4.9 HYDROLOGY AND WATER QUALITY

4.9.1 Introduction

This section evaluates the potential impacts to hydrology and water quality conditions from implementation of the La Entrada Specific Plan (proposed project). The analysis in this section is based, in part, on the *Draft Water Quality Assessment Report* (RBF Consulting, September 2012) (Appendix I of this Environmental Impact Report [EIR]), *Draft Water Supply Assessment* (TKE Engineering and Planning, March 2013) (Appendix M of this EIR), and the *Drainage Master Plan* (RBF Consulting, June 2013) (Appendix I of this EIR).

4.9.2 Methodology

Project impacts to hydrology and water quality were evaluated based on the proposed project's adherence to local, State, and federal standards; proposed land use; design; and proposed best management practices (BMPs) for control of surface runoff and reduction of pollutants in runoff.

4.9.3 Existing Environmental Setting

Surface Water. The project site lies within the Whitewater River Basin, which is approximately 1,500 square miles and conveys runoff to the Salton Sea. The Whitewater River originates in the San Bernardino Mountains and continues generally southward, where it terminates at the Salton Sea in the Colorado Desert. The Salton Sea, located approximately 13 miles (mi) southeast of the project site, is a lake that has no outlet and does not discharge to the ocean. For planning purposes, the Colorado River Basin Regional Water Quality Control Board (RWQCB) uses a watershed classification system that divides surface waters into hydrologic units, areas, and subareas. As designated by the Colorado River Basin RWQCB, the project site is located within the Whitewater Hydrologic Unit (HU). The Whitewater HU is divided into Hydrologic Areas (HAs), which are then divided into Hydrologic Subareas (HSAs). The project site is located the Coachella HA and the in the Fargo Canyon HSA.[1]

Runoff on the project site drains to six existing washes located within the project boundary and collects near the embankment wall of the All American Canal (East Side Dike). Runoff from the site is retained temporarily by the East Side Dike and then discharged to the Whitewater River (Coachella Valley Storm Drain Channel) via Wasteway No. 2, a triple 6-foot (ft) x 6 ft reinforced concrete box underneath the Coachella Canal. According to the Delineation of State and Federal Jurisdictional Waters (February 2013), it would take nearly a 50-year storm to produce outlet flows from the East Side Dike.

[1] State of California Department of Conservation. Watershed Browser. http://www.conservation.ca.gov/dlrp/watershedportal/WatershedBrowser/Pages/WatershedBrowser.aspx?idnum=10719.45&name=&mode=. Accessed April 10, 2013.

Surface Water Quality. There are several water quality impairments for receiving waters for the project site, as discussed in detail in Section 4.9.4.

Groundwater. According to the California Department of Water Resources, the project site is located above the Coachella Valley Groundwater Basin, Desert Hot Springs Subbasin.[1] However, domestic water supply would come from the Coachella Valley Groundwater Basin, Indio Subbasin (also referred to as the Whitewater River Subbasin). For management purposes, groundwater basins are designated in the Colorado River Basin RWQCB's Basin Plan using the same HUs and HAs as surface waters. The project site is located in Coachella Planning Area, the Whitewater HU, and the Coachella HSA.

The Desert Hot Springs Subbasin is bound on the northeast by the Little San Bernardino Mountains, on the southwest by the Indio Hills and the Banning and Mission Creek Faults, and on the southeast by the Mecca Hills. The Indio Subbasin is bound on the north by the Banning Fault, on the northeast by the Indio Hills, on the south by the San Jacinto and Santa Rosa Mountains, on the northwest by a bedrock constriction, on the east by the Salton Sea, and by a low drainage divide on the southeast. The Banning-Mission Creek Fault separates the Desert Hot Springs Subbasin from the Indio Subbasin beneath the alluvial debris cone between the Indio Hills and Mecca Hills. [2,3]

Seasonal runoff from the Little San Bernardino Mountains recharges the Desert Hot Springs Subbasin by percolation through alluvial fan deposits. Surface runoff from high precipitation or snow melt is conveyed by intermittent creeks that discharge into this subbasin. Surface runoff and subsurface inflow are substantial sources of recharge to the Indio Subbasin. In addition, recharge occurs at the Whitewater River spreading grounds northwest of Palm Springs. Colorado River Aqueduct water is conveyed into the subbasin via the Coachella Canal. [4,5]

Groundwater was not encountered during geotechnical borings for the project, which were up to 51.5 ft in depth.

Groundwater Quality. High concentrations of total dissolved solids (TDS) of sodium sulfate exist in the groundwater the Desert Hot Springs subbasin.[6] High concentrations of TDS, nitrate, and fluoride exist in the Indio subbasin.[7]

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1 California Department of Water Resources. 2006. California's Groundwater Bulletin 118. Coachella Valley Groundwater Basin, Desert Hot Springs Subbasin.

2 California Department of Water Resources. 2006. California's Groundwater Bulletin 118. Coachella Valley Groundwater Basin, Indio Subbasin.

3 California Department of Water Resources. 2006. California's Groundwater Bulletin 118. Coachella Valley Groundwater Basin, Desert Hot Springs Subbasin.

4 Ibid.

5 California Department of Water Resources. 2006. California's Groundwater Bulletin 118. Coachella Valley Groundwater Basin, Indio Subbasin.

6 California Department of Water Resources. 2006. California's Groundwater Bulletin 118. Coachella Valley Groundwater Basin, Desert Hot Springs Subbasin.

7 California Department of Water Resources. 2006. California's Groundwater Bulletin 118. Coachella Valley Groundwater Basin, Indio Subbasin.

Floodplains/Inundation Zones. According to the Federal Emergency Management Agency (FEMA) Federal Insurance Rate Map (FIRM) No. 0605C2300G (August 28, 2008), the project site is located within Zone X, areas determined to be outside the 0.2 percent annual chance (500-year) floodplain, and Zone D, areas in which flood hazards are undetermined, but possible.

According to the Tsunami Inundation Map, there are no tsunami inundation zones located in Riverside County. As such, the project site is not located within a tsunami inundation zone.[1]

4.9.4 Regulatory Setting

Federal Policies and Regulations.

Federal Regulations.

Clean Water Act. In 1972 the Federal Water Pollution Control Act (later referred to as the Clean Water Act [CWA]) was amended to require that the discharge of pollutants into waters of the United States from any point source be effectively prohibited unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. In 1987, the CWA was again amended to require that the United States Environmental Protection Agency (EPA) establish regulations for the permitting of storm water discharges (as a point source) by municipal and industrial facilities and construction activities under the NPDES permit program. The regulations require that Municipal Separate Storm Sewer System (MS4) discharges to surface waters be regulated by an NPDES permit.

The CWA requires states to adopt water quality standards for water bodies and have those standards approved by the EPA. Water quality standards consist of designated beneficial uses for a particular water body (e.g., wildlife habitat, agricultural supply, fishing), along with water quality criteria necessary to support those uses. Water quality criteria are set concentrations or levels of constituents—such as lead, suspended sediment, and fecal coliform bacteria—or narrative statements that represent the quality of water that support a particular use. Because the State had not established a complete list of acceptable water quality criteria for toxic pollutants, the EPA Region IX established numeric water quality criteria for toxic constituents in the form of the California Toxics Rule (CTR).

