3.9 - Hydrology and Water Quality

This section describes the existing setting regarding hydrology and water quality and potential effects from project implementation on the site and its surrounding area. Descriptions and analysis in this section are based on information contained in the Project Specific Water Quality Management Plan (WQMP) (Albert A. Webb Associates 2014a); TPM 36564 Off-Site Hydrology & Hydraulics Report (Albert A. Webb Associates 2015); Preliminary Hydrology Study (Albert A. Webb Associates 2014c); and Infiltration Rate Evaluation (Ginter 2012), all of which are included in this Recirculated Draft EIR (RDEIR) as Appendix G.

3.9.1 - Existing Conditions

Climate
Temperatures in the project area range from an average high of 78 degrees Fahrenheit (°F) and an average low of 49°F. The record high for the area is 117 degrees and the record low is 17 degrees. The annual average rainfall for the area is approximately 16 inches per year. The climate is characterized by hot dry summers when temperatures can rise above 100 degrees, and moderate winters. Most of the precipitation in the project area occurs between the months of December and March (San Bernardino Valley Regional Urban Water Management Plan, 2015 [RUWMP]).

Flood Zone
The project area is classified as flood Zone X, according to Flood Insurance Rate Map No. 06065C0785G published by the Federal Emergency Management Agency (FEMA) (Exhibit 3.9-1). This zone is described as, “areas determined to be outside the 0.2 percent annual chance floodplain,” which means that the project is in an area determined to be outside the 500-year annual chance floodplain (FEMA 2013). In addition, the Department of Water Resources has delineated the southern portion of the project site as being located within a floodplain. Development within this floodplain is subject to the development guidelines identified in Riverside County Ordinance No. 458. The intent of the ordinance is to: (1) ensure that any new construction and/or substantial improvement within a mapped floodplain is done in a manner that reduces damage to the public and property; and (2) discourage any new development within floodways. The Riverside County Flood Control and Water Conservation District is designated to administer this program in most of the western parts of the County.

Regional Surface Water Hydrology
Riverside County incorporates four major watershed areas in which river systems, lakes and reservoirs, and natural drainage areas are located. Specifically, the project site is located within the Santa Ana River Watershed. The County of Riverside’s supply of water is limited by its arid climate, agricultural practices, projected population growth and its associated demand and development, and the dependence on low quality imported water. Additionally, the availability of imported surface water has been reduced due to changing regulations, despite an ever-increasing water demand (County of Riverside General Plan 2015).

Local Surface Water Hydrology
As included in the Off-site Hydrology Report for Tentative Parcel Map 36564 (Appendix G) prepared for the project, there are two drainage areas in the existing condition: Drainage Areas “A” and “B”
Drainage Area “A” comprises approximately 903.3 acres, with peak stormwater discharge rates of approximately 739.7 cubic feet per second (cfs) and 1171.4 cfs, for 10-year and 100-year storms, respectively. Drainage Area “B” comprises approximately 258.1 acres, with peak discharge rates of 359.4 cfs and 563.2 cfs, for 10-year and 100-year storms, respectively.

**Surface Water Quality**

The cumulative effect of runoff from land uses in a region can have significant impacts on surface water quality, with both point- and non-point-source discharges contributing contaminants to surface waters. The land uses surrounding the project site vary from rural mountainous open space to low-density residential.

The project is within the jurisdiction of the Santa Ana Regional Water Quality Control Board (Region 8) and in the Santa Ana River Watershed, San Timoteo Creek Sub-watershed. Santa Ana River (Reach 3) is currently on the State’s 303(d) List of Water Quality Limited Segments as impaired for Pathogens, Copper, and Lead; Reach 4 is on the list for Salinity, TDS, Chlorides, and Pathogens. Prado Basin Management Zone is also on the State’s 303(d) List of Water Quality Limited segments as impaired for Nutrients and Pathogens.

Table 3.9-1 shows the receiving waters for urban runoff from the project site.

<table>
<thead>
<tr>
<th>Receiving Waters</th>
<th>303 (d) List Impairments</th>
<th>Designated Beneficial Uses (acronym list in Table 3.9–2)</th>
<th>Proximity to RARE Beneficial Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Timoteo Creek Reach 3 (HUC 901.62)</td>
<td>None</td>
<td>GWR, MUN, REC1, REC2, WARM, WILD</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>San Timoteo Creek Reach 2 Hydrologic Unit 801.61</td>
<td>None</td>
<td>GWR, MUN, REC1, REC2, WARM, WILD</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>San Timoteo Creek Reach 1A Hydrologic Unit 801.52</td>
<td>None</td>
<td>AGR, MUN, REC1, REC2, WARM, WILD</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>San Timoteo Creek Reach 1B</td>
<td>None</td>
<td>MUN, AGR, GWR, REC1, REC2, WARM, WILD</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Santa Ana River (Reach 5) Hydrologic Unit 801.52</td>
<td>None</td>
<td>MUN, AGR, GWR, REC1, REC2, WARM, WILD</td>
<td>17 miles</td>
</tr>
<tr>
<td>Santa Ana River (Reach 4) Hydrologic Unit 801.27</td>
<td>Salinity, TDS, Chlorides, Pathogens</td>
<td>WARM, WILD, GWR, MUN, RARE, REC1, REC2, SPWN</td>
<td>18 miles</td>
</tr>
<tr>
<td>Santa Ana River (Reach 3) Hydrologic Unit 801.25</td>
<td>Copper, Lead, Pathogens</td>
<td>AGR, GWR, REC1, REC2, SPWN, WARM, WILD, RARE</td>
<td>25 miles</td>
</tr>
<tr>
<td>Prado Basin Management Zone</td>
<td>Nutrient, Pathogens</td>
<td>MUN, REC1, REC2, WARM, WILD, RARE</td>
<td>40 miles</td>
</tr>
</tbody>
</table>

Notes:
The REC 1 and REC 2 beneficial use of designations assigned to surface waterbodies in this Region should not be construed as encouraging recreational activities. In some cases, such as Lake Matthews and certain reaches of the Santa Ana River, access to the waterbodies is prohibited because of potentially hazardous conditions and/or because of the need to protect other uses, such as municipal supply or sensitive wildlife habitat. Where REC 1 or REC 2 is indicated as a beneficial use in this table, the designations are intended to indicate that the uses exist or that the water quality of the waterbody could support recreational uses.

