from the soil and other surfaces as well as transpiration of plants (the process of giving off water vapor through the leaf or stem of a plant).

2 Phreatophytes are plants with a deep root system that draws its water supply from near the water table.

Currently, groundwater levels are about 40 to 50 feet bgs, which would be equal to approximately 5 to 10 feet below the bottom of the reclaimed mining pit. As stated in Existing Conditions, with the lack of recent overtopping events from the El Capitan Reservoir in the last 25 years, groundwater levels have been declining by an average of 1.7 ft/yr (AECOM 2018). If there is not another overtopping event within the next 15 years, groundwater levels would continue to decline by approximately 25 feet (1.7 feet /year). Thus, water levels would be approximately 65 to 75 feet bgs, or roughly 30 to 35 feet below the bottom of the reclaimed mining pit on the west end and 35 to 40 feet below the bottom of the reclaimed mining pit on the east end at the end of mining operations (AECOM 2018). Unless another overtopping event occurs, no standing water would exist within the restored excavation pit, and therefore, no evaporation losses would occur. Thus, the second factor in this assessment of the groundwater budget would remove on average approximately 4.55 afy per acre of exposed water from the groundwater basin, depending on the groundwater levels.

To determine the effects of the third factor (Evapotranspiration of onsite groundwater dependent habitat) for this assessment, the following groundwater-dependent habitats [Southern Cottonwood-Willow Riparian Forest, Vegetated Channel, Southern Willow Scrub, and Tamarisk Scrub (for current conditions only)] were compared against the predicted basin-wide groundwater elevation each year to determine if groundwater loss occurred. The first operations occurring onsite will be to clear the vegetation out of the Phase 1 mining pit area and the abandoned golf course depression east of Dairy Road, phreatophyte ET should be significantly less at that time than existing conditions. And since no groundwater will be used during mining operations, it is expected that impacts during mining will be less than significant. During post-mining conditions, where groundwater will potentially be approximately 30 to 40 feet below the bottom of the excavation pit, a total of approximately 325 afy is estimated to be lost to ET. In future conditions, if water conditions are similar as existing conditions where groundwater is approximately 5 to 15 feet below the bottom of the excavation pit, a total of approximately 366 afy is predicted to be lost to ET (AECOM 2018). The amount of ET loss depends on several factors, including depth of groundwater, phreatophyte species factor, density factor, microclimate factor, and the reference evapotranspiration rate (refer to Table 4 in the Groundwater Evaluation Memorandum in Appendix R). Thus, the third factor in this assessment of the groundwater budget would remove approximately 325 to 366 afy, depending on the groundwater levels, from ET of onsite groundwater dependent habitat.

When combining all three factors, the proposed project would be considered a net benefit to the groundwater basin as the amount of water estimated to infiltrate into the groundwater basin through capture of stormwater runoff would be greater than the amount of water estimated to be lost through evaporation and ET (AECOM 2018). In addition, in the event of the El Capitan Reservoir overtopping, the reclaimed excavation pit would provide an additional benefit of capturing approximately 2,000 acre-feet to be temporarily stored if the excavation pit were completely filled. This would be considered a benefit as the pit would capture a

large quantity of the water from the overtopping event to be infiltrated into the groundwater basin, which would have otherwise been discharged as surface water offsite. Therefore, impacts to groundwater storage would be **less than significant**.

3.4.2.3 Issues 3 and 4: Substantial Alteration of Existing Drainage Patterns Causing Erosion, Siltation and/or Flooding

Guidelines for the Determination of Significance

According to the County Guidelines for Hydrology, the proposed project would result in a significant impact if it would substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion, siltation, or flooding on- or offsite.

Analysis

The project proposes to mine sand from the 228-acre mining area in four phases over a 12-year period and would restore the mining area in accordance with the Revegetation and Reclamation Plans prepared for the project for up to four years after mining is complete. The proposed project also includes site preparation which includes the construction of a haul road, an access road, processing plants, earthen berms and a drop structure across the San Diego River floodway at the east end of the extractive area onsite. Topsoil would be removed and stockpiled around the perimeter of the mine pit area to screen views of the mining operation and for use in reclamation and restoration once the mining is completed.