When designated beneficial uses of a particular water body are being compromised by water quality, Section 303(d) of the CWA requires identifying and listing that water body as impaired. Once a water body has been deemed impaired, a Total Maximum Daily Load (TMDL) must be developed for each impairing water quality constituent. A TMDL is an estimate of the total load of pollutants from point, nonpoint, and natural sources that a water body may receive without exceeding applicable water quality standards (often with a "factor of safety" included, which limits the total load of pollutants to a level well below that which could cause the standard to be exceeded). Once established, the TMDL is allocated among current and future dischargers into the water body.

[1] California Emergency Management Agency, California Geological Survey, and University of Southern California. Tsunami Inundation Map. http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/Pages/Statewide_Maps.aspx. Accessed April 12, 2013.

State Policies and Regulations.

California Porter-Cologne Act. The federal CWA places the primary responsibility for the control of water pollution and for planning the development and use of water resources within the states, although it does establish certain guidelines for the states to follow in developing their programs.

California's primary statute governing water quality and water pollution is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the State Water Resources Control Board (SWRCB) and the RWQCB broad powers to protect water quality and is the primary vehicle for implementation of California's responsibility under the federal CWA. The Porter-Cologne Act grants the SWRCB and RWQCB the authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites, and to require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, oil, or petroleum product.

Each RWQCB must formulate and adopt a water quality plan for its region. The regional plans are to conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its State water policy. The Porter-Cologne Act also provides that an RWQCB may include in its region a regional plan with water discharge prohibitions applicable to particular conditions, areas, or types of waste.

Colorado River Basin Water Quality Control Plan (Basin Plan). The Colorado River Basin RWQCB has adopted a Water Quality Control Plan (Basin Plan) for its region of responsibility, which includes the City of Coachella (City). The RWQCB has delineated water resource area boundaries based on hydrological features. For purposes of achieving and maintaining water quality protection, specific beneficial uses have been identified for each of the hydrologic areas described in the Basin Plan. The Basin Plan also establishes implementation programs to achieve water quality objectives to protect beneficial uses and requires monitoring to evaluate the effectiveness of the programs. These objectives must comply with the State antidegradation policy (State Board Resolution No. 68-16), which is designed to maintain high-quality waters while allowing some flexibility if beneficial uses are not unreasonably affected.

Beneficial uses of water are defined in the Basin Plan as the uses necessary for the survival or well-being of humans, plants, and wildlife. The existing beneficial uses for both the Coachella Valley Storm Water Channel and the Salton Sea, as designated by the RWQCB in the Basin Plan, include the following:

- **Water Contact Recreation (REC I):** Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, waterskiing, skin diving, scuba diving, surfing, whitewater activities, fishing, and use of natural hot springs.
- **Noncontact Water Recreation (REC II):** Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of

water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities.

- **Warm Freshwater Habitat (WARM):** Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- **Wildlife Habitat (WILD):** Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g. mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
- **Preservation of Rare, Threatened, or Endangered Species (RARE):** Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under State or federal law as rare, threatened or endangered.

In addition to the beneficial uses listed above, the Coachella Valley Storm Water Channel existing beneficial uses also include:

- **Freshwater Replenishment (FRSH):** Uses of water for natural or artificial maintenance of surface water quantity or quality.

In addition to the beneficial uses listed above, the Salton Sea existing beneficial uses also includes:

- **Aquaculture (AQUA):** Uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption or bait purposes.

In addition, the potential beneficial use for the Salton Sea is:

- **Industrial Service Supply (IND):** Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.

The existing beneficial uses for groundwater in the Coachella hydrologic subunit are:

- **Municipal and Domestic Supply (MUN):** Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
- **Industrial Service Supply (IND):** Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.
- **Agricultural Supply (AGR):** Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, and support of vegetation for range grazing.

The Basin Plan has established narrative and numeric water quality objectives for inland surface streams, which include the Whitewater River. If water quality objectives are exceeded, the

RWQCB can use its regulatory authority to require municipalities to reduce pollutant loads to the affected receiving waters. Relevant surface water and groundwater quality objectives for the Colorado River Basin, Region 7 where the proposed project is located are shown in Tables 4.9.A and 4.9.B, respectively.

California Toxics Rule. The CTR provides water quality criteria for certain potentially toxic compounds for inland surface waters, enclosed bays, estuaries, and waters designated with human health or aquatic life uses. Although the CTR criteria do not apply directly to the discharges of storm water runoff, the CTR criteria are utilized as benchmarks for toxics in urban runoff. The CTR and other water quality criteria and targets are used as benchmarks to evaluate the potential ecological impacts of storm water runoff to receiving waters. The CTR establishes acute and chronic surface water quality standards for certain water bodies. Acute criteria provide benchmarks for the highest permissible concentration below which aquatic life can be exposed for short periods of time without deleterious effects. Chronic criteria provide benchmarks for an extended period of time (i.e., for 4 days or more) without deleterious effects. The acute CTR criteria have a shorter relevant averaging period (less than 4 days) and provide a more appropriate benchmark for comparison for storm water flows.

CTR criteria are applicable to the receiving water body and therefore must be calculated based on the probable hardness values of the receiving waters. At higher hardness values for receiving waters, certain constituents, including copper, lead, and zinc, are more likely to be bound with components in the water column. This, in turn, reduces the bioavailability and resulting potential toxicity of these metals.

Clean Water Act, Section 303, List of Impaired Water Bodies. As released by the SWRCB, the 2010 Integrated Report (CWA Section 303(d) List/305(b) Report) contains the most recent listing of impaired water bodies within the State. The Coachella Valley Stormwater Channel is listed on the 303(d) list as impaired for dichlorodiphenyltrichloroethane (DDT), dieldrin, polychlorinated biphenyls (PCBs), toxaphene, and pathogens. The Salton Sea is listed on the 303(d) list as impaired for arsenic, chlorpyrifos, DDT, enterococcus, nutrients, salinity, and selenium.

Clean Water Act, Section 402, National Pollutant Discharge Elimination System. Direct discharges of pollutants into waters of the United States are not allowed, except in accordance with the NPDES program established in Section 402 of the CWA.