Legend

- Project Site
- Zone X - Areas Determined to be Outside the 0.2% Annual Chance Floodplain

Source: FEMA National Flood Insurance Program.

Exhibit 3.9-1
FEMA Flood Zones
Each of the beneficial uses listed in Table 3.9-2 is also described in the Santa Ana Region Basin Plan (2008).

**Table 3.9-2: Beneficial Use Designations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
<th>Beneficial Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGR</td>
<td>Agricultural Supply</td>
<td>Uses for farming, horticulture or ranching. These uses may include but are not limited to irrigation, stock watering, and support of vegetation for range grazing.</td>
</tr>
<tr>
<td>COMM</td>
<td>Commercial and Sport Fishing</td>
<td>Uses for commercial or recreational collection of fish or other organisms, including those collected for bait. These uses may include but are not limited to uses involving organisms intended for human consumption.</td>
</tr>
<tr>
<td>GWR</td>
<td>Groundwater Recharge</td>
<td>Uses for natural or artificial recharge of groundwater for purposes that may include but are not limited to future extraction, maintaining water quality or halting saltwater intrusion into freshwater aquifers.</td>
</tr>
<tr>
<td>IND</td>
<td>Industrial Service Supply</td>
<td>Uses for industrial activities that do not depend primarily on water quality. These uses may include but are not limited to mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well re-pressurization.</td>
</tr>
<tr>
<td>MAR</td>
<td>Marine Habitat</td>
<td>Supports marine ecosystems that include but are not limited to preservation and enhancement of marine habitats, vegetation (e.g., kelp), fish and shellfish and wildlife (e.g., marine mammals and shorebirds).</td>
</tr>
<tr>
<td>MUN</td>
<td>Municipal and Domestic Supply</td>
<td>Uses for community, military, municipal or individual water supply systems. These uses may include but are not limited to drinking water supply.</td>
</tr>
<tr>
<td>NAV</td>
<td>Navigation</td>
<td>Uses for shipping, travel or other transportation by private, commercial or military vessels.</td>
</tr>
<tr>
<td>RARE</td>
<td>Rare, Threatened or Endangered Species</td>
<td>Supports the habitats necessary for the survival and successful maintenance of plant or animal species designated under state or federal law as rare, threatened or endangered.</td>
</tr>
<tr>
<td>REC 1*</td>
<td>Water Contact Recreation</td>
<td>Uses for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses may include but are not limited to swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing and use of natural hot springs.</td>
</tr>
<tr>
<td>REC 2*</td>
<td>Non-contact Water Recreation</td>
<td>Uses for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible. These uses may include but are not limited to picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities.</td>
</tr>
</tbody>
</table>
### Table 3.9-2 (cont.): Beneficial Use Designations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
<th>Beneficial Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHEL</td>
<td>Shellfish Harvesting</td>
<td>Supports habitats necessary for shellfish (e.g., clams, oysters, limpets, abalone, shrimp, crab, lobster, sea urchins, and mussels) collected for human consumption, commercial or sport purposes.</td>
</tr>
<tr>
<td>SPWN</td>
<td>Spawning, Reproduction and Development</td>
<td>Supports high quality aquatic habitats necessary for reproduction and early development of fish and wildlife.</td>
</tr>
<tr>
<td>WARM</td>
<td>Warm Freshwater Habitat</td>
<td>Supports warm water ecosystems that may include but are not limited to preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.</td>
</tr>
<tr>
<td>WILD</td>
<td>Wildlife Habitat</td>
<td>Supports wildlife habitats that may include but are not limited to the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.</td>
</tr>
</tbody>
</table>

### Groundwater

Groundwater resources in the County are delineated by their quality and quantity. Most groundwater basins within the County of Riverside store local and imported water and are used to satisfy seasonal and drought-year demands. Under groundwater recharge programs, groundwater basins are artificially replenished in wet years with surplus imported water. Water is then extracted during drought years or emergencies. Groundwater recharge may also involve the recharge of reclaimed water, thereby enhancing the region’s ability to meet water demand during years of short supply and increasing overall local supply reliability (Riverside General Plan 2015).

The depth to the regional groundwater in the vicinity of the site is approximately 150 to 200 feet below the ground surface. Two inactive groundwater wells (Well Nos. 1 and 2) are located to the west of the site. Based on well measurements of Well No. 1 conducted on May 22, 2007, the depth to groundwater is approximately 195 feet below ground surface (R M Environmental 2009).

### Seismically Induced inundation

Seismically induced inundation refers to flooding that occurs when water retention structures fail during an earthquake. Often, inundation is triggered by damage from a seiche. A seiche is a wave that reverberates on the surface of water in an enclosed or semi-enclosed basin, such as a reservoir, lake, bay, or harbor, in response to ground shaking during an earthquake. The following water bodies are located in the vicinity of the project site: Lake Perris (approximately 9.7 miles southwest), Big Bear Lake (approximately 19 miles north), Diamond Valley Lake (approximately 19 miles south), and Lake Elsinore (approximately 27 miles southwest).