In existing conditions, all drainage generated on the project site currently drains via surface flow in an east-west direction to the San Diego River, which bisects the proposed project area. As previously indicated, surface water rarely flows in the portion of the San Diego River onsite due to the upstream El Capitan Dam and Reservoir. Should a large storm event or overtopping at El Capitan Reservoir occur during project operation, a large release of surface water, which would equal approximately 19,000 to 20,000 cfs during a 100-year-flood, would travel downstream (Chang 2018b).

As stated above, site preparation would include the development of a haul road, an access road, processing plants, earthen berms and a drop structure across the San Diego River floodway at the east end of the extractive area onsite. These structures would alter the site topography and existing surface water drainage pattern, potentially resulting in erosion, sedimentation or flooding onsite during site preparation. However, site preparation activities would require coverage under the Construction General Permit, involving the preparation of a SWPPP that includes erosion and sediment control BMPs to prevent erosion and

sedimentation from occurring onsite. Erosion and sediment control BMPs could include, but are not limited to, the following:

- **Minimizing Disturbed Areas.** Clearing of land is limited to that which will be actively being constructed in the near term, new land disturbance during the rainy season is minimized, and disturbance to sensitive areas or areas that would not be affected by site preparation is minimized.

- **Stabilizing Disturbed Areas**. Temporary stabilization of disturbed soils is provided whenever active site preparation is not occurring on a portion of the project site, and permanent stabilization is provided by once site preparation is completed, as applicable.

- **Protecting Slopes and Channels**. Outside of the approved site preparation area, disturbance of natural channels is avoided, slopes and crossings are stabilized, and increases in runoff velocity caused by the project are managed to avoid erosion to slopes and channels.

- **Controlling the Site Perimeter**. Upstream runoff is safely conveyed through the project site and is kept free of excessive sediment and other constituents.

- **Controlling Internal Erosion.** Sediment-laden waters from disturbed, active areas within the project site are detained.

Pursuant to Section 87.703 of the County Grading Ordinance, grading and excavation for the proposed project will be in accordance with an approved MUP Plot Plan and Reclamation Plan. The County review of these documents prior to issuance of permits would ensure drainage is appropriately accommodated during site preparation.

As stated above, the project proposes to mine sand from the 228-acre mining area in four phases over a 12-year period; the mining would progress from east to west and would be concurrently reclaimed and revegetated upon the completion of each mining phase. Extraction activities would create a 228-acre pit within the San Diego River channel and surrounding areas, which would result in a change of drainage patterns that could result in erosion, sedimentation, or on- or off-site flooding with a large storm event. While mining projects are exempt from hydromodification BMPs specified in the County WPO, the project would still include BMPs to control stormwater discharge from the project site. For stormwater flows which do not reach San Diego River upstream, perimeter berms would be installed around the excavation pit to redirected stormwater flows downstream along the base of the berm and back into the San Diego River channel west of the project site. In order to minimize sedimentation along the edge of these manufactured perimeter berms, the project would be required to incorporate straw straddles along the base of the berm and would secure the area with construction silt fencing to reduce activity which could cause the slopes

of the berm to erode. In addition, a 25-foot-wide low flow earthen channel and associated drop structure made of grouted boulders would be constructed within the bottom of the mining pit to collect storm water that enters the excavation pit from the San Diego River channel east of the mine limits. The southwest processing plant area would include a perimeter berm around all impervious surfaces and would utilize a polymer binder on the haul road to stabilize loose soils to minimize erosion and sedimentation during rain events.

During large storm events, storm water may temporarily pool in the lower elevations of the excavation pit. Storm water entering the excavation pit would be captured onsite and would either evaporate or percolate into the underlying groundwater basin, as discussed in Issue 2. In the case of very large storm events or an overtopping event of the El Capitan Dam, the excavation pit itself would serve as large detention basin as the excavation pit could hold up to 35 feet of water across 228-acres before the stormwater would overflow the west end of the pit. While a rain or overtopping event of this magnitude is highly unlikely, the excavation pit itself would reduce the velocity of stormwater flows and serve as a natural filtration basin. Although these structures would alter drainage patterns, they are designed to control onsite flows, thereby minimizing erosion, sedimentation and flooding during mining operations. Figure 1-4 in Chapter 1, Project Description, shows the locations of the proposed onsite storm water facilities. Watershed runoff flows originating in the natural drainage channels in the hillside areas north and south of the project site would continue to drain towards to San Diego River channel. This runoff would either enter the San Diego River channel upstream of the project site or sheet flow to the perimeter mine site berms and be redirected along the base of the berm downstream and back into the San Diego River channel west of the project site.