General Construction Activity Storm Water Permit. The General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, NPDES No. CAS000002 (Construction General Permit), adopted by the SWRCB, regulates construction activity that includes clearing, grading, and excavation resulting in soil disturbance of at least 1 acre (ac) of total land area. The Construction General Permit authorizes the discharge of storm water to surface waters from construction activities. It prohibits the discharge of materials other than storm water and authorized nonstorm water discharges and all

Table 4.9.A: Surface Water Quality Objectives

Constituent	Objective
Aesthetic Qualities	All waters shall be free from substances attributable to wastewater of domestic or industrial origin or other discharges which adversely affect beneficial uses not limited to: • Settling to form objectionable deposits; • Floating as debris, scum, grease, oil, wax, or other matter that may cause nuisances; and • Producing objectionable color, odor, taste, or turbidity.
Tasting Substances	Water shall be free of unnatural materials which individually or in combination produce undesirable flavors in the edible portions of aquatic organisms.
Toxicity	All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal, or indigenous aquatic life.
Temperature	The natural receiving water temperature of surface waters shall not be altered by discharges of waste unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.
pH	Since the regional waters are somewhat alkaline, pH shall range from 6.0-9.0. Discharges shall not cause any changes in pH detrimental to beneficial water uses.
Dissolved Oxygen	The dissolved oxygen concentration shall not be reduced below the following minimum levels at any time: Waters designated: WARM: 5.0 mg/L COLD: 8.0 mg/L WARM and COLD: 8.0 mg/L
Suspended Solids and Settleable Solids	Discharges of wastes or wastewater shall not contain suspended or settleable solids in concentrations which increase the turbidity of receiving waters, unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in turbidity does not adversely affect beneficial uses.
Total Dissolved Solids	Discharges of wastes or wastewater shall not increase the total dissolved solids content of receiving waters, unless it can be demonstrated to the satisfaction of the Regional Board that such an increase in total dissolved solids does not adversely affect beneficial uses of receiving waters.
Bacteria	In waters designated for water contact recreation (REC I) or noncontact water recreation (REC II), the following bacterial objectives apply. Although the objectives are expressed as fecal coliforms, E. coli, and enterococci bacteria, they address pathogenic microorganisms in general (e.g., bacteria, viruses, and fungi). Based on a statistically sufficient number of samples (generally not less than five samples equally spaced over a 30-day period), the geometric mean of the indicated bacterial densities should not exceed one or the other of the following: • E. coli 126 per 100 ml 630 per 100 ml • Enterococci 33 per 100 ml 165 per 100 ml nor shall any sample exceed the following maximum allowables: • E. coli 400 per 100 ml 2000 per 100 ml • Enterococci 100 per 100 ml 500 per 100 ml except that for the Colorado River, the following maximum allowables shall apply: • E. coli 235 per 100 ml 1175 per 100ml • Enterococci 61 per 100 ml 305 per 100 ml In addition to the objectives above, in waters designated for water contact recreation (REC I), the fecal coliform concentration based on a minimum of not less than five samples for any 30- day period, shall not exceed a log mean of 200 MPN per 100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400 MPN per 100 ml.
Biostimulatory Substances	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

Table 4.9.A: Surface Water Quality Objectives

<table>
<tr><th>Constituent</th><th>Objective</th></tr>
<tr><td>Sediment</td><td>The suspended sediment load and suspended sediment discharge rate to surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.</td></tr>
<tr><td>Turbidity</td><td>Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.</td></tr>
<tr><td>Radioactivity</td><td>Radionuclides shall not be present in waters in concentrations which are deleterious to human, plant, animal or aquatic life or that result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal or aquatic life.

Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the limits specified in the California Code of Regulations, Title 22, Chapter 15, Article 5, Section 64443, as listed below:

• Combined Radium-226 and Radium-228: 5 pci/L
• Gross Alpha particle activity (including Radium-226 but excluding Radon and Uranium): 15 pci/L
• Tritium: 20,000 pci/L
• Strontium-90: 8 pci/L
• Gross Beta particle activity: 50 pci/L
• Uranium: 20 pci/L</td></tr>
<tr><td>Chemical Constituents</td><td>No individual chemical or combination of chemicals shall be present in concentrations that adversely affect beneficial uses. There shall be no increase in hazardous chemical concentrations found in bottom sediments or aquatic life. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the limits specified below:

• Arsenic: 0.05 mg/L
• Barium:1.0 mg/L
• Cadmium: 0.010 mg/L
• Chromium: 0.05 mg/L
• Lead: 0.005 mg/L
• Mercury: 0.002 mg/L
• Nitrate (as Nitrogen): 10.0 mg/L
• Selenium: 0.01 mg/L
• Silver: 0.05 mg/L
• Endrin: 0.002 mg/L
• Lindane: 0.004 mg/L
• Methoxychlor: 0.1 mg/L
• Toxaphene: 0.005 mg/L
• 2,4-D: 0.1 mg/L
• 2,4,5-TP Silvex: 0.01 mg/L

Limiting Concentrations of Fluoride (mg/L):
<table>
<tr><th>Degrees Fahrenheit</th><th>Degrees Celsius</th><th>Lower</th><th>Optimum</th><th>Upper</th><th>Mean Concentration Level (MCL)</th></tr>
<tr><td>Below 53.8</td><td>Below 12.1</td><td>0.9</td><td>1.2</td><td>1.7</td><td>2.4</td></tr>
<tr><td>53.8 to 58.3</td><td>12.1 to 14.6</td><td>0.8</td><td>1.1</td><td>1.5</td><td>2.2</td></tr>
<tr><td>58.4 to 63.8</td><td>14.7 to 17.6</td><td>0.8</td><td>1.0</td><td>1.3</td><td>2.0</td></tr>
<tr><td>63.9 to 70.6</td><td>17.7 to 21.4</td><td>0.7</td><td>0.9</td><td>1.2</td><td>1.8</td></tr>
<tr><td>70.7 to 79.2</td><td>21.5 to 26.2</td><td>0.7</td><td>0.8</td><td>1.0</td><td>1.6</td></tr>
<tr><td>79.3 to 90.5</td><td>26.3 to 32.5</td><td>0.6</td><td>0.7</td><td>0.8</td><td>1.4</td></tr>
</table></td></tr>
</table>

Source: Colorado River Basin Regional Water Quality Control Board (RWQCB). 2006. Water Quality Control Plan, Colorado River Basin-Region 7.

mg/L = milligrams per liter
ml = milliliters
MCL = maximum contaminant level
MPN = most probable number
pci/L = picocuries per liter

Table 4.9.B: Groundwater Quality Objectives

Constituent	Objective
Taste and Odor	Ground waters for use as domestic or municipal supply shall not contain taste or odor-producing substances in concentrations that adversely affect beneficial uses as a result of human activity.
Bacteriological Quality	In ground waters designated for use as domestic or municipal supply (MUN), the concentration of coliform organisms shall not exceed the limits specified in California Code of Regulations, Title 22, Chapter 15, Article 3.
Chemical and Physical Quality	Ground waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Article 4, Section 64435, Tables 2, 3, and 4 as a result of human activity.
Brines	Discharges of water softener regeneration brines, other mineralized wastes, and toxic wastes to disposal facilities which ultimately discharge in areas where such wastes can percolate to ground waters usable for domestic and municipal purposes are prohibited.
Radioactivity	Ground waters designated for use as domestic or municipal supply (MUN) shall not contain radioactive material in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Article 5, Sections 64441 and 64443 as listed below: • Combined Radium-226 and Radium-228: 5 pci/L • Gross Alpha particle activity (including Radium-226 but excluding Radon and Uranium): 15 pci/L • Tritium: 20,000 pci/L • Strontium-90: 8 pci/L • Gross Beta particle activity: 50 pci/L • Uranium: 20 pci/L
Pesticide Waste	The discharge of pesticidal wastes from pesticide manufacturing processing or cleaning operation to any surface water is prohibited.

pci/L = picocuries per liter

discharges that contain a hazardous substance in excess of reportable quantities established at 40 Code of Federal Regulations (CFR) 117.3 or 40 CFR 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

TMDL Requirements. A TMDL for bacterial indictors was adopted by the RWQCB on May 16, 2007, with revision later adopted by the RWQCB on June 17, 2010. The TMDL was subsequently approved by the SWRCB on July 19, 2011, approved by the Office of Administrative Law on February 2, 2012, and approved by the EPA on April 27, 2012.