### 3.9.2 - Regulatory Setting

#### State Regulations

In California, the regulation, protection, and administration of water quality are carried out by the State Water Resources Control Board (SWRCB) and nine California Regional Water Quality Control Boards
(RWQCBs). The State is divided into nine regions due to regional issues related to water quality and quantity. In compliance with Section 303 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, each RWQCB is required to adopt a Water Quality Control Plan or Basin Plan which recognizes and reflects regional differences in existing water quality, the beneficial uses of the region’s ground and surface water, local water quality conditions and problems, and Total Maximum Daily Loads (TMDL). The project site is located within the Santa Ana Region, which is addressed in the Water Quality Control Plan for the Santa Ana Basin, dated January 24, 1995, updated in 2008. The Santa Ana Basin Plan is designed to preserve and enhance water quality and protect the beneficial uses of its regional waters. The Santa Ana RWQCB has the authority to implement water quality protection standards through the issuance of permits to waters within its jurisdiction.

States are required to develop a TMDL to address each pollutant causing impairment. A TMDL defines how much of a pollutant a water body can tolerate and still meet water quality standards. Each TMDL must account for all sources of the pollutant, including discharges from wastewater treatment facilities; runoff from homes, forested lands, agriculture, and streets or highways; contaminated soils/sediments, legacy contaminants such as dichlorodiphenyltrichloroethane (DDT) and polychlorinated biphenyls (PCBs), on-site disposal systems (septic systems) and deposits from the air. Federal regulations require that the TMDL, at a minimum, account for contributions from point sources (permitted discharges) and contributions from non-point sources, including natural background. In addition to accounting for past and current activities, TMDLs may consider projected growth that could increase pollutant levels. TMDLs allocate allowable pollutant loads for each source, and identify management measures that, when implemented, will assure that water quality standards are attained.

The Santa Ana RWQCB administers the National Pollutant Discharge Elimination System (NPDES) permit requirements for the project area, including the project site. In 1990, the United States Environmental Protection Agency (EPA) established Phase I of the NPDES stormwater program to address discharges from construction activities disturbing 5 acres or more of land. In 1992, the State adopted a related NPDES General Permit for Storm Water Discharges Associated with Construction Activities (Construction Activities General Permit) for projects greater than 5 acres in size. The permit required applicable projects have a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP specifies Best Management Practices (BMPs) that would prevent construction pollutants from contacting stormwater with the intent of keeping all products of erosion from moving off-site into receiving waters; eliminates or reduces non-stormwater discharges to storm sewer systems and waters of the State; and, provides a monitoring program for the routine inspection of all BMPs.

In 1999, the State adopted the NPDES General Permit for Storm Water Discharges Associated with Construction Activities (Construction Activities General Permit) (SWRCB Order No 99-08-DWQ, NPDES CAS000002) which requires the development and implementation of a SWPPP for applicable projects, where the threshold was reduced from 5 acres or greater of soil disturbance, set by the 1992 General Construction Permit, to 1 acre or greater of soil disturbance. The SWPPP is required to achieve two major objectives: to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges; and, to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater and non-stormwater discharges.
The SWRCB has jurisdiction throughout California. It was created by the State Legislature in 1967, and it protects water quality by setting statewide policy, coordinating and supporting the Regional Water Board efforts, and reviewing petitions that contest Regional Board actions. There are nine RWQCBs that exercise rulemaking and regulatory activities by basins (California SWRCB 2013a).

The new Construction General Permit (CGP) 2014-0057-DWQ was adopted April 1, 2014. Once effective (July 1, 2015), it will replace the current permit. The CGP requires electronic applications and reporting (California SWRCB 2015b). This order regulates stormwater runoff and urban runoff, which includes stormwater and authorized non-stormwater discharges from traditional construction activities such as residential, commercial, and industrial development, as well as linear underground/overhead construction projects. Order No. 2009-0009-DWQ authorizes the discharge of stormwater runoff from construction projects that may result in land disturbance of one (1) acre or more (or less than one acre, if it is part of a larger common plan of development or sale, which is one acre or more). Unlike some of its predecessors, this General Construction Permit classifies construction sites under three Risk Levels. Risk Level 1 sites are subject to requirements similar to those established in Order No. 99-08-DWQ. Risk Level 2 sites are subject to Numeric Action Levels (NALs) for pH and turbidity, in addition to Risk Level 1 requirements. Risk Level 3 sites are subject to Numeric Effluent Limits (NELs), in addition to Risk Level 1 and 2 requirements. Project Risk Levels are determined by the project’s sediment discharge risk and its receiving water risk. The discharger shall develop a SWPPP and a construction site monitoring program prior to the commencement of any of the construction activities, to be implemented until project completion.

**Sustainable Groundwater Management Act**

In September 2014, Governor Edmund G. Brown Jr. signed a three-bill package known as the Sustainable Groundwater Management Act (SGMA). The legislation allows local agencies to customize groundwater sustainability plans to their regional economic and environmental needs. The SGMA creates a framework for sustainable, local groundwater management. The three bills that make up the SGMA are AB 1739 by Assembly Member Roger Dickinson, and SB 1319 and SB 1168 by Senator Fran Pavley.

In September 2015, Governor Brown signed SB 13, by Senator Fran Pavley. The Bill makes various technical, clarifying changes to the SGMA including requirements for groundwater sustainability agency formation, the process for State Water Board intervention if no responsible agency is specified for a basin, guidelines for high- and medium-priority basins, and participation of mutual water companies in a groundwater sustainability agency.

In summary, the SGMA:

- Provides for sustainable management of groundwater basins.
- Enhances local management of groundwater consistent with rights to use or store groundwater.
- Establishes minimum standards for effective, continuous management of groundwater.
- Provides local groundwater agencies with the authority, technical, and financial assistance needed to maintain groundwater supplies.
- Avoids or minimizes impacts for land subsidence.
- Improves data collection and understanding of groundwater resources and management.
- Increases groundwater storage and removes impediments to recharge.
- Empowers local agencies to manage groundwater basins, while minimizing state intervention.

