3.9 Hydrology, Water Quality, and Groundwater

This section provides a description of local surface water and groundwater resources and evaluates the impacts of the proposed project on hydrology, water quality, and groundwater. Regional information is based on the Riverside County General Plan (2006), the 1995 Water Quality Control Plan for the Santa Ana River Basin (Region 8) updated in February 2008, the Perris Valley Channel Master Drainage Plan (1989), and the State of California's Watershed Portal website.

3.9.1 Environmental Setting

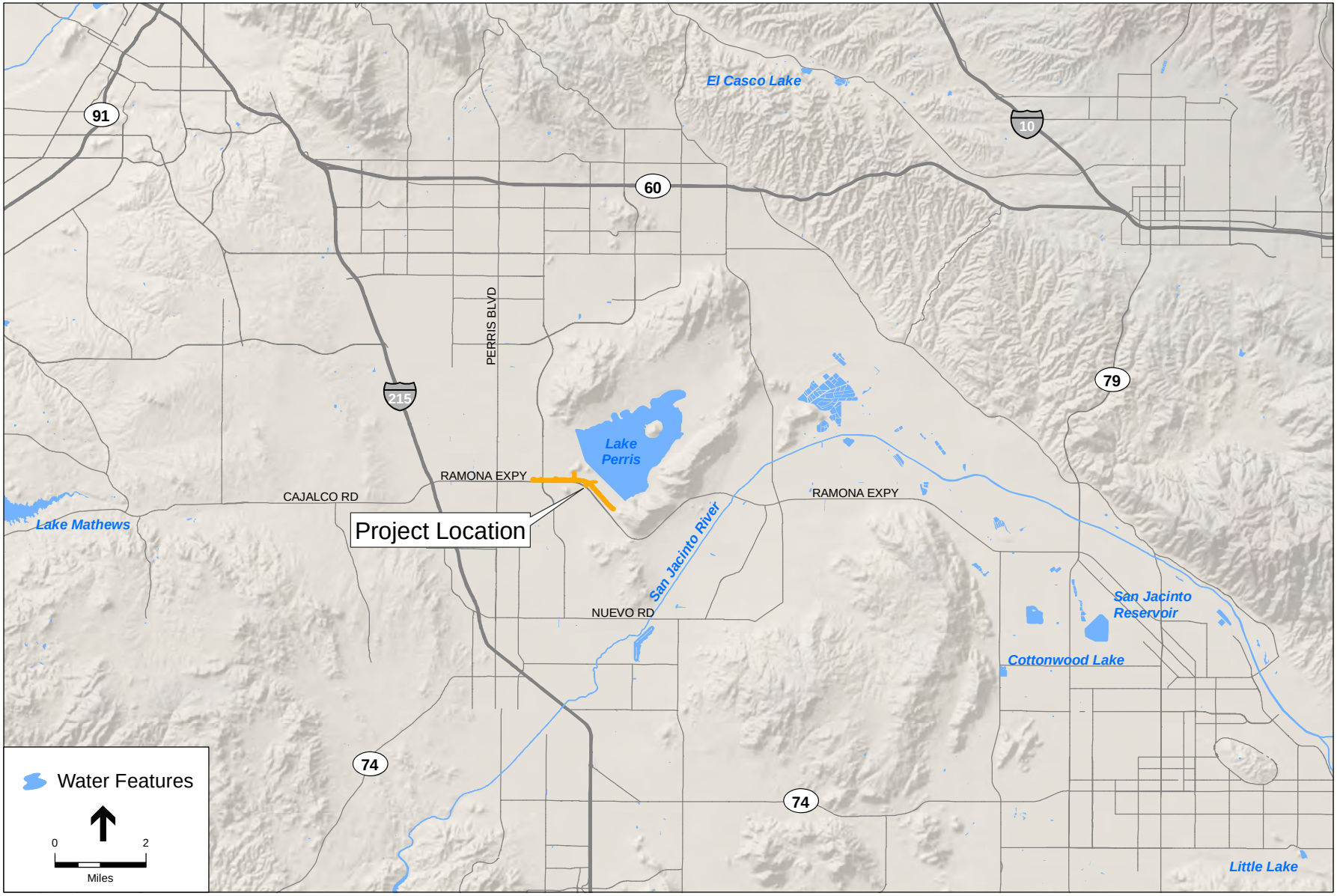
Surface Water

Lake Perris is a man-made reservoir completed by the Department of Water Resources (DWR) in 1972 and situated behind a 2-mile-long, 128-foot-tall earth-fill dam. The reservoir has a surface area of approximately 2,000 acres and is located within the San Jacinto subwatershed portion of the Santa Ana River watershed. The San Jacinto watershed drains the northwestern corner of Riverside County ultimately to Prado Basin. **Figure 3.9-1** shows the major surface water features in the area.