The Construction General Permit requires that all developers of land where construction activities will occur over more than 1 ac do the following:

- Complete a Risk Assessment to determine pollution prevention requirements pursuant to the three Risk Levels established in the General Permit;
- Eliminate or reduce nonstorm water discharges to storm sewer systems and other waters of the nation;

- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which specifies BMPs that will reduce pollution in storm water discharges to the Best Available Technology Economically Achievable/Best Conventional Pollutant Control Technology standards; and
- Perform inspections and maintenance of all BMPs.

In order to obtain coverage under the Construction General Permit, a project applicant must electronically file all Permit Registration Documents with the SWRCB prior to the start of construction. Permit Registration Documents must include:

- Notice of Intent
- Risk Assessment
- Site Map
- Stormwater Pollution Prevention Plan
- Annual Fee
- Signed Certification Statement

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment, control pollutants from construction materials, and address postconstruction runoff quantity (volume) and quality (treatment). The SWPPP must also include a discussion of the program to inspect and maintain all BMPs.

Local and Regional Plans and Policies.

Municipal NPDES Permit. The City is a co-permittee under the Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) within the Whitewater River Watershed (MS4 Permit, Order No. R7-2008-0001, NPDES No. CAS617002), which was approved by the Colorado River Basin RWQCB on May 21, 2008.

The MS4 Permit stipulates requirements for new development and significant redevelopment, including specific selection and sizing criteria for structural and nonstructural BMPs.

Storm Water Management Program. To implement the requirements of the MS4 Permit, the co-permittees developed the Whitewater River Region Stormwater Management Plan (SWMP) in 2009 (revised in 2011) that describes the activities and programs implemented by the permittees to manage urban runoff to comply with the requirements of the MS4 Permit. Per the requirements in the Drainage Area Management Plan (DAMP) and the MS4 Permit, the City will approve Water Quality Management Plans (WQMPs) for new development and redevelopment projects designated as "priority projects" within its jurisdiction as part of the development plan and entitlement approval process. WQMPs for new development and significant redevelopment projects that fall under specific priority project categories must include Site Design, Source Control, and Treatment BMPs. The priority project categories are those determined by the RWQCB to have the greatest potential to impact receiving waters with polluted runoff. Priority projects include the following:

- Single-family hillside residences that create 10,000 square feet (sf) or more of impervious area where the natural slope is 25 percent or greater
- Single-family hillside residences that create 10,000 sf or more of impervious area where the natural slope is 10 percent or greater where erosive soil conditions are known
- Commercial and industrial developments of 100,000 sf or more
- Automotive repair shops
- Retail gasoline outlets disturbing greater than 5,000 sf
- Restaurants disturbing greater than 5,000 sf
- Home subdivisions with 10 or more housing units
- Parking lots of 5,000 sf or more, or with 25 or more parking spaces, and potentially exposed to urban runoff

Municipal Code. Chapter 13.16 of the City of Coachella Municipal Code regulates storm water. The purpose of Chapter 13.16 is to ensure the future health, safety, and general welfare of City citizens by regulating nonstorm water discharges to the municipal separate storm drain, controlling the discharge to municipal separate storm drains from spills, dumping or disposal of materials other than storm water; and reducing pollutants in storm water discharges to the maximum extent practicable.

To minimize the discharge and transport of pollutants, Chapter 13.16 of the Municipal Code requires all new development projects identified as a priority project in the MS4 Permit to retain 100 percent of the storm water from the 100-year, 24-hour duration storm. Projects that retain and infiltrate 100 percent of the rainfall are deemed to comply with the Treatment Control BMP requirements found in the MS4 Permit.

Coachella Valley Water District Ordinance 1234.1. Ordinance 1234.1, adopted by the Coachella Valley Water District on March 25, 2013, states that levees must be designed with a minimum of 4 ft of freeboard[1] for the 100-year flood and a minimum of 1 ft of freeboard for the Standard Project Flood.

4.9.5 Project Design Features

As summarized in Chapter 3.0, Project Description, the proposed Specific Plan includes components that are referred to as Project Design Features. Project Design Features related to hydrology and water quality are:

- The Specific Plan development areas shall conform to all of the requirements imposed by the Riverside County Flood Control and Water Conservation District Hydrology Manual, the requirements of the City of Coachella's adopted Stormwater Management Ordinance (Title 13.16

[1] Freeboard is the distance between the water surface elevation and the top of the levee.

of the Municipal Code), the requirements of the Whitewater River Watershed Stormwater Management Plan, and the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. If the project Drainage Master Plan without retention basins is approved by the CVWD, the Municipal Code requirements for 100% on-site drainage retention would be modified.

- The project has incorporated a comprehensive drainage and water quality program into the site, consisting of the surface drainage system and water quality features. This will reduce storm water runoff volume and velocity, improve storm water runoff water quality during storm events and low-flow irrigation volumes, and create biological resource habitat. Key system features are summarized in the Draft La Entrada Specific Plan, specifically the draft Tentative Tract Map on file at the City.
- The proposed Specific Plan includes up to 175.8 ac of soft-bottomed drainages.

4.9.6 Thresholds of Significance

The thresholds for hydrology and water quality impacts used in this analysis are consistent with the City's Initial Study Checklist and Appendix G of the *California Environmental Quality Act (CEQA) Guidelines*. The impacts of the project on hydrology and water quality are considered to be significant if the proposed project would:

Threshold 4.9.1: Violate any water quality standards or waste discharge requirements;

Threshold 4.9.2: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);

Threshold 4.9.3: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site;

Threshold 4.9.4: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;

Threshold 4.9.5: Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;

Threshold 4.9.6: Otherwise substantially degrade water quality;

Threshold 4.9.7: 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;

Threshold 4.9.8: Place within a 100-year flood hazard area structures which would impede or redirect flood flows;

Threshold 4.9.9: Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or

Threshold 4.9.10: Inundation by seiche, tsunami, or mudflow.

4.9.7 Project Impacts

Threshold 4.9.1: Violate any water quality standards or waste discharge requirements and

Threshold 4.9.6: Otherwise substantially degrade water quality

Less than Significant Impact with Mitigation Incorporated.