The SGMA requires local agencies to establish a new governance structure, known as Groundwater Sustainability Agencies, prior to developing groundwater sustainability plans for groundwater basins or sub-basins that are designated as medium or high priority.

**California Fish and Wildlife Code Sections 1601–1603**

This legislation is intended to protect and conserve fish and wildlife resources of the state by requiring a permitting procedure for diverting, changing, or otherwise disturbing a current natural waterway. A Streambed Alteration Permit is required from the California Department of Fish and Wildlife (CDFW) (formerly the California Department of Fish and Game), for any changes to the stream, stream channel, or banks. For the project, compliance with this code would be required if tributaries on the project site are diverted, changed, or otherwise disturbed. Compliance is usually satisfied with issuance of a permit from CDFW, typically referred to as a “1602 Permit.”

**Local Regulations**

**County of Riverside General Plan (2015)**

Water Conservation Policies

Riverside County incorporates four major watershed areas in which river systems, numerous lakes and reservoirs, and natural drainage areas are located. Water resources are mapped in Figure OS-1. The County’s supply of water is limited by its arid climate, agricultural practices, projected population growth and its associated demand and development, and the dependence on low-quality imported water. Further, the availability of imported surface water has been reduced by changing regulations, despite an ever-increasing water demand.

In some areas within Riverside County, contamination from natural or manufactured sources has reduced groundwater quality such that its use requires treatment. Management of the amount of water available (local and imported) and its quality is an important response to the gap between supply and demand in Riverside County.

Following are water conservation policies that seek to manage existing supplies, by promoting the efficient use of water to the maximum extent possible, so that they can be maintained for future use.

- **OS 2.1:** Implement a water-efficient landscape ordinance and corresponding policies that promote the use of water-efficient plants and irrigation technologies, minimizes the use of turf, and reduces water-waste without sacrificing landscape quality.
- **OS 2.2:** Encourage the installation of water-conserving systems such as dry wells and graywater systems, where feasible, especially in new developments. The installation of cisterns or infiltrators shall also be encouraged to capture rainwater from roofs for irrigation in the dry season and flood control during heavy storms.
• OS 3.7: Where feasible, decrease stormwater runoff by reducing pavement in development areas, reducing dry weather urban runoff, and by incorporating “Low Impact Development,” green infrastructure and other Best Management Practice design measures such as permeable parking bays and lots, use of less pavement, bio-filtration, and use of multi-functional open drainage systems, etc.

The project includes pervious areas for the site, including extended stormwater detention basins, riparian mitigation areas and other miscellaneous landscape areas, which include private parkway landscaping manufactured slopes, and low-flow gravel trenches. These areas shall include native/drought tolerant plant species.

Water Quality Policies
Water quality problems that have occurred in Riverside County have been related to inadequate subsurface sewage disposal, waste disposal management of the Santa Ana River, agriculturally related problems such as agricultural runoff in the western County and increasing salinity of the desert groundwater basins, sediment buildup of water bodies from construction-related erosion, lake water quality problems, and pollution due to urban stormwater system runoff. RWQCBs for Regions 7, 8, and 9 provide state-level water quality policy for the County. Further, the National Pollutant Discharge Elimination System mandates BMPs in order to effectively minimize the adverse effects of pollution and protect water quality.

The following policy is intended to provide local guidance for the protection and maintenance of water quality in Riverside County.

• OS 3.3: Minimize pollutant discharge into storm drainage systems, natural drainages and aquifers.

Through the preparation of an NPDES permit and SWPPP, the incorporation of both construction and operational BMPs, and the installation of numerous stormwater drainage improvements, the project will collect and contain a majority of on-site and adjacent off-site surface flows and any constituents contained within.

Groundwater Recharge Policies
Refer to the Groundwater discussion above regarding County of Riverside groundwater policies.

In order to facilitate groundwater recharge, the following policies may apply:

• OS 4.3: Ensure that adequate aquifer water recharge areas are preserved and protected.
• OS 4.4: Incorporate natural drainage systems into developments where appropriate and feasible.
• OS 4.6: Retain storm water at or near the site of generation for percolation into the groundwater to conserve it for future uses and to mitigate adjacent flooding. Such retention may occur through “Low Impact Development” or other Best Management Practice measures.
The project’s stormwater drainage system includes open channels, storm drain facilities, and detention basins. These drainage improvements will prevent flood hazard impacts while collectively encouraging on-site and adjacent off-site percolation and groundwater recharge.

**Floodways, the Floodplain Fringe, and Riparian Area Policies**

Floodplains are subject to geomorphic (land-shaping) and hydrologic (water flow) processes. The watercourse and its floodway are usually the focus of construction and control; while fertile, flat and “reclaimed” floodplain lands are usually the focal points for other activities such as agriculture, commerce, and residential development. These areas form a complex physical and biological system that not only supports a variety of natural resources, but also provides natural flood and erosion control. In addition, the floodplain represents a natural filtering system, with water percolating back into the ground and replenishing groundwater. When a watercourse is divorced from its floodplain with levees and other flood control facilities, then natural, built-in benefits are lost, altered, or significantly reduced.

The conventional assumption that flooding can be completely eliminated has meant not only an unrealistic reliance on manufactured flood protection, but also the development of a flood control system that squeezes rivers into artificially narrow channels, adds steeply sloped levees (devoid of riparian vegetation), and eliminates historic floodplains, all in the name of reclamation, flood protection and urban growth. Unfortunately, this highlights the fact that floods have been viewed for far too long as everything except part of the natural life cycle of rivers and floodplains. Flooding is part of the dynamic nature of healthy rivers and ecosystems. High flows and floodwaters are needed to cleanse the channels of accumulated debris, build stream banks, import gravels for aquatic life, thin riparian forests and create riparian habitat. The open space of floodplains adjacent to rivers and streams helps store and slowly release floodwaters, thus reducing flood flow and peaks and their subsequent impacts during small and frequent flood events.