The project site is within Region 8 (Santa Ana Region) of the California Regional Water Quality Control Board (RWQCB). Region 8 encompasses the watersheds of the Santa Ana and San Jacinto Rivers. The San Jacinto River originates in the San Jacinto Mountains and flows through Canyon Lake to Lake Elsinore. Flow in the river is ephemeral, responding primarily to rain events in the watershed that occur in the winter. Lake Elsinore overflows every few years, but otherwise serves to capture most of the water that flows to it from the upper watershed. It discharges to the Temescal Wash, which terminates in the Santa Ana River at Prado Basin.

There are various man-made reservoirs in the vicinity of Lake Perris, including Lake Mathews, Skinner Reservoir, Canyon Lake, Diamond Valley Lake, and Eden Lake, though Lake Elsinore is the primary natural lake within the watershed. The proposed project is located in the Greater San Jacinto Valley Hydraulic Unit, the Perris Valley Hydraulic Area, and the Perris Valley Hydraulic Sub-Area.

The Perris Valley Channel, a man-made drainage channel, conveys stormwater from the greater Perris area to the San Jacinto River. The Perris Valley Channel was constructed in the mid-1950s to alleviate drainage problems associated with the expanding March Air Force Base. The Riverside County Flood Control and Water Conservation District (RCFCWCD) owns the right-of-way (ROW) and maintains the channel along its entire reach from the San Jacinto River to Mariposa Avenue in the city of Moreno Valley. The Perris Valley Channel's design capacity is planned for 16,000 cubic feet per second (cfs) north of the Ramona Expressway and 17,300 cfs south of it according to the RCFCWCD's Master Flood Control Plan for the Perris Valley Channel (RCFCWCD, 1989). Currently, the Perris Valley Channel has been constructed to its full width north of Ramona Expressway. However, south of Ramona Expressway, the Perris Valley Channel has not been constructed to its ultimate dimensions and capacity.



SOURCE: Bing Maps.

Perris Dam Emergency Release Facility . 120083.02

Figure 3.9-1
Regional Hydrology

A drainage ditch (Line U) runs parallel to the Ramona Expressway through the project site from east to west. Currently storm water is conveyed in an unlined earthen ditch maintained by the City of Perris that carries water downstream from the project site to the Perris Valley Channel. Per the Master Drainage Plan (MDP), the ultimate flow rate for Line U when it is constructed would be 965 cubic feet per second (cfs) at its confluence with the Perris Valley Channel (RCFCWCD, 1991).

Groundwater

Lake Perris is situated over the West San Jacinto Groundwater Basin (WSJGB). The WSJGB is fed by local precipitation as well as from Lake Perris. DWR completed the *Perris Dam Remediation Groundwater Study* in August of 2006. The study evaluated the quantity of seepage from Lake Perris and its effects on the adjacent groundwater basins. The groundwater report evaluated previous groundwater, engineering, and engineering geologic studies conducted in the vicinity of the Perris Dam and Reservoir site since 1963. Additionally, the study summarized the general hydrogeologic conditions of portions of the WSJGB that are directly affected by seepage from Lake Perris.

Prior to the filling of Lake Perris, the WSJGB was recharged naturally from underflow from surrounding geologic formations and by rainfall seepage within the small watershed upstream of the valley that includes portions of the San Jacinto River watershed. Because of the low rainfall average in the region, this natural recharge was comparatively low. The groundwater study concluded that once Lake Perris was completed, seepage through the alluvium underlying Perris Dam resulted in average rises to the groundwater table of about 100 feet downstream of the dam. Consequently, the groundwater storage volume of the WSJGB has significantly increased since the reservoir was filled in the 1970s.