Construction. Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion compared to existing conditions. During construction, the total disturbed area would be approximately 2,200 ac. In addition, chemicals, liquid products, petroleum products (such as paints, solvents, and fuels), and concrete-related waste may be spilled or leaked and have the potential to be transported via storm runoff into downstream receiving waters (i.e., the Whitewater River). (Also see Section 4.8, Hazards and Hazardous Materials, for a more complete description of potential hazards and associated mitigation measures.)

As specified in Mitigation Measure 4.9.1, each phase of the project would comply with the requirements of the Construction General Permit. Under the Construction General Permit, each phase of the project would be required to prepare a SWPPP and implement construction BMPs detailed in the SWPPP during construction activities to minimize erosion, prevent spills, and retain sediment and other pollutants on site so they would not reach receiving waters. Construction BMPs would include, but not be limited to, Erosion Control and Sediment Control BMPs designed to minimize erosion and retain sediment on site and Good Housekeeping BMPs to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. Erosion Control BMPs are source control practices that protect the soil surface and prevent soil particles from detaching. Sediment Control BMPs trap soil particles after they have been detached and are moved by runoff. Sediment control measures are usually passive systems that filter or settle soil particles out of runoff. Good housekeeping BMPs are methods for good site management, such as proper handling and managing of construction materials to minimize threats to water quality. The Construction General Permit requires good housekeeping measures for construction materials, waste management, vehicle storage and maintenance, landscape materials, and potential pollutant sources. The Erosion Control, Sediment Control, and Good Housekeeping BMPs would target the pollutants of concern to retain them on site and prevent them from reaching receiving waters.

Implementation of Mitigation Measure 4.9.1, which requires compliance with the requirements of the General Construction Permit, including preparation and implementation of a SWPPP, would reduce potential construction impacts related to violation of water quality standards or waste discharge requirements and degradation of water quality to a less than significant level.

Operation. Pollutants of concern during operation of the proposed on-site uses are anticipated to include sediment/turbidity, nutrients, organic compounds, trash and debris, oxygen-demanding substances, bacteria and viruses, oil and grease, pesticides, and metals. The proposed project would result in a permanent increase in impervious surface area, which would increase the volume of runoff during a storm, which would more effectively transport pollutants to receiving waters.

As specified in Mitigation Measure 4.9.2, a WQMP would be prepared for each phase of the project. The Site Design, Source Control, and Treatment BMPs specified in the WQMPs would be incorporated into the design of the proposed project to treat storm water runoff prior to discharge into the storm drain system. Site Design BMPs are BMPs that reduce runoff or pollutants at the source through intentional use of landforms and materials. Source Control BMPs are measures that focus on reducing or eliminating runoff and controlling sources of pollutants during operation of the project. Treatment BMPs utilize treatment mechanisms to remove pollutants that have entered storm water runoff. The BMPs would be consistent with the requirements of the Whitewater River Region Stormwater Management Plan (SWMP) and would target pollutants of concern from the project site. The SWMP details the requirements for selection and implementation of BMPs. All guidelines and procedures outlined in the SWMP, including the post-development WQMP requirements, would be adhered to during all phases of the project, as currently written or subsequent future regulations. Pollution prevention, treatment control, and construction BMPs would be implemented consistent with the requirements outlined in the SWMP.

Site Design BMPs to be considered and incorporated into the project where feasible include conserving natural areas and minimizing urban runoff, impervious footprint, and directly connected impervious areas. Nonstructural Source Control BMPs to be considered and incorporated into the project where feasible include education/training for property owners, operators, tenants, occupants, or employees; activity restrictions; irrigation system and landscape maintenance; common area litter control; street sweeping of private streets and parking lots; and drainage facility inspection and maintenance. Structural Source Control BMPs to be considered and incorporated into the project where feasible include storm drain inlet stenciling and signage; landscape and irrigation system design; protection of slopes and channels; provision of community car wash racks; provision of wash water controls for food preparation areas; and proper design and maintenance of fueling areas, air/water supply area drainage, trash storage areas, loading docks, maintenance bays, vehicle and equipment wash areas, outdoor material storage areas, and outdoor work areas or processing areas.

Treatment Control BMPs to be considered and incorporated into the project where feasible include biofilters (grass swales, grass strips, wetland vegetation swales, and bioretention), detention basins (extended/dry detention basins with grass lining and extended/dry detention basins with impervious lining), infiltration BMPs (infiltration basins, infiltration trenches, and

porous pavement), wet ponds or wetlands (permanent pool wet ponds and construction wetlands), filtration systems (sand filters and media filters), water quality inlets, hydrodynamic separator systems (hydrodynamic devices, baffle boxes, swirl concentrators, or cyclone separators), and manufactured or proprietary devices.

As specified in Mitigation Measure 4.9.3, a Maintenance and Management Program for storm water facilities would be prepared to ensure the ongoing functionality of the BMPs. The program will include detailed landscaped design criteria and a plan to evaluate the overall health of the facilities on a regular schedule and implement any corrective actions necessary to maintain the facilities ability to improve water quality.

Development of a WQMP for each phase of the project and implementation and maintenance of BMPs to target pollutants of concern in runoff from the project site, as specified in Mitigation Measures 4.9.2 and 4.9.3, would reduce potential operational impacts related to violation of water quality standards or waste discharge requirements and degradation of water quality would be less than significant levels.

The Specific Plan allows for creation of retention basins in the project open space areas in order to provide flood control and water quality benefits. The retention basins are also required by the City's Municipal Code Chapter 13.16, which requires 100 percent on-site retention of the 100-year 24-hour storm event. However, as shown in the Drainage Master Plan (Appendix I), the retention basins are anticipated to not be required, as these basins would be redundant with the existing East Side Dike, which serves the same function and is located immediately downstream of the project site. Water that ponds behind the East Side Dike slowly discharges to an outlet (Wasteway No. 2) near 52nd Avenue that is then discharged to a channel that confluences with the Coachella Valley Stormwater Channel. The discharge through Wasteway No. 2 is very small compared to the inflow volume, but a small amount of the 100-year 24-hour event would be discharged to Wasteway No. 2. As a result, the project would be in substantial conformance with the requirement to retain 100 percent of the 100-year 24-hour storm event. However, because the discharge to Wasteway No. 2 would be small, it would not result in any impacts to the downstream channel systems.

The Drainage Master Plan and associated hydrology is presently under review by the Coachella Valley Water District (CVWD). The Drainage Master Plan shows, subject to CVWD acceptance, that the existing East Side Dike would provide adequate flood control for the proposed project, and retention basins would not be required. If the retention basins are not required, the water quality and sediment control functions of the retention basins would be met through water quality basins and other BMP features, which would be developed in the WQMPs prepared for each phase of the project. This drainage master plan approach, including on-site water quality basins and BMP features, would be consistent with the County MS4 permit requirements, Whitewater River Region Water Quality Management Plan for Urban Runoff, and Riverside County Whitewater Region Storm Water Quality BMP Handbook. If the basins are not required and are therefore not constructed, the other water quality basins and BMP features would provide adequate water quality and sediment control. If approved by CVWD, the drainage plan without on-site regional retention basins as included in the Specific Plan would modify the Coachella Municipal Code requirements for 100 percent on-site retention.