Further, riparian habitat within floodplains is of great value to resident and migratory animal species, as it provides corridors and linkages to and from the biotic regions of the County. The numerous essential habitat elements provided by the remaining riparian corridors of Riverside County make them a significant contributor to wildlife habitat throughout the County. The intent of the County is to sustain “living” riparian habitats to the maximum extent possible.

The following set of policies addresses floodways, the floodplain fringe, and riparian areas in the County.

- **OS 5.3:** Based upon the site-specific study, all development shall be set back from the floodway boundary a distance adequate to address the following issues:
  a. Public safety;
  b. erosion;
  c. riparian or wetland buffer;
  d. wildlife movement corridor or linkage;
  e. slopes;
  f. type of watercourse; and
  g. cultural resources.
• **OS 5.5:** Preserve and enhance existing native riparian habitat and prevent obstruction of natural watercourses. Prohibit fencing that constricts flow across watercourses and their banks. Incentives shall be utilized to the maximum extent possible.

• **OS 5.6:** Identify and, to the maximum extent possible, conserve remaining upland habitat areas adjacent to wetland and riparian areas that are critical to the feeding, hibernation, or nesting of wildlife species associated with these wetland and riparian areas.

**Flood and Inundation Hazard Abatement**

While local agencies operate and maintain many flood control facilities, funding for the construction of such facilities often is shared with federal and state agencies. Nevertheless, local agencies independently fund many local projects without financial assistance from the federal or state governments.

Flooding susceptibility in Riverside County is primarily associated with several major stream drainages, including but not limited to the Santa Ana, San Jacinto and Whitewater Rivers, as well as smaller-scale and flash flood events on many of the alluvial fans that flank the County’s hillsides. Large-scale developments have utilized golf courses and greenbelts as part of a network of channels that collect flood flows on the upstream side of a project, carry it safely through the project, and disperse it on the downstream side. However, given the low permeability of the underlying bedrock, heavy runoff from the surrounding hills and mountains during strong storms cannot be prevented.

The nation has seen several catastrophic collapses of highway and railroad bridges, due to scouring and a subsequent loss of support of foundations. Major bridge crossings that are vital to the County of Riverside should be designed and built to withstand scouring. Scour at highway bridges involves floodwater sediment-transport and erosion processes that cause streambed material to be removed from the bridge vicinity. The State of California participates in the bridge scour inventory and evaluation program. In addition, California's seismic retrofit program of bridges includes underpinning of foundations. In western Riverside County, this is expected to help reduce the vulnerability of foundations to be undermined by scour. However, since the eastern portion of the County has only a moderate seismic risk, bridges in these areas are of lower priority for seismic underpinning.

A review of records maintained at the California Office of Emergency Services provided potential failure inundation maps for 23 dams affecting Riverside County. These maps were compiled into the geographic information system digital coverage of potential dam inundation zones for Riverside County. These maps are intended to be used by state and local officials for the development and approval of dam failure emergency procedures as described in Section 8589.5 of the California Government Code. The maps are also used to provide information needed to make natural hazard disclosure statements required under state law (Assembly Bill 1195 Chapter 65, June 9, 1998; Natural Hazard Disclosure Statement).

Seismically induced inundation refers to flooding that occurs when water retention structures fail during an earthquake. Often, inundation is triggered by damage from a seiche. A seiche is a wave that reverberates on the surface of water in an enclosed or semi-enclosed basin, such as a reservoir, lake, bay or harbor, in response to ground shaking during an earthquake. Seismically induced
inundation can also occur if strong ground shaking causes structural damage to aboveground water tanks. In response to this hazard, a new tank design includes flexible joints that can accommodate movement in any direction.

The following set of policies addresses flood and inundation hazard abatement in the County:

- **S 4.5:** Prohibit substantial modification to water courses, unless modification does not increase erosion or adjacent sedimentation, or increase water velocities, so as to be detrimental to adjacent property, nor adversely affect adjacent wetlands or riparian habitat.
- **S 4.7:** Any substantial modification to a watercourse shall be done in the least environmentally damaging manner possible in order to maintain adequate wildlife corridors and linkages and maximize groundwater recharge.
- **S 4.10:** Require all proposed projects anywhere in the County to address and mitigate any adverse impacts that it may have on the carrying capacity of local and regional storm drain systems.

The project’s stormwater drainage system includes open channels, storm drain facilities, and extended detention basins. Additionally, a riparian mitigation area along the majority of southern project site boundary, as well as other mitigation, will be provided to offset project impacts to natural water/drainage courses and riparian areas.

**The Pass Area Plan**

**Watersheds**

Portions of the Pass Area are located in each of three watersheds: Santa Ana River, San Jacinto River, and Salton Sea. Rivers and creeks flowing from the mountains such as the San Gorgonio River, San Timoteo Creek, and Smith Creek provide habitat corridors through developed land, and link a wide variety of open space. The following policy preserves and protects these important watersheds (The Pass Area Plan).

- **PAP 14.1:** Protect the Santa Ana, San Jacinto, and Salton Sea watersheds and surrounding habitats, and provide flood protection through adherence to the Watershed Management section of the General Plan Multipurpose Open Space Element.

Through the preparation of an NPDES permit and a SWPPP, the incorporation of both construction and operational BMPs, and the installation of numerous stormwater drainage improvements, the project will collect and contain a majority of on-site and adjacent off-site surface flows and any constituents contained within.