A Hydraulic Analysis was prepared for the proposed project (Chang 2018b), which evaluated the hydraulic effects of the proposed project within the San Diego River floodplain. The hydraulic models and analyses compared existing and proposed project conditions to evaluate the effect of proposed mining on flood conveyance through the project site (Chang 2018b). Model results indicate that although the proposed project is within the County's effective floodway, it will not raise the 100-year water surface elevations and would therefore meet the County and FEMA's floodway regulations. In addition, the project will not create adverse flood impacts within the San Diego River, which is consistent with the goals of FEMA floodway regulations.

In addition, a CEQA Drainage Study was prepared for the proposed project (Chang 2018a), which evaluated the effects of the proposed project on existing drainage patterns within the area of the project site located outside of the San Diego River floodplain. Specifically, the Drainage Study evaluated whether the processing plants would cause an adverse effect to existing drainage patterns and as such cause erosion or siltation on- or off-site. According to the CEQA Drainage Study, implementation of the proposed project would not alter existing drainage patterns outside the San Diego River floodplain and would not result in

substantial erosion or siltation on- or off-site. In addition, the processing plant would not result in flooding on- or off-site since it would contribute approximately 4 cfs to the San Diego River's 100-year flow rate of 20,000 cfs, which would be a relatively insignificant contribution. Therefore, impacts related to alteration of drainage patterns, erosion, sedimentation or flooding onsite or off-site during mining operations and reclamation activities would be less than significant.

After the cessation of mining operations, the mining area would be restored and revegetated in accordance with the Reclamation and Revegetation Plans prepared for the project. Due to the extraction of materials, the project site would have a depression area of reduced elevation compared to existing conditions. Post reclamation and revegetation activities would create a vegetated streambed through the project site, where surface water would flow to. Therefore, impacts related to alteration to drainage patterns, erosion, sedimentation or flooding onsite or off-site after completion of the proposed project would be less than significant.

For the reasons discussed above, the proposed project site would not alter drainage patterns during any phase of the project and would not result in erosion, sedimentation or flooding onsite or off-site. Therefore, impacts would be **less than significant**.

3.4.2.4 Issue 5: Increase in Discharge Rates that Would Cause Downstream Flooding

Guidelines for the Determination of Significance

According to the County Guidelines for Hydrology, the proposed project would have a significant impact if it would result in increased velocities and peak flow rates exiting the project site that would cause flooding.

Analysis

In existing conditions, all stormwater runoff which flows into the project site drains into the San Diego River channel, which bisects the project site. Based on the Hydraulic Analysis for the project site within the San Diego River floodplain, it was determined that flow velocities of the 100-year flow event would decrease with mining operations as the excavation pit would increase the conveyance area (Change 2018b). Beyond the excavation pit, flow velocities of the 100-year flow event would remain unchanged from existing conditions (Change 2018b). In addition, according to the CEQA Drainage Study, the presence of the processing plant would not cause an adverse increase in flow velocities and would not contribute significant amounts of runoff which would exceed the capacity of the San Diego River, as discussed above in Issues 3 and 4 (Chang 2018a).

Therefore, flows occurring on the project site during mining operation and reclamation activities are not expected to exceed the capacity of the existing San Diego River channel. Although mining activities would require large areas of

vegetation clearing, which would reduce the ground surface's ability to absorb surface flows, all flows generated onsite would be appropriately contained onsite by stormwater control measures as described under Issues 3 and 4 above during mining and reclamation activities, and would thus not cause flooding downstream. Pursuant to Section 87.703 of the County Grading Ordinance, grading and excavation for the proposed project will be in accordance with an approved MUP Plot Plan and Reclamation Plan. The County review of these documents prior to issuance of permits would ensure containment of flows is appropriately accommodated during site preparation. Further, the deepening of the river channel post-mining would not affect the channel's ability to accommodate natural flows and would actually act as an energy dissipater for large storm events (Chang 2018b). The restoration of the mining footprint area as revegetated open space following mining activities would enable the slopes to more efficiently absorb runoff prior to discharge into the channel, which would further reduce the potential for flooding. Therefore, the proposed project would not result in increased velocities and peak flow rates exiting the project site and would not cause downstream flooding. Impacts would be **less than significant**.