Vector Control. In response to the Notice of Preparation, the Coachella Valley Mosquito and Vector Control District submitted a comment letter stating that the project will increase vector populations and expose additional people to the risk of contracting vector-borne diseases. Specifically, the project's retention basins could provide habitat for larval mosquitoes. In addition the location of the project site, downwind from agricultural areas, may result in the increased need for fly and eye gnat control. Also, irrigation of the property could increase the suitability for red imported fire ants. Because there is not a specific CEQA threshold to address vector control, it is being evaluated in this section of the EIR as these vectors are associated with surface water.

Flies and eye gnats are a potential concern due to the close proximity of the project site to agricultural land. Imported red fire ants are a potential concern in the landscape and open space areas of the project because imported red fire ants tend to build nests in open, sunlit, irrigated, grassy areas. Mosquitos are a potential concern associated with on-site water, particularly standing water or moist soils associated with treatment BMPs, which can serve as breeding habitat for mosquitos.

As specified in Mitigation Measure 4.9.4, a Vector Control Program would be implemented to address control of flies, eye gnats, imported red fire ants, and mosquitos. Flies and eye gnats would be controlled through measures such as landscape maintenance, removal of vegetation and landscape clippings, and irrigation management to prevent overwatering. Red ants would be controlled by limiting access to water through use of desert landscaping, irrigation management, and turf management to reduce potential nesting habitat. As specified in Mitigation Measure 4.9.4, a Maintenance and Management Program for all storm water facilities would be developed and implemented to control mosquitos and reduce potential breeding habitat. The Maintenance and Management Program would include a detailed plan for the control of vectors indigenous to wetlands. Because the minimum length of time for mosquito development is 96 hours, the water quality features, such as vegetated strips, vegetated swales, detention devices, infiltration BMPs, bioretention BMPs, and media filters would be designed to drain within 72 hours or be sealed against mosquitos. In addition, mosquito control would be achieved through use of desert landscaping and irrigation management. With implementation of Mitigation Measures 4.9.3 and 4.9.4, which require development and implementation of a Vector Control Program and BMP Maintenance and Management Program, potential impacts related to vectors would be reduced to less than significant levels.

Threshold 4.9.2: Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)

Less than Significant Impact. Groundwater supplies and recharge are addressed in detail in Section 4.17, Water Supply, of this EIR. Construction and operation of the proposed project would not substantially deplete groundwater or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. Please refer to Section 4.17 for a complete discussion of impacts related to groundwater supplies.

Threshold 4.9.3: **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site**

and

Threshold 4.9.4: **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site**

Less than Significant Impact with Mitigation Incorporated.

Construction. As previously described, during construction activities, the project site would be graded and excavated soil would be exposed, and there would be an increased potential for soil erosion compared to existing conditions. During a storm event, soil erosion and sedimentation could occur at an accelerated rate. For example, grading activities generate sediment, which has the potential to be washed into storm drains or tracked off site by construction trucks and heavy equipment. In addition, grading and construction activities would compact soil, and construction of structures would increase the impervious area, which can increase runoff during construction.

Mitigation Measure 4.9.1 requires preparation of a SWPPP to identify Construction BMPs to be implemented as part of each phase of development to reduce impacts to water quality during construction, including those impacts associated with soil erosion and increased runoff. As discussed previously, Erosion Control BMPs would be implemented to prevent erosion. Sediment Control BMPs would be implemented to prevent soil particles from leaving the site should any erosion occur. During construction, short-term alteration of drainage patterns would occur; however, the SWPPP would include measures to divert and convey flows to reduce flooding during construction. These measures would ensure that temporarily diverted flows associated with construction activity would not result in on-site or off-site downstream flooding. Implementation of Mitigation Measure 4.9.1, which requires compliance with the requirements of the General Construction Permit and implementation of BMPs during construction, would reduce potential construction impacts related to erosion and siltation and flooding to less than significant levels.

Operation. The proposed project would change on-site drainage patterns and increase storm water runoff by adding impervious surface areas, including buildings and streets. However, the project would include a comprehensive drainage system to convey on-site storm flows. A detailed hydrology study would be prepared for each phase of the proposed development to ensure that the on-site storm drain facilities are appropriately sized to prevent on-site or off-site flooding (refer to Mitigation Measure 4.9.5). In the proposed condition, the impervious surface areas would not be prone to erosion or siltation. Treatment BMPs would be incorporated into the project as required in Mitigation Measure 4.9.2. These BMPs would be designed to convey storm water and minimize on-site erosion and siltation.

The Specific Plan allows for creation of retention basins in the project open space areas in order to retain 100 percent of the 100-year 24-hour storm event on site. In this case, the proposed

project would retain storm water runoff on site and not result in substantial erosion, siltation, or flooding off site. As discussed previously, subject to CVWD acceptance, the existing East Side Dike would provide adequate flood control for the project, and the retention basins would not be required. In this case, runoff from the site would continue to be retained temporarily by the East Side Dike and then discharged to the Whitewater River (Coachella Valley Storm Drain Channel) via Wasteway No. 2. The La Entrada community would be located on the east side of the existing East Side Dike flood control embankment. As such, the project would not substantially alter existing regional flows that create ponding adjacent to the East Side Dike during a major event.

As discussed in the Drainage Master Plan, a regional hydrology analysis for the 1 percent and 10 percent annual chance 24-hour storm events was prepared to determine design discharges to each of the seven regional watercourses throughout the project site. The analysis was prepared for the baseline (existing) and project conditions and identified flow rates at the upstream project limits (U/S PL) and downstream (East Side Dike). The results of the analysis are summarized in Table 4.9.C. The project condition flow rates would be used for design for the on-site channel system.

Table 4.9.C: Comparison of Flow Rates for Baseline and Project Conditions

Channel	Concentration Point	10 Percent Annual Chance 24-Hour Storm Event			1 Percent Annual Chance 24-Hour Storm Event		
		Baseline Q (cfs)	Project Q (cfs)	Change in Q (cfs)	Baseline Q (cfs)	Project Q (cfs)	Change in Q (cfs)
1		281	281	0	666	664	-3
	East Side Dike	97	118	21	835	760	-75
2		65	65	0	153	153	0
	East Side Dike	37	112	76	522	540	18
3		445	445	0	2,199	2,199	0
	East Side Dike	391	465	74	2,067	2,329	263
4		66	68	2	179	184	4
	East Side Dike	8	109	101	412	569	157
5		112	112	0	395	394	-1
	East Side Dike	-	89	-	-	407	-
6		56	-	-	440	-	-
	East Side Dike	787	785	-3	3,316	3,308	-8
	6C	-	889	-	-	3,671	-
7		698	926	228	3,200	3,956	756
	East Side Dike	286	285	0	1,026	1,020	-5
	6C	243	265	22	1,043	1,038	-6

Source: *Drainage Master Plan,* RBF Consulting (June 2013).
6C= Confluence location of Channels 5 and 6Q= flow rates
cfs= cubic feet per second
Q = runoff
U/S PL= Upstream Project Limits

As discussed in the Drainage Master Plan (June 2013), the project would increase runoff volume from the site by 296 acre-feet (af) for a 1 percent annual chance 24-hour storm event and by 196 af for the Standard Project Flood,1 which would increase the water surface elevation in the

[1] The Standard Project Flood is based on the Indio Storm of September 24, 1939, which produced a total precipitation depth of 6.45 inches in 6 hours.