**Flooding**

When flooding occurs, it originates in the foothills areas to the north and east and often produces spectacular flash floods. The speed and volume of the floods allows them to carry a significant amount of debris. When this occurs, debris can block flood control channels, particularly where they cross under roadways or rail lines, forcing water to spill over into adjacent areas. Flash flooding is the most life-threatening hazard because only minimum notice can be given, and the combined flow of floodwater and debris can be extremely damaging. Many techniques may be used to address the
danger of flooding, such as avoiding development in vulnerable floodplains, altering the water
channels, using certain building techniques, elevating structures that are in floodplains, and
enforcing setbacks. The policies below from The Pass Area Plan address hazards associated with
flooding and dam inundation.

- **PAP 17.1**: Protect life and property from the hazards of flood events through adherence to the
  Flood and Inundation Hazards section of the General Plan Safety Element.

The project is not within a 100-year flood hazard area and will not be placed within an area where
structures would impede flows according to the federal Flood Hazard Boundary.

### 3.9.3 - Thresholds of Significance

The County of Riverside utilizes Appendix G of the State CEQA Guidelines as its thresholds of
significance for CEQA analysis. Further, the County provides a number of additional environmental
considerations as part of the County’s Environmental Assessment Checklist.

Would the project:

a) Include new or retrofitted stormwater Treatment Control Best Management Practices (BMPs)
   (e.g., water quality treatment basins, constructed treatment wetlands), the operation of which
   could result in significant environmental effects (e.g. increased vectors or odors)?

b) Changes in the amount of surface water in any water body?

According to the State CEQA Guidelines Appendix G Thresholds, to determine whether impacts to
hydrology and water quality are significant environmental effects, the following questions are
analyzed and evaluated. Would the project:

a) Violate any water quality standards or waste discharge requirements?

b) 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)?

c) Substantially alter the existing drainage pattern of the site or area, including the alteration
   of the course of a stream or river, in a manner that would result in substantial erosion or
   siltation on- or off-site?

d) Substantially alter the existing drainage pattern of the site or area, including through the
   alteration of the course of a stream or river, or substantially increase the rate or amount of
   surface runoff in a manner that would result in flooding on- or off-site?

e) Create or contribute runoff water that would exceed the capacity of existing or planned
   stormwater drainage systems or provide substantial additional sources of polluted runoff?
f) Otherwise substantially degrade water quality?

g) 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?

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

i) 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?

j) Inundation by seiche, tsunami, or mudflow?

3.9.4 - Project Impact Analysis and Mitigation Measures

This section discusses potential impacts associated with the project and provides mitigation measures where necessary.

Water Quality Standards

<table>
<thead>
<tr>
<th>Impact HYD-1:</th>
<th>The project could violate water quality standards or waste discharge requirements.</th>
</tr>
</thead>
</table>

Impact Analysis

Implementation of the project would result in construction activities that could have the potential to contribute to pollutants in off-site surface waters, potentially impacting the water quality of the Santa Ana Watershed. Generally, construction-phase activities could generate pollutants such as increased silts, debris, chemicals, and dissolved solids related to the activities described below:

- Grading—Disruption of surface soils and increased susceptibility to erosion.
- Building construction—Use of sealants, glues, wood preservatives, oils, concrete, and the generation of debris related to construction activities.
- Painting—Paint fragments and stucco flakes.
- Construction equipment and vehicle maintenance—Washing, chemical degreasing.

Water quality in jurisdictional areas can be negatively affected by potential surface runoff and sedimentation during construction. The use of petroleum products (e.g., fuels, oils, and lubricants) and erosion of cleared land during construction could potentially contaminate surface water. Decreased water quality may adversely affect vegetation, aquatic animals, and terrestrial wildlife that depend upon these resources. Impacts to water quality would be significant unless mitigated.

Indirect impacts associated with water quality shall be mitigated to below a level of significance through compliance with NPDES requirements, identified in the mitigation below.

Because construction activities could result in increased pollutants to surface water, construction of the project could potentially result in a short-term degradation to surface water quality. Accordingly,
prior to the issuance of grading or construction permits, the project applicant will prepare a SWPPP that conforms to the SWRCB NPDES permit. The SWPPP shall identify BMPs to prevent construction related pollutants from reaching stormwater and all products of erosion from moving off-site. Therefore, temporary construction impacts would be considered less than significant.

**Long-Term Operational Impacts**

Long-term operations of the project would increase the potential of stormwater runoff transporting contaminants from roadway surfaces, parking lots, roofs and other exposed structural and landscape surfaces into the storm drain system. Typical industrial runoff contaminants (e.g., oil, grease, surfactant, heavy metals, solvents, pesticides, nutrients, or fecal coliform bacteria) can be expected within runoff.

According to the WQMP for the project, there are no known existing water quality problems associated with the site. The site does not contain any areas of biological significance (ASBS) or environmentally sensitive areas (ESAs) as defined by the Santa Ana RWQCB. Project runoff flows discharge to the west via the southwest project boundary and sheet flow to the west, southwest approximately 2.7 miles via existing storm drain improvements to San Timoteo Creek Channel, thence northwesterly approximately 15 miles to its confluence with the Santa Ana River. The Santa Ana River (Reaches 3 and 4) is currently on the State’s 303(d) List of Water Quality Limited Segments as impaired. Reach 3 is impaired for Copper, Lead, and Pathogens; Reach 4 is impaired for Salinity, Total Dissolved Solids (TDS), Chlorides, and Pathogens.

Table 3.9-3 provides information from the project’s WQMP that shows the potential pollutants generated by commercial industrial development.