3.4.2.5 Issue 6 and 7: Housing and Structures in a Flood Zone

Guidelines for the Determination of Significance

According to the County Guidelines for Hydrology, the proposed project would result in a significant impact if it would place housing, habitable structures, or unanchored impediments in a 100-year floodplain area or other special flood hazard area, as shown on a FIRM, a County Flood Plain Map or County Alluvial Fan Map, which would subsequently endanger health, safety and property due to flooding (flooding includes mudflows or debris flows).

Analysis

The proposed project would place a mobile and long-term processing plant within the floodplain during mining operations. As detailed above within Issue 3 and 4, the Drainage Study evaluated whether the processing plants would cause an adverse effect to existing drainage patterns. The processing plants would not result in flooding on- or off-site since it would contribute approximately 4 cfs to the San Diego River's 100-year flow rate of 20,000 cfs, which would be a relatively insignificant contribution. While mining equipment would be considered unanchored impediments located within the San Diego River floodplain, the project would not result in on- or off-site flooding, as fully discussed in Issues 3 and 4. In addition, as discussed in Issue 5, it was determined that flow velocities of the 100-year flow event would decrease with mining operations as the excavation pit would increase the conveyance area and would act as an energy dissipater (Change 2018b).

Further, most of the project site parcels have a Flood Plain Special Area Regulations designator "F" per the County's Zoning Ordinance, which applies to

properties within San Diego County not planned for channelization which are subject to inundation under 100-year frequency flood conditions. The proposed project would be required to receive approval of a MUP with the County to permit the operation of the sand mine that includes the placement of mining equipment within the designated floodplain. Therefore, with approval of a MUP, including supporting hydraulic analysis of the floodplain, the proposed project would comply with Section 5506 of the Zoning Ordinance and not result in flooding hazards associated with having unanchored impediments in the San Diego River floodplain.

Mudflows are very common in steeply sloped unincorporated County areas and areas with expansive soils containing large amounts of clay. As discussed in Section 3.2, Geology and Soils, the project site is topographically moderate with some large flat areas and level to gentle slopes, and does not contain any expansive soils. Operation of the proposed project would involve mining activities that would create cut slopes excavated and re-contoured at 3H:1V slope, with 20-foot-wide benches. The maximum excavation depth would be approximately 33 to 41 feet below existing ground surface, and the project is proposed to have a minimum setback of 75 feet from the project site boundary. A potential for mudflows could occur during heavy rainfall events on the excavated and re-contoured slopes. However, the Slope Stability Investigation concluded that transient flooding of the excavation pit would not destabilize the slopes cut to 3H:1V or less steep. Additionally, with the implementation of design consideration **DC-GE-1**, listed in Section 3.2, the proposed project would include all of the recommendations within the Slope Stability Investigation (CHJ Consultants 2016). Therefore, impacts related to hazards within flood zones, including mudflows, would be **less than significant**.

3.4.3 Cumulative Impact Analysis

Table 1-11 in Chapter 1, Project Description, lists the past, present, and reasonably anticipated future projects in the project area. These projects have been included in the following cumulative analysis for the proposed project.

<u>Issue 1: Water Quality Standard/Waste Discharge Requirement Violation</u>

The geographic context for the cumulative analysis of water quality is the San Diego River watershed. Construction and development associated with cumulative projects, such as those listed in Table 1-11, could contribute source pollutants to downstream receiving waters resulting in violations of water quality standards and waste discharge requirements. However, construction and development proposed under these cumulative projects would be subject to regulations that require the inclusion of project design features that would ensure compliance with such water quality standards, such as the CWA, NPDES, and local regulations and policies. Because the proposed project would have a less than significant impact on water quality standards or waste discharge

requirement violations, when combined with cumulative projects, impacts **would not be considered cumulatively considerable**.

Issue 2: Groundwater Storage

The geographic context for the cumulative analysis of groundwater storage is the El Monte watershed basin. Each cumulative project would be subject to environmental review to analyze project impacts to groundwater supplies and would be required to comply with all local regulations that ensure sufficient groundwater supplies exist to serve the project, if necessary.