Climate

The climate of the San Jacinto watershed is Mediterranean with hot, dry summers and cooler, wetter winters. Average annual precipitation ranges from 9 to 11 inches per year. Most of the precipitation occurs between November and March in the form of rain with variable amounts of snow in the higher elevations. The climatological cycle of the region results in high surface water flows in the spring and early summer, which is followed by low surface water flows during the dry season.

Flooding

The Federal Emergency Management Agency (FEMA), through its Flood Insurance Rate Mapping program, designates areas where urban flooding could occur during 100-year and 500-year flood events.[1] Areas below the project site, along existing drainage extensions, are located within the 100-year hazard areas. **Figure 3.9-2** shows the local 100-year flood plain. **Figure 3.9-3** shows the estimated inundation area for the Lake Perris.

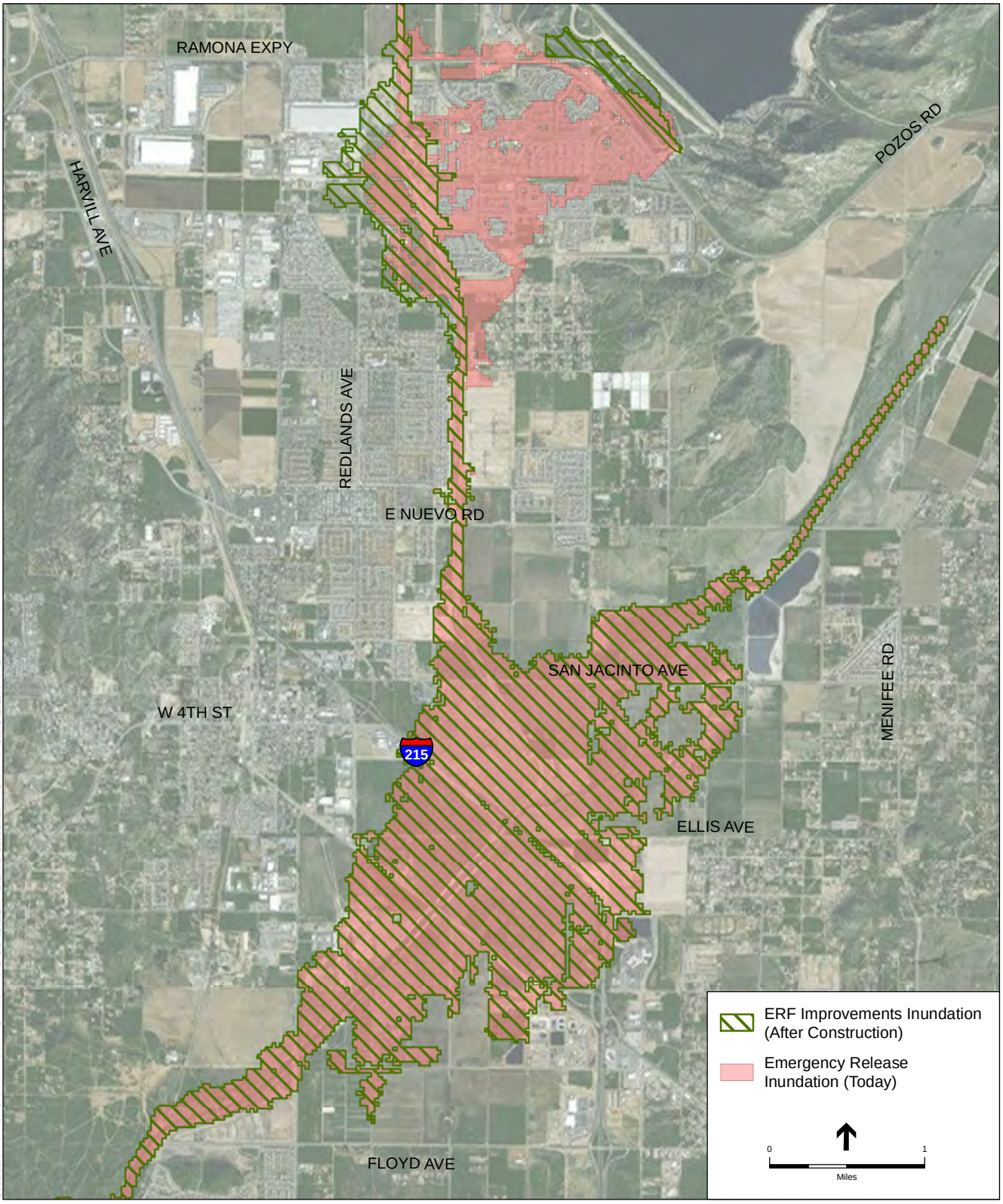
[1] A 100-year flood event has a one-percent probability of occurring in a single year. Although infrequent, 100-year floods can occur in consecutive years or periodically throughout a decade. A 500-year flood event has a 0.2-percent probability of occurring in a single year.