**Table 3.9-3: Potential Pollutants Generated by Commercial Industrial Development**

<table>
<thead>
<tr>
<th>Type of Development (Land Use)</th>
<th>Sediment</th>
<th>Nutrients</th>
<th>Toxic Organic Compounds</th>
<th>Trash &amp; Debris</th>
<th>Bacteria Indicators</th>
<th>Oil &amp; Grease</th>
<th>Pesticides</th>
<th>Metals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial Industrial Development</td>
<td>P(^1)</td>
<td>P(^1)</td>
<td>P(^2)</td>
<td>P</td>
<td>P(^3)</td>
<td>P</td>
<td>P(^1)</td>
<td>P</td>
</tr>
</tbody>
</table>

Notes:

P = Potential

\(^1\) A potential pollutant if landscaping or open area exists on the project site

\(^2\) Specifically, solvents.

\(^3\) A potential pollutant if land use involves animal waste


As indicated in the WQMP prepared for the project, based on current receiving water impairments (303d List) and allowable discharge requirements (EPA TMDL List), the project’s pollutants of concern are Pathogens, Metals, Chlorides, Salinity, and Nitrates. The expected stormwater and urban runoff pollutants reasonably expected to have the potential to occur and which are associated with a commercial industrial development are as follows:
Trash and Debris (expected)—Trash (such as paper, plastic, polystyrene packing foam, and aluminum materials) and biodegradable organic matter (such as leaves, grass cuttings, and food waste) are general waste products on the landscape. The presence of trash and debris may have a significant impact on the recreational value of a water body and aquatic habitat. Excess organic matter can create a high biochemical oxygen demand in a stream and thereby lower its water quality.

Oil and Grease (expected)—Oil and grease are characterized as organic compounds of high molecular weight. Primary sources of oil and grease are petroleum hydrocarbon products, motor products from leaking vehicles, esters, oils, fats, waxes, and high molecular-weight fatty acids. Introduction of these pollutants to the water bodies is very possible due to the wide uses and applications of some of these products in municipal, residential, commercial, industrial, and construction areas.

Sediments (potential)—Sediments are soils or other surficial materials eroded and then transported or deposited by the action of wind, water, ice, or gravity. Sediments can increase turbidity, clog fish gills, reduce spawning habitat, lower young aquatic organisms’ survival rates, smother bottom-dwelling organisms, and suppress aquatic vegetation growth.

Nutrients (potential)—Nutrients are inorganic substances, such as nitrogen and phosphorus. They commonly exist in the form of mineral salts that are either dissolved or suspended in water. Primary sources of nutrients in Urban Runoff are fertilizers and eroded soils. Excessive discharge of nutrients to water bodies and streams can cause excessive aquatic algae and plant growth. Such excessive production, referred to as cultural eutrophication, may lead to excessive decay of organic matter in the water body, loss of oxygen in the water, release of toxins in sediment, and the eventual death of aquatic organisms.

Pathogens (potential)—Pathogens (bacteria and viruses) are ubiquitous microorganisms that thrive under certain environmental conditions. Their proliferation is typically caused by the transport of animal or human fecal wastes from the watershed. Water, containing excessive bacteria and viruses can alter the aquatic habitat and create a harmful environment for humans and aquatic life.

Pesticides (potential)—Pesticides (including herbicides) are chemical compounds commonly used to control nuisance growth or prevalence of organisms. Excessive or improper application of a pesticide may result in runoff containing toxic levels of its active ingredient.

Metals (potential)—The primary source of metal pollution in urban runoff is typically commercially available metals and metal products. Metals of concern include cadmium, chromium, copper, lead, mercury, and zinc. However, at higher concentrations, certain metals can be toxic to aquatic life. Humans can be impacted from contaminated groundwater resources, and bioaccumulation of metals in fish and shellfish.

Water Quality Features

A water quality basin would be constructed to the west of Building 1. A rectangular concrete channel would be located north and south of Buildings 1 and 2. Additionally, a grouted riprap berm and a water quality infiltration trench would be located north of Building 2. Riprap is a foundation or
sustaining wall of stones or chunks of concrete, which can be used to line channels. Riprap berms would also be located east of Building 2, and a water quality basin is planned west of Building 2. Additionally, a publicly maintained trapezoidal concrete channel would be located between the building sites and Cherry Valley Boulevard.

The proposed site will replace the natural channel with an improved channel which will continue to convey off-site flows and treated on-site flows to the west, toward the basin west of Roberts Street. The northerly off-site flows will be conveyed to the west by a channel and will not enter the site. All flow will continue to reach San Timoteo Creek.

The Design Capture Volume will be treated by two extended detention basins. In general, each building with associated parking, loading docks, drive aisles, and landscaped areas will drain to its respective extended detention basin. Both basins are located in fill material and treat very large areas, so infiltration and bio-retention were not feasible treatment options for the project.

**Best Management Practices**

The project is designated as a Priority Project. Therefore, treatment control BMPs are required to remove pollutants typically associated with urban runoff.

Water quality treatment for the project site includes implementation of a vegetated swale system in the southern portion of the project. There is adequate treatment length to treat the first flush\(^1\) generated from the site. To prevent pollution from on-site storm drain catch basins and grated inlets, the applicant shall install appropriate signage indicating no dumping is allowed. Furthermore, to prevent the spread of debris throughout the site, all trash areas shall be enclosed with a roof.

For the drainage area of Building 1, approximately 209,945 square feet of the site would be self-treating. The roof, landscaping, and concrete/asphalt areas would be treated by the basin (811,000 square feet, 317,290 square feet, and 757,798 square feet, respectively). For the drainage area of Building 2, approximately 1,142,153 square feet would be self-treated, and roofs, landscaping, and concrete/asphalt would be treated by the basin (1,012,760 square feet, 760,661 square feet, and 870,554 square feet, respectively).