As discussed above, the proposed project would result in a net benefit to the groundwater basin as the amount of water estimated to infiltrate into the groundwater basin through capture of stormwater runoff would be greater than the amount of water estimated to be lost through evaporation and ET (AECOM 2018). In addition, the revegetated excavation pit would capture a large quantity of the water from an overtopping event compared to existing conditions, which would percolate into the groundwater basin. Therefore, in combination with all cumulative projects, impacts associated with groundwater levels and well interference **would not be considered cumulatively considerable.**

Issue 3 and 4: Substantial Alteration of Existing Drainage Patterns Causing Erosion, Siltation and/or Flooding

Construction of the cumulative projects identified in Table 1-11 would result in various types of developments which could potentially alter existing drainage patterns that could lead to substantial erosion, siltation, or on- or off-site flooding. It is reasonable to assume that some of these cumulative projects would occur simultaneously, which could compound impacts. Further, the cumulative projects listed in Table 1-11 would increase impervious surfaces within the area. However, each project would be required to comply with all local regulations and policies aimed at reducing discharge of pollutants, erosion, and siltation during and after construction. Additionally, each project would be required to maintain pre-development discharge rates and volume of stormwater runoff.

The proposed project would include excavation within the San Diego River channel that would provide additional flood storage capacity within the project site, which would ultimately provide increased downstream protection from high stormwater flow events in the future compared to existing conditions. With implementation of the other elements including the Reclamation and Restoration Plans, the proposed project would include drainage control measures that are protective of hydrologic resources in accordance with Federal, State, and local requirements. Further, it was determined that the proposed project would not alter existing drainage patterns outside of the floodplain and would not create adverse flood impacts within the San Diego River, which is consistent with the goals of FEMA floodway regulations. The excavation pit itself would serve as an energy dissipater and natural filtration basin for stormwater flows and would

serve as a very large retention basin in the case of a very large rain event or an overtopping event of the El Capitan Dam. Therefore, with regard to substantial alteration of drainage patterns, the proposed project would **not have a cumulatively considerable effect.**

Issue 5: Increase in Discharge Rates that Would Cause Downstream Flooding

Impermeable surfaces, constructed with development of the cumulative projects listed in Table 1-11, could contribute substantial quantities of stormwater runoff to downstream receiving waters or surrounding local stormwater drainage systems, where capacities could be exceeded. However, these cumulative projects would be subject to CEQA review to analyze project impacts related to downstream flooding or stormwater drainage systems. Further, the cumulative projects would be required to comply with local regulations that require development to construct storm water drainage and retention systems so that they would not cause flooding.

As discussed above, flows occurring on the project site during mining operation and reclamation activities are not expected to exceed the capacity of the existing San Diego River channel. The restoration and revegetation of the mining footprint area following mining activities would enable the slopes to more efficiently absorb runoff prior to discharge into the channel, which would further reduce the potential for flooding. Therefore, the proposed project would not result in increased velocities and peak flow rates exiting the project site and would not cause downstream flooding. Thus, **the project will not contribute to an increase in discharge rates that would cause downstream flooding**.

Issue 6 and 7: Housing and Structures in a Flood Zone

It is expected that cumulative projects, such as those listed in Table 1-11, would be required to comply with applicable regulations that would prevent the construction of structures in floodways and floodplains. Therefore, through regulation, a cumulative impact would not occur.

While the proposed project would include the presence of construction and mining equipment within the San Diego River floodplain, the proposed project would be required to receive approval of a MUP with the County to permit the operation of the sand mine and placement of mining equipment within the designated floodplain. Therefore, with approval of a MUP and supporting hydraulic analysis, the proposed project would not result in flooding hazards associated with placing mining equipment in the San Diego River floodplain. Thus, the project in combination with cumulative projects, impacts associated with housing or structures in a flood zone **would not be considered cumulatively considerable**.

3.4.4 Significance of Impacts Prior to Mitigation

As discussed above, no significant impacts related to hydrology and water quality would result from the proposed project. Thus, no mitigation is required.