SOURCE: NAIP Imagery.

Perris Dam Emergency Release Facility . 120083.02

Figure 3.9-2

100-Year Flood Zone



SOURCE: ESRI, DWR

Lake Perris Permit Application . 120083.02

Figure 3.9-3

Lake Perris Emergency Release Inundation Comparison

Site Hydrology and Drainage

The Perris Valley Channel is the backbone of the city of Perris's storm drainage system. The channel serves as the primary collector of stormwater in the northern part of Perris and Moreno Valley. The channel alignment extends from Heacock Street in the city of Moreno Valley through the City of Perris to the San Jacinto River. All existing city storm drains flow laterally into the Perris Valley Channel from the east and west. The City of Perris notes that deepening the Perris Valley Channel and the San Jacinto River would be required to accommodate future stormwater volumes from adjacent development. Stormwater drains from below Lake Perris in small drainages that interconnect at the southeast corner of the Fairgrounds, combining in a ditch that parallels the Ramona Expressway, draining westward to the Perris Valley Channel. This drainage is referred to in the County Drainage Master Plan as Line U. The Perris Valley Channel's design capacity is planned for 16,000 cfs north of the Ramona Expressway and 17,300 cfs south of it according to the RCFCWCD's Master Flood Control Plan. However, the channel currently does not accommodate its design capacity in all locations.

3.9.2 Regulatory Framework

Federal

The Clean Water Act (CWA) authorizes the U.S. Environmental Protection Agency (USEPA) to restore and maintain the chemical, physical, and biological integrity on the nation's waters by implementing water quality regulations. The National Pollutant Discharge Elimination System (NPDES) permit program under Section 402 of the CWA regulates discharges to waters of the United States. The USEPA has delegated authority for issuing NPDES permits in California to the State Water Resources Control Board (SWRCB), which has nine regional boards.

The Santa Ana RWQCB regulates water quality in the project area. The CWA requires states to establish water quality standards to protect designated uses for all waters of the United States.

The Federal CWA Section 303(d) requires that states identify waters that do not meet water quality standards (beneficial uses, water quality objectives, and the anti-degradation policy) with the implementation of technology-based controls. Once a water body has been placed on the 303(d) list of impaired waters, states are required to develop a Total Maximum Daily Load (TMDL) to address each pollutant-causing impairment. As a surface water reservoir for drinking water, Lake Perris is not an impaired water body on the 303(d) list.

Table 3.9-1 identifies receiving waters that receive urban stormwater runoff from the project site.

TABLE 3.9-1
RECEIVING WATERS FROM PROJECT SITE

Receiving Water	303(d) List Impairments	Designated Beneficial Use
Line U	N/A	N/A
Perris Valley Channel	N/A	N/A
San Jacinto River Reach	N/A	N/A
Canyon Lake	Nutrients: Nonpoint Source Pathogens: Nonpoint Source	MUN, AGR, GRW, REC-1, REC-2, WARM, WILD
Lake Elsinore	Nutrients: Unknown Nonpoint Source Organic Enrichment/Low Dissolved Oxygen: Unknown Nonpoint Source PCBs (Polychlorinated biphenyls): Unknown Source Sediment Toxicity: Unknown Source Unknown Toxicity: Unknown Source	REC-1, REC-2, WARM, WILD

Executive Order 11988, Flood Plain Management

Executive Order 11988 requires the U.S. Army Corps of Engineers (USACE) to provide leadership and to take action to:

- Avoid development in the existing 100-year floodplain, unless such development is the only practicable alternative.
- Reduce the hazards and risk associated with floods.
- Minimize the impact of floods on human health, safety, and welfare.
- Restore and preserve the natural and beneficial values of the current floodplain.