East Side Dike. As shown in Table 4.9.D, for a 1 percent annual chance 24-hour storm event, the minimum, average, and maximum increases in water surface elevation at the dike would be 0.51 ft, 1.23 ft, and 1.75 ft, respectively. For the Standard Project Flood, the minimum, average, and maximum increase in water surface elevation at the dike would be 0.31 ft, 1.18 ft, and 1.88 ft, respectively. The maximum increase in water surface elevation, which would occur for the Standard Project Flood, would occur within the Channel 6 outfall inundation area just south of the Avenue 50 crossing. However, this increase is limited to a 0.4 mi segment of the East Side Dike. In addition, for the Standard Project Flood, at least 4 ft of freeboard would be maintained along the East Side Dike, which would exceed the 1 ft minimum freeboard requirement in Coachella Valley Water District's Ordinance 1234.1. For the 1 percent annual chance 24-hour storm, a minimum of approximately 15 ft of freeboard is maintained, which provides substantially more freeboard than required by the 100-year plus 4 ft freeboard requirement identified in Ordinance 1234.1.

Table 4.9.D: Comparison of Maximum Water Surface Elevations for Baseline and Project Conditions

Statistics	1 Percent Annual Chance 24-Hour Storm Event			Standard Project Flood (SPF) (Indio Storm of September 24, 1939)		
	Baseline WSE (ft)	Project WSE (ft)	Change in WSE (ft)	Baseline WSE (ft)	Project WSE (ft)	Change in WSE (ft)
Maximum	55.11	56.03	1.75	65.15	67.01	1.88
Average	53.25	54.51	1.23	64.08	65.28	1.18
Minimum	51.66	52.45	0.51	64.07	64.13	0.31

Source: *Drainage Master Plan*, RBF Consulting (June 2013).
ft= feet
WSE= Water Surface Elevation

Compared to existing conditions, the change in flow velocity leaving the site would be minimal and is not anticipated to result in erosion. In addition, the changes to the flow conditions (peak flow, volume, and concentration) at the East Side Dike would be minor compared to existing conditions and is not anticipated to result in erosion of the dike. In addition, the project would reduce overland flows on the private property that currently inundate the property during large storm events in the existing condition. As a result, the flood limits and runoff velocities on this property would be substantially reduced. For these reasons, the project would not substantially alter the existing drainage pattern in a manner that would result substantial erosion, siltation, or flooding off-site.

Therefore, with implementation of Mitigation Measures 4.9.2 and 4.9.5, operational impacts from alteration of the existing drainage pattern of the site and the increase in the rate and amount of surface runoff from development on the project site would be reduced to a less than significant level.

Threshold 4.9.5: Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff

Less than Significant Impact with Mitigation Incorporated.

Construction. As discussed above, construction of the proposed project has the potential to introduce pollutants into the storm water drainage system from erosion, siltation, and accidental spills. In addition, grading and construction activities would compact soil, and construction of structures would increase the impervious area, which can increase runoff during construction. As specified in Mitigation Measure 4.9.1, the Construction General Permit requires preparation of a SWPPP to identify construction BMPs to be implemented during project construction to reduce impacts to water quality, including those impacts associated with soil erosion, siltation, spills, and increased runoff. With implementation of Mitigation Measure 4.9.1, which require compliance with the Construction General Permit and implementation of BMPs during construction, construction impacts related to exceedance of the capacity of and providing additional sources of polluted runoff to storm water drainage systems would be reduced to less than significant levels.

Operation. As discussed above, the project would include a comprehensive drainage system to convey on-site storm flows. During design of each phase of the project, a detailed hydrology study would be prepared to ensure that the on-site storm drain facilities are appropriately sized to prevent on-site flooding (Mitigation Measure 4.9.5). If the on-site retention basins are included in the project, the proposed project would retain storm water runoff on site and would therefore not contribute runoff water that would exceed the capacity of the downstream storm drain facilities. If the on-site retention basins are determined to not be required, the increased runoff from the site would continue to be retained temporarily by the East Side Dike with sufficient freeboard before being discharged to the Whitewater River (Coachella Valley Storm Drain Channel) via Wasteway No.2. Therefore, the project would not exceed the capacity of the downstream storm drain system. In addition, as required in Mitigation Measure 4.9.2, the project, with or without on-site retention basins, would include Site Design, Source Control, and Treatment BMPs to target pollutants of concern in runoff from the project site. With implementation of BMPs, the proposed project would not provide substantial additional sources of polluted runoff. Therefore, with implementation of Mitigation Measures 4.9.2 and 4.9.5, operational impacts related to exceedance of the capacity of and providing additional sources of polluted runoff to storm water drainage systems would be reduced to a less than significant level.

Threshold 4.9.7: 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

and

Threshold 4.9.8: Place within a 100-year flood hazard area structures which would impede or redirect flood flows

Less than Significant Impact. According to the Federal Emergency Management Agency (FEMA) Federal Insurance Rate Map (FIRM) No. 0605C2300G (August 28, 2008), the project site is located within Zone X, areas determined to be outside the 0.2 percent annual chance (500-year) floodplain,

and Zone D, areas in which flood hazards are undetermined, but possible. Because the majority of the site is located in Zone D where 100-year flood hazards are undetermined but possible, there is a potential for the project to place housing or structures within a 100-year flood hazard area. The Sustainable Community Design Strategies include implementation of an integrated storm water collection, implementation of a conveyance system designed to provide 100-year flood protection to flood-prone areas, prohibition of development within on-site floodplains, and integration of setbacks/buffers and passive recreational amenities within these areas into the land use plan. Therefore, with implementation of the Sustainable Community Design Strategies, structures and housing would be protected from the 100-year flood, and construction or operational impacts related to placement or housing within a 100-year flood hazard area would be less than significant. No mitigation is required.

Threshold 4.9.9: Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam

No Impact. As discussed above, the project is not located within a 100-year flood hazard area. There are no dams or reservoirs upslope of the project site; therefore, the project site is not in the flood zone of a dam. During a seismic event, there is a possibility that the Coachella Canal levee could fail. The project site is approximately 750 ft from the levee of the canal. However, the majority of the project site is higher in elevation than the Coachella Canal. Therefore, any flooding from failure of the levee would not occur on the project site. The flooding from failure of the levee would occur down slope of the project site within off-site designated open space areas, and construction or operation of the project would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. No mitigation is required.