3.4.5 Conclusion

Implementation of the proposed project would not adversely affect water quality or groundwater storage. The proposed project would not alter drainage patterns during any phase of the project and would not result in erosion, sedimentation or flooding onsite or off-site. Impacts would be less than significant. In addition, the proposed project would not result in increased velocities and peak flow rates exiting the project site and would not cause downstream flooding. Further, the proposed project would not result in flooding hazards associated with having unanchored structures and equipment in the San Diego River floodplain. Effects related to flooding, specifically mudflows, would be minimized with implementation of design consideration **DC-GE-1** (listed in Section 3.2, Geology and Soils) and all of the recommendations within the Slope Stability Investigation (CHJ Consultants 2016). Therefore, impacts related hydrology and water quality would be less than significant.

Table 3.4-1: Water Quality Impairments of Direct and Downstream Receiving Waters

Water Body/ Reach Name	Pollutant/Stressor	Potential Source	TMDL Completion Date
Lower San Diego River	Enterococcus	Point; nonpoint; urban runoff/storm sewers	2021
	Fecal Coliform	Point; nonpoint; urban runoff/storm sewers.	2009
	Low Dissolved Oxygen	Unknown point; unknown nonpoint; urban runoff/storm sewers	2019
	Manganese	Unknown	2021
	Nitrogen	Point; nonpoint; urban runoff/storm sewers	2021
	Phosphorus	Unknown point; unknown nonpoint; urban runoff/storm sewers	2019
	Total Dissolved Solids	Flow regulation/modification; natural, unknown point; unknown nonpoint; urban runoff/storm sewers	2019
	Toxicity	Nonpoint; unknown point; other urban runoff	2021
San Diego River outlet	Enterococcus	Unknown	2021
	Total coliform	Unknown point; unknown nonpoint; urban runoff/storm sewers	2010

SOURCE: SDRWQCB 2016

Table 3.4-2: Beneficial Uses of Project Receiving Water Bodies

Beneficial Uses	San Diego River	San Diego River Outlet (Mouth)
Municipal and Domestic Supply (MUN)	E	--
Industrial Service Supply (IND)	E	--
Industrial Process Supply (PROC)	E	--
Agricultural Supply (AGR)	E	--
Groundwater Recharge (GWR)	--	--
Freshwater Replenishment (FRSH)	--	--
Navigation (NAV)	--	--
Hydropower Generation (POW)	--	--
Commercial and Sportfishing (COMM)	--	E
Aquaculture (AQUA)	--	--
Warm Freshwater Habitat (WARM)	E	
Cold Freshwater Habitat (COLD)	E	--
Inland Saline Water Habitat (SAL)	--	--
Estuarine Habitat (EST)	--	E
Marine Habitat (MAR)	--	E
Wildlife Habitat (WILD)	E	E
Preservation of Biological Habitats(BIOL)	--	--
Rare, Threatened or Endangered Species (RARE)	--	E
Migration of Aquatic Organisms (MIGR)	--	E
Spawning, Reproduction, and Development (SPWN)	--	E
Contact Water Recreation (REC 1)	E	E
Non-contact Water Recreation (REC 2)	E	E
Shellfish Harvesting (SHELL)	E	E
Wetlands (WET)	--	--

SOURCE: SDRWQCB 2012
Note: E=Existing Beneficial Use, P= Potential Beneficial Use

Table 3.4-3: Water Quality Objectives for Project Receiving Water Bodies

Constituent (mg/L or as noted)	Objective
TDS	1,000
Cl	400
SO4	500
%Na	60
N&P	a
Fe	0.3
Mn	0.05
MBAS	0.5
B	1.0
ODOR	none
Turb NTU	20
Color Units	20
F	-

SOURCE: SDRWQCB 2016

Table 3.4-4: Groundwater Fluxes

	Existing Conditions	Future Conditions
Inflows		
Rainfall recharge	X	X
Underflow beneath the El Capitan Dam	X	X
Stream bed infiltration	X	X
Return flows from landscape irrigation and septic systems	X	X
Rainfall Pit Run-on Into Mining Pit		XX
Spills and overtopping of El Capitan Reservoir	X	X
Outflows		
Evapotranspiration of groundwater-dependent plant species	X	XX
Groundwater pumping for residential, municipal supply, and irrigation purposes	X	X
Groundwater outflow into the basin to the west.	X	X
Evaporation off of existing water surfaces (e.g., Hanson Pond)	X	X
Evaporation from pit pond		XX

Note:
Double X's (XX) denotes a change in the groundwater flow component.
As detailed in the Groundwater Evaluation Technical Memorandum, the proposed project would be considered a net benefit to the groundwater basin (AECOM 2018).