To comply with Executive Order 11988, the policy of the USACE is to formulate projects that, to the extent possible, avoid or minimize adverse effects associated with use of the floodplain, and avoid inducing development in an existing floodplain unless there is no practicable alternative.

State

The Porter-Cologne Water Quality Control Act mandates that the SWRCB adopt statewide water quality control plans, which serve as the legal, technical, and programmatic basis of water quality regulation for a region. The project area lies within the jurisdiction of the RWQCB, Santa Ana Region. The Santa Ana Region Basin Plan contains descriptions of beneficial uses of all surface and groundwater resources, water quality objectives, and strategies for achieving the water quality objectives, such as the adoption of TMDLs (RWQCB, 1995).

Local

The federal CWA effectively prohibits discharges of stormwater from construction projects unless the discharge is in compliance with an NPDES permit. The SWRCB has adopted a statewide General Permit for Stormwater Discharges Associated with Construction Activity that encompasses one or more acres of soil disturbance. The NPDES stormwater program requires operators of both large and small construction sites to obtain authorization to discharge stormwater under an NPDES construction permit. Construction activity resulting in a land disturbance of one acre or more must obtain coverage under the General Permit. In general, the NPDES stormwater permitting requirements for construction activities require that the landowner and/or contractor develop and implement a Storm Water Pollution Prevention Plan (SWPPP) and submit required notices. The SWPPP must specify Best Management Practices (BMPs) that would prevent construction pollutants from running off-site into receiving waters. The SWPPP must include measures for erosion and sediment controls, methods for construction waste handling and disposal, and post-construction erosion and sediment control requirements. The SWPPP also addresses the elimination or reduction of non-stormwater discharges to receiving waters and inspection procedures for BMPs.

On January 9, 2010, the Santa Ana RWQCB issued a fourth-term area-wide NPDES Municipal Separate Storm Sewer System (MS4) permit to the RCFCWCD, who is the Principal Permittee, the County of Riverside and the Cities of Beaumont, Calimesa, Canyon Lake, Corona, Hemet, Lake Elsinore, Moreno Valley, Menifee, Norco, Perris, Riverside, San Jacinto, and Wildomar (Permittees). In the project area, the stormwater program is administered by the Riverside County Flood Control and Water Conservation District and the City of Perris.

Riverside County Flood Control and Water Conservation District

The RCFCWCD has established Master Drainage Plans and Area Drainage Plans that guide the sizing of drainage infrastructure needed to provide the conveyance requirements of the County. These documents provide design conditions for development in the County. The project is located within the Perris Valley Master Drainage Plan area and the Perris Valley Area Drainage Plan area.

3.9.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this Draft Environmental Impact Report (EIR) and consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines, a project would have a significant impact to hydrology, water quality, or groundwater if it would:

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site
- 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 which would result in flooding on- or off-site
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff
- 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 which would impede or redirect flood flows
- 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 from an emergency drawdown of Lake Perris
- Contribute to inundation by seiche, tsunami, or mudflow

Impact Analysis

Impact 3.9-1: The project could have a significant impact if it would violate water quality standards or waste discharge requirements.

Construction

Construction of the proposed project would include site clearing, grading, excavation, soil stockpiling, backfilling, and compacting. Project construction would occur within areas that drain to tributaries of the Perris Valley Channel. Construction activities could promote soil erosion discharging sediment to adjacent drainages. Sedimentation would degrade the quality of the receiving waters. Hazardous materials associated with construction equipment, such as fuels, oils, antifreeze, coolants, and other substances, would adversely affect water quality if inadvertently released to surface waters. Construction would involve substantial grading, exposing large areas of soil to erosion during rain events. DWR would be required to prepare an SWPPP for coverage under the statewide stormwater discharge NPDES permit. The SWPPP shall be maintained at the construction site for the entire duration of construction. The objectives of the SWPPP are to identify pollutant sources that may affect the quality of stormwater discharge and to implement BMPs to reduce pollutants in stormwater discharges during construction and after construction.