Threshold 4.9.10: Inundation by seiche, tsunami, or mudflow

Less than Significant Impact. Seiching is a phenomenon that occurs when seismic groundshaking induces standing waves (seiches) inside water retention facilities such as reservoirs and water tanks. Such waves can cause retention structures to fail and flood downstream properties. There are no water retention facilities located in close proximity to the proposed project site. The proposed retention basins are designed to temporarily detain runoff and due to their temporary nature would not constitute a body of water. Therefore, the risk associated with possible seiche waves is not considered a potential constraint or a potentially significant impact of the project, and no mitigation is necessary.

Tsunamis are generated wave trains generally caused by tectonic displacement of the sea floor associated with shallow earthquakes, sea floor landslides, rock falls, and exploding volcanic islands. The proposed project is not located in a tsunami inundation zone. Therefore, the project would not result in impacts related to exposure of people or structures to risk of loss, injury, or death involving flooding as a result of inundation by tsunami. No mitigation is required.

Mudslides and slumps are described as a shallower type of slope failure, usually affecting the upper soil mantle or weathered bedrock underlying natural slopes and triggered by surface or shallow subsurface saturation. During the geologic mapping for the project, minor debris/mudflows were noted. Because of the minor nature of the debris/mudflows, the risk associated with possible

mudflows and mudslides is not considered a potential constraint or a potentially significant impact of the project, and no mitigation is necessary. Therefore, the project would result in less than significant impacts related to exposure of people or structures to risk of loss, injury, or death involving flooding as a result of inundation by mudflow. No mitigation is required.

4.9.8 Mitigation Measures

The Project Design Features for hydrology and water quality are discussed in Section 3.9.9. The applicable regulatory requirements included in the Project Design Features have been further defined, and are therefore included below as mitigation measures.

Mitigation Measure 4.9.1 **Construction General Permit.** Prior to issuance of a grading permit, the applicant shall obtain coverage for each phase of the project under the State Water Resources Control Board National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, Permit No. CAS000002) (Construction General Permit), or subsequent issuance. The applicant shall provide the Waste Discharge Identification Numbers to the City of Coachella Director of Public Works to demonstrate proof of coverage under the Construction General Permit. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared and implemented for each phase of the project in compliance with the requirements of the Construction General Permit. The SWPPPs shall identify construction Best Management Practices (BMPs) to be implemented to ensure that the potential for soil erosion and sedimentation is minimized and to control the discharge of pollutants in storm water runoff as a result of construction activities.

Mitigation Measure 4.9.2 **Water Quality Management Plans.** Prior to issuance of grading permits, the applicant shall submit a Final Water Quality Management Plan (WQMP) for each phase of the project to the City of Coachella Director of Public Works for review and approval. The WQMPs shall be consistent with the requirements of the Whitewater River Region Water Quality Management Plan for Urban Runoff (January 2011 or subsequent issuance). Project-specific Site Design, Source Control, and Treatment Control BMPs contained in the Final WQMPs shall be incorporated into final design. The BMPs shall be properly designed and maintained to target pollutants of concern and reduce runoff from the project site. The WQMPs shall include an operations and maintenance plan for the prescribed Treatment Control BMPs to ensure their long-term performance.

As detailed in the *Water Quality Assessment Report* (September 2012), Site Design BMPs to be considered and incorporated into the project where feasible include conserving natural areas and

minimizing urban runoff, impervious footprint, and directly connected impervious areas. Nonstructural Source Control BMPs to be considered and incorporated into the project where feasible include education/training for property owners, operators, tenants, occupants, or employees; activity restrictions; irrigation system and landscape maintenance; common area litter control; street sweeping of private streets and parking lots; and drainage facility inspection and maintenance.

Structural Source Control BMPs to be considered and incorporated into the project where feasible include storm drain inlet stenciling and signage; landscape and irrigation system design; protection of slopes and channels; provision of community car wash racks; provision of wash water controls for food preparation areas; and proper design and maintenance of fueling areas, air/water supply area drainage, trash storage areas, loading docks, maintenance bays, vehicle and equipment wash areas, outdoor material storage areas, and outdoor work areas or processing areas.

Treatment Control BMPs to be considered and incorporated into the project where feasible include biofilters (grass swales, grass strips, wetland vegetation swales, and bioretention), detention basins (extended/dry detention basins with grass lining and extended/dry detention basins with impervious lining), infiltration BMPs (infiltration basins, infiltration trenches, and porous pavement), wet ponds or wetlands (permanent pool wet ponds and construction wetlands), filtration systems (sand filters and media filters), water quality inlets, hydrodynamic separator systems (hydrodynamic devices, baffle boxes, swirl concentrators, or cyclone separators), and manufactured or proprietary devices.

Mitigation Measure 4.9.3 **Best Management Practices (BMP) Maintenance and Management Program.** Prior to the issuance of a grading permit, a detailed maintenance and management program for construction and post-construction storm water facilities shall be prepared that includes, but is not be limited to: detailed landscaped design criteria, a detailed plan for the control of vectors indigenous to wetlands, a detailed plan for the control of mosquitos (in addition to a separate Vector Control Program for nonstorm water facilities per Mitigation Measure 4.9.4), and a plan to evaluate the overall health of the facility on a regular schedule and implement any corrective actions necessary to maintain the facility's ability to improve water quality.

Mitigation Measure 4.9.4 **Vector Control Program.** Prior to issuance of grading permits, the applicant shall develop a Vector Control Program in coordination with the Coachella Valley Mosquito and Vector Control District. The Vector Control Program shall address control of flies, eye gnats,

imported red fire ants, and mosquitos. The vector control program shall include measures such as landscape maintenance, removal of vegetation and landscape clippings, irrigation management, use of desert landscaping, irrigation management, and turf management.

Mitigation Measure 4.9.5 **Hydrology Reports.** Prior to issuance of grading permits, the applicant shall submit a final hydrology report for each phase of the project to the City of Coachella Director of Public Works for review and approval. The hydrology reports shall demonstrate, based on hydrologic calculations, that the project's on-site storm conveyance and retention facilities are designed in accordance with the requirement of the Riverside County Flood Control and Water Conservation District Hydrology Manual.

4.9.9 Cumulative Impacts

The cumulative study area for hydrology and water quality is the Whitewater Watershed. Each of the cumulative projects, individually and cumulatively, could potentially increase the volume of storm water runoff and contribute to pollutant loading in storm water runoff reaching both the City's storm drain system and the Whitewater River, resulting in cumulative impacts to hydrology and surface water quality. However, as with the proposed project, each of the cumulative projects would also be subject to NPDES and MS4 Permit requirements for both construction and operation. Each project would be required to develop a SWPPP and WQMPs and would be evaluated individually to determine appropriate BMPs to minimize impacts to surface water quality. In addition, the City Department of Public Works reviews all development projects on a case-by-case basis to ensure that sufficient local and regional drainage capacity is available. Thus, the project's contribution to cumulative impacts to hydrology and water quality would be less than significant.

4.9.10 Significant Unavoidable Adverse Impacts

The proposed project would not result in significant unavoidable adverse impacts related to hydrology and water quality.