Source: AECOM 2018.

SOURCE: ESRI; EnviroMine; The Altum Group; Chang Consultants; ESA; SanGIS

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Figure 3.4-1

Project Site Watershed

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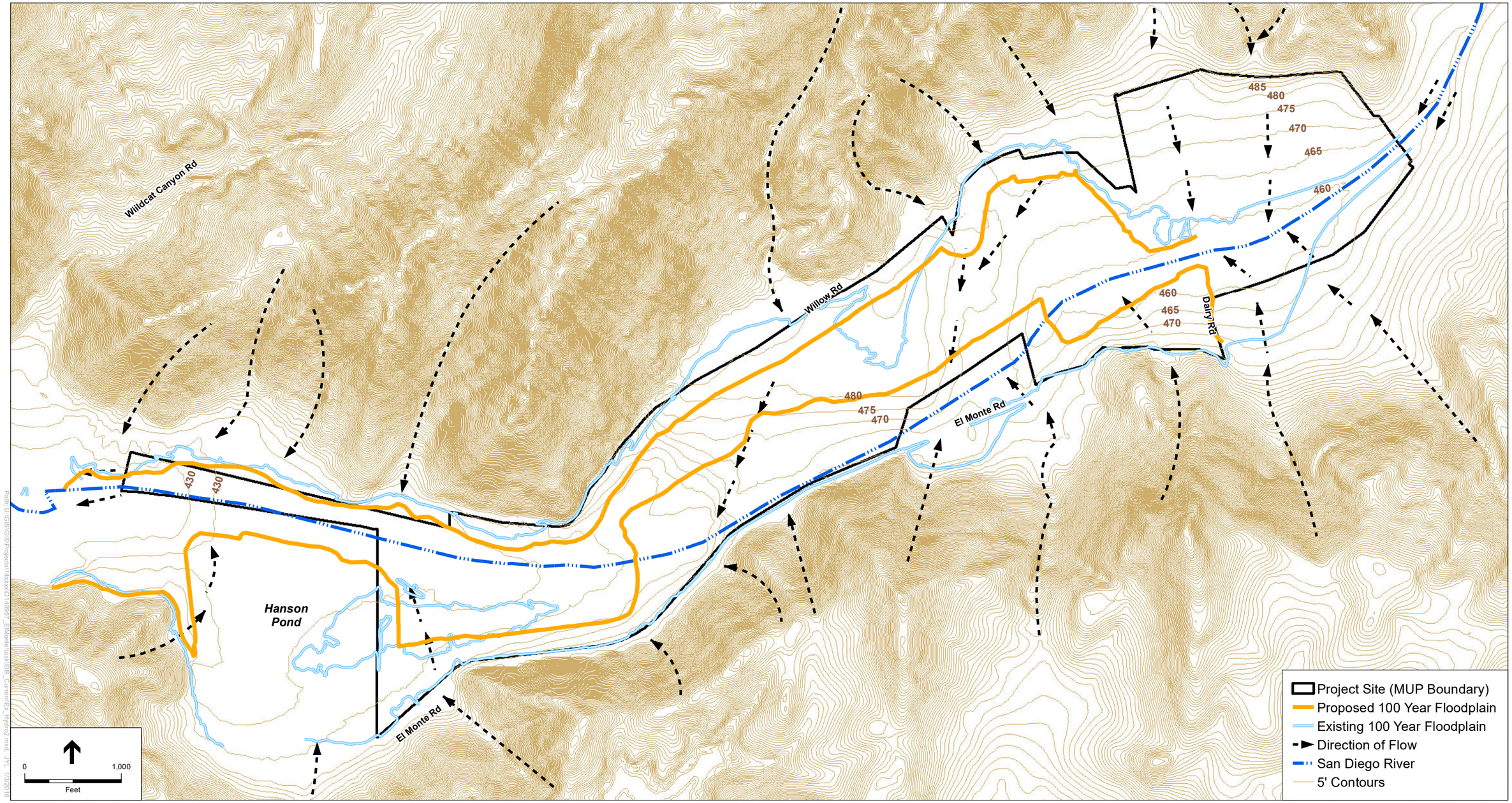

SOURCE:ESRI; EnviroMine; The Altum Group; Chang Consultants; ESA; SSURGO

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Figure 3.4-2

Existing Hydrology

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