Specific BMPs that may be applicable would include establishment of sediment basins and erosion-control perimeters around active construction and contractor layout areas, silt fencing, jute netting, fiber rolls, or other appropriate measures to control sediment from leaving the construction area. BMPs such as installing containment measures at fuel storage sites and avoiding overfilling of tanks would prevent chemicals from being transported off-site.

Construction contractors would be made aware of the required BMPs and good housekeeping measures for the project site and associated construction staging areas. Construction debris and waste materials would be collected at the end of each day and properly disposed of in trash or recycle bins. The SWPPP prepared by DWR will include the following components:

- Source identification
- Preparation of a site map
- Description of construction materials, practices, and equipment storage and maintenance
- List of pollutants likely to contact stormwater
- Estimate percent of the construction site area and percent of impervious area
- Erosion and sedimentation control practices, including soils stabilization, revegetation, and runoff control to limit increases in sediment in stormwater runoff, such as detention basins, fiber rolls, silt fences, check dams, geofabrics, drainage swales, and sandbag dikes
- List of provisions to eliminate or reduce discharge of materials to stormwater
- Description of waste management practices
- Spill prevention and control measures
- Maintenance and training practices

DWR also includes several water quality BMPs as standard specifications that the contractor is required to implement during construction. Typical water quality specification BMPs are as follows:

- Stationary engines, such as compressors, generations, light plants, etc., shall have drip pans beneath them to prevent any leakage from entering runoff or receiving waters.
- All construction equipment shall be inspected for leaks and maintained regularly to avoid soil contamination. Leaks and smears of petroleum products will be wiped clean prior to use.
- Any grout waste or spills will be cleaned up immediately and disposed of off-site.
- Spill kits capable of containing hazardous spills will be stored on-site.

Through the implementation of the SWPPP and standard water quality design specifications, which include the incorporation of BMPs, project impacts to water quality from construction would be minimized to less-than-significant levels.

Operation

Operation and maintenance of the facility would not adversely impact water quality. The release of water from the dam would occur only under an emergency condition to prevent dam failure and catastrophic flooding. The new conveyance facility would not degrade water quality during an emergency release. During storm events, the new berms and channel would convey stormwater to the Perris Valley Channel. DWR would maintain the facility by clearing debris and

trash. As a result, operation and maintenance of the project would not adversely impact water quality.

Significance Determination: Less than Significant.

Impact 3.9-2: The project could have a significant impact if it would substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.

Development of the emergency release facility and conveyance structures would not encounter local groundwater levels or require dewatering during construction or operation. Seepage under the dam creates shallow groundwater in areas near the dam itself. However, this seepage water quickly percolates down to lower portions of the aquifer or is collected in the seepage collection system. According to the Groundwater Basin Reports Eastside Metropolitan Service Area Basins – West San Jacinto Basins, the project site is located within the Perris North Groundwater Basin, which has depths of groundwater listed at approximately 850 feet. Thus, excavation for the proposed project is not expected to encounter groundwater and would not require dewatering.

The creation of new impervious surfaces can result in a reduction in area available for natural recharge. Because only a small portion of the proposed project would create impervious surfaces, the proposed project would not substantially alter groundwater infiltration rates associated with precipitation. Therefore, construction of the proposed project would have a less than significant impact on groundwater recharge.

Significance Determination: Less than Significant.

Impact 3.9-3: The project could have 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 or siltation on- or off-site.

The proposed project would require the construction of a conveyance facility and two levees through the State Recreation Area (SRA) Segment, a dual-use, unlined channel through the Fairgrounds Segment, and the unlined, earthen, trapezoidal channel in the Western Segment. All of these facilities would convey local storm water from the Lake Perris SRA to the Perris Valley Channel. The proposed project would not alter the course of the existing drainages or increase the risk of erosion on-site or off-site. The project benefits the Master Drainage and Area Drainage Plans by serving as Line U.

As shown on Figure 3.3-4, three main drainages exist within the proposed project area. The proposed project's main levee would traverse Drainage B, currently an earthen ditch adjacent to the paved road. However, DWR would create an enclosed passage for this drainage to maintain

its existing capacity below the levee system. Existing drainage patterns would not be impacted by construction of the proposed project.

During rainfall events, particularly during construction activities, surface erosion and off-site sediment transportation could occur along with excess flooding. DWR would be required to prepare a SWPPP for coverage under the statewide stormwater discharge NPDES permit for construction activities. Through the implementation of SWPPP and standard water quality BMPs described in Impact 3.9-1, soil erosion, siltation, and water quality related impacts on- or off-site during construction would be minimized to less than significant levels. Once constructed, operation and maintenance of the facility would not alter the course of a stream or river or result in substantial erosion or siltation on- or off-site.

Significance Determination: Less than Significant.

Impact 3.9-4: The project could have a significant impact if it would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

Once constructed, the proposed emergency release facility would convey stormwater water to the Perris Valley Channel, which flows to the San Jacinto River and Lake Elsinore. The Perris Valley Channel is a stormwater runoff facility that drains an upper portion of the San Jacinto watershed. The Perris Valley Channel's design capacity is planned for 16,000 cfs north of the Ramona Expressway and 17,300 cfs south of it according to the RCFCWCD's Master Flood Control Plan for the Perris Valley Channel (RCFCWCD, 1989). The existing drainage along Ramona Expressway currently conveys stormwater to the Perris Valley Channel. The proposed project would not add any additional watershed or increase the volume of runoff from current conditions. Once the Perris Valley Channel is built to its design capacity, stormwater runoff conveyed to the Perris Valley Channel by the emergency release facility would be accommodated without any flood risk. Because the proposed project is removing the existing drainage ditch and replacing it with Line U to its full design capacity and would still accommodate normal storm flows during a typical rain event, it is not anticipated that the project would substantially increase the rate of surface water runoff in a manner that would result in flooding on-site or off-site. Impacts would be less than significant.

Significance Determination: Less than Significant.

Impact 3.9-5: The project could have a significant impact if it would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Please see the discussion for Impact 3.9-4 regarding the Perris Valley Channel capacity. With implementation of the procedures in the Emergency Operations and Maintenance Manual for the

emergency release facility, water releases in the event of an emergency would be limited when feasible to avoid exceeding the storm drain system capacity. In addition, the project benefits the Master Drainage and Area Drainage Plans by serving as Line U. The project would not increase storm flows that could exceed stormwater drainage capacity or create new sources of polluted runoff. Impacts to existing or planned stormwater drainage systems would be considered less than significant.

Significance Determination: Less than Significant.

Impact 3.9-6: The project could have a significant impact if it would otherwise substantially degrade water quality.

See Impact 3.9-1 for a detailed discussion of the potential for water quality impacts by the proposed project. Water would only be released onto the proposed project facilities and into the Perris Valley Channel in the event an emergency drawdown of Lake Perris is required. Through the implementation of the Emergency Operations and Maintenance Manual procedures for the emergency release facility, and implementation of the SWPPP and standard water quality design specifications, which include the incorporation of BMPs, project impacts to water quality would be less than significant.

Significance Determination: Less than Significant.

Impact 3.9-7: The project could have a significant impact if it would 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.

The proposed project consists of modifying the existing emergency release structure, and constructing water conveyance improvements that would reliably control a reservoir release and convey emergency flows from Lake Perris in the event of an emergency drawdown. The project would not place housing within the 100-year flood plain. The project would construct an emergency release facility that would reduce the potential flood risk downstream of the dam resulting from the execution of an emergency operation to drawdown Lake Perris. No impact would occur.

Significance Determination: No Impact.

Impact 3.9-8: The project could have a significant impact if it would place within a 100-year flood hazard area structures which would impede or redirect flood flows.

The proposed project would construct a system of levees and channels that would convey water released from the dam’s emergency release structure toward the Perris Valley Channel. Although

the levees and channels would be constructed within a 100-year flood hazard area, they would assist in directing flows toward the storm drain and would improve the overall drainage of the area. No structures that would impede or negatively redirect flood flows would be constructed. No impact would occur.

Significance Determination: No Impact.

Impact 3.9-9: The project could have a significant impact if it would result in the exposure of 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 a dam.

The proposed project would construct an emergency release facility to reduce the potential for significant loss, injury or death involving failure of a dam. As shown in Figure 3.9-3, the current inundation zone that would result from a dam failure includes large areas of residential development. The proposed project would significantly reduce this exposure. Therefore, implementation of the proposed project would result in no adverse impact.

Significance Determination: No Impact.

Impact 3.9-10: The project could have a significant impact if it would contribute to inundation by a seiche, tsunami, or mudflow.

Seiche waves could occur in the lake as a result of a seismic event. The dam is designed to contain seiche waves that could be generated by local seismic activity. The strengthening of the dam would further reduce the risk of damage from a seiche wave caused by an earthquake. The project would not subject people to increased hazards from seiche waves. The site is too far from the coast to be affected by tsunami waves. The proposed levees would not create a mudflow hazard as they would be designed to sustain heavy water flows during an emergency event. The project would not result in impacts from seiche waves, tsunamis, or mudflows.

Significance Determination: No Impact.

Impact 3.9-11: The project could have a significant impact if it would result in the exposure of people or structures not currently within the Perris Dam inundation zone to a significant risk of loss, injury, or death involving flooding resulting from a drawdown of Lake Perris.

The new emergency release facility would convey controlled discharges to the Perris Valley Channel and greatly minimize the inundation area directly below the dam. However, depending on the volume released, the Perris Valley Channel may not have the adequate capacity to accept the flow. Based on hydraulic modeling of the Perris Valley Channel capacity conducted by DWR,

emergency release flow may exceed the Perris Valley Channel capacity and areas currently not within the inundation zone downstream of the city of Perris could be flooded. Once the RCFCWCD completes the build-out of the Perris Valley Channel as described within the Master Drainage Plan, the Perris Valley Channel would accommodate the maximum 3,800 cfs flows for which the emergency release facility is designed.

The current inundation area during a dam release, as shown in Figure 3.9-3, includes large residential areas within the city of Perris. The new emergency release facility would convey controlled discharges to the Perris Valley Channel and minimize the inundation area directly below the dam by containing the water within the Lake Perris SRA area below the dam. DWR conducted inundation modeling (shown in Figure 3.9-3) to estimate the effect of the proposed project on the inundation zone. As shown in the figure, the facility would substantially lessen the inundation area below the dam. The model results are estimates and subject to variability. However, the figure shows that small areas west of the Perris Valley Channel not be affected under current conditions would be added to the potential inundation zone due to the limited capacity of Perris Valley Channel. These areas located at the outer edge of the inundation zone could experience some water inundation during an emergency release. These areas are largely undeveloped, consisting of parking areas, agricultural fields, vacant lots, and a few large-lot residences. The revised inundation area would affect substantially fewer developed areas than the existing inundation zone as shown in Figure 3.9-3. The potential for loss of life, injury or property damage within the newly exposed areas would be minimal due to the type of development in these areas compared to the existing inundation zone. Furthermore, since the new inundation areas would be at the outer edge of the flood waters, property damage could occur, but loss of life would be less likely.

The proposed project would increase the inundation area within the Lake Perris SRA from approximately 70 acres to 90 acres of open space. Although no structures would be impacted within the SRA, this area contains natural habitats. Potential impacts to biological resources in the new inundation zone are discussed in Section 3.3, Impact 3.3-1b.

DWR is preparing an Emergency Operations and Maintenance Manual for the emergency facilities operation that would moderate the release flows as necessary, and when possible, to avoid overtopping the downstream sections of the Perris Valley Channel until such a time that RCFCWCD completes ultimate build-out of the Perris Valley Channel, which could then accommodate a 3,800 cfs release. The Emergency Operations and Maintenance Manual would identify the limited situations in which releases may reach design capacity prior to the Perris Valley Channel's upgrade.

Finally, the potential for a maximum credible earthquake to occur that would significantly impair the dam and require the emergency release of the reservoir's water is very low in light of the seismic remediation of the dam. Inundation within the Lake Perris SRA would be temporary, occurring only for the duration of the required emergency release, after which the area would return to its previous use. In addition, the proposed project substantially reduces the overall inundation zone and the potential for flooding the residential areas below the dam. The project

accomplishes this by controlling and containing emergency releases and minimizing flooding of local roadways. This allows for a far superior evacuation condition for the public during emergency releases than the existing condition. Therefore, with implementation of the Emergency Operations and Maintenance Manual for the emergency release facility, potential inundation resulting from an emergency drawdown of Lake Perris would be less than significant.

Significance Determination: Less than Significant.

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