The final Water Quality Management Plan shall provide detailed descriptions and instructions for implementing the various BMPs for the project. Refer to Mitigation Measure MM HYD-1, below. Long-term stormwater quality concerns will be managed pursuant to a County-approved WQMP or SWPPP. Conformance with the mandatory requirements of a SWPPP and/or a WQMP for the project would ensure that no substantial degradation of water quality associated with long-term construction activities would occur.

In addition, the project will need to apply for an Industrial Storm Water General Permit 2014-0057-DWQ (Industrial General Permit), which is an NPDES permit that regulates discharges associated with 10 broad categories of industrial activities. Industrial General Permit 2014-0057-DWQ became

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\(^1\) “First flush” refers to the initial surface runoff of a rainstorm. During this phase, water pollution entering storm drains in areas with high proportions of impervious surfaces is typically more concentrated compared with the remainder of the storm. Consequently, these high concentrations of urban runoff result in high levels of pollutants discharged from storm sewers to surface waters.
effective July 1, 2015 and shall expire June 30, 2020, and the project would be subject to this new
permit since construction will commence after the effective date. As indicated on the State Water
Resources Control website, the General Industrial Permit requires implementation of management
measures to achieve the performance standard of best available technology economically achievable
(BAT) and best conventional pollutant control technology (BCT). Additionally, the General Industrial
Permit requires the development of a SWPPP and a monitoring plan. The SWPPP facilitates the
identification of pollutant sources and the means by which to manage pollutant sources to reduce
stormwater pollution (California SWRCB 2013c).

With implementation of Mitigation Measure HYD-1, potential impacts regarding water quality would
be reduced to a less than significant level.

**Level of Significance Before Mitigation**
Potentially significant impact.

**Mitigation Measures**

| MM HYD-1 | Prior to the issuance of grading permits for any portion or phase of the project, the
developer shall prepare and submit a WQMP and a SWPPP to the County for review
and approval. The WQMP and SWPPP shall contain specific Best Management
Practices (BMPs) to prevent stormwater pollution from construction sources. These
BMPs shall identify a practical sequence for site restoration, implementation,
contingency measures, responsible parties, and agency contacts. The developer shall
include conditions in construction contracts requiring the plans to be implemented and
shall have the ability to enforce the requirement through fines and other penalties.
The plans shall incorporate control measures in the following categories:

- Soil stabilization practices
- Dewatering practices (if necessary)
- Sediment and runoff control practices
- Monitoring protocols
- Waste management and disposal control practices

Once approved by the County, contractors working on the site shall be responsible
throughout the duration of the project for installing, constructing, inspecting, and
maintaining the control measures included in the WQMP and SWPPP.

The WQMP and SWPPP shall identify pollutant sources that could affect the quality
of stormwater discharges from the construction site. Control practices shall include
those that effectively treat target pollutants in stormwater discharges anticipated
from project construction sites. To protect receiving water quality, the WQMP and
SWPPP shall include but is not limited to the following elements:

- Temporary erosion control measures (such as fiber rolls, staked straw bales,
detention basins, temporary inlet protection, check dams, geofabric, sandbag
dikes, and temporary revegetation or other ground cover) shall be employed for disturbed areas.

- No disturbed surfaces will be left without erosion control measures in place during the winter and spring months (September 30–March 30).
- Sediment shall be retained on-site by one or more basins, traps, or other appropriate improvements. Of critical importance is the protection of existing catch basins that eventually drain to the Santa Ana River.
- The construction contractor shall prepare Standard Operating Procedures for the handling of hazardous materials on the construction site to eliminate or reduce discharge of materials to storm drains.
- BMPs performance and effectiveness shall be determined either by visual means where applicable (i.e., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination, (inadvertent petroleum release) is required to determine adequacy of the measure.
- Native grasses or other appropriate vegetative cover shall be established on the construction site as soon as possible after disturbance.

**Level of Significance After Mitigation**

Less than significant impact. Mitigation Measure HYD-1 will require the submittal of a WQMP and a SWPPP to identify sources that could affect the quality of stormwater discharges from the project site. A series of BMPs would also be included for effective treatment of target pollutants in stormwater discharges anticipated from project construction sites.

**Groundwater Supplies**

Impact HYD-2: The project would not 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).

**Impact Analysis**

*Construction Impacts*

Implementation of the project will increase the amount of impervious surfaces on-site. The conversion of permeable land to impervious surfaces could reduce groundwater recharge. The project includes BMPs, such as maximizing permeable area, minimizing the use of impervious surfaces (such as decorative concrete in the landscape design and increasing the use of vegetated drainage swales in lieu of underground piping or imperviously lined swales) that promote infiltration of water from the project site and reduce impermeable surfaces on site. Thus, the project would not interfere substantially with groundwater recharge. The Water Supply Assessment (WSA) prepared for the project concludes that there would be sufficient water resources (of which 51 percent is groundwater, according to the 2012 Water Source Portfolio in the WSA prepared by the Yucaipa Valley Water District (YVWD) to support the proposed project in addition to existing and projected demands (see discussion under USS-4 in this RDEIR).
As discussed further in Section 3.17, Utilities of this RDEIR, the 2003 California Department of Water Resources Bulletin 118-2003 identifies the Yucaipa Basin in overdraft. Although the basin is defined in an overdraft state, water levels are at or near historic highs (California’s Groundwater Bulletin 118, 2004). Moreover, the YVWD has decreased groundwater pumping dramatically since 2007, attributable to the supplemental supply of State Water Project Water and the use of recycled water. Prior to importing State Water Project water, YVWD pumped 3,585 million gallons per year (YVWD 2005 Production Report). Incorporating supplemental water has reduced pumping by 50 percent (YVWD 2010 Production Report; RUWMP 2015).

YVWD has initiated an annual groundwater monitoring program that calculates the change in storage of the seven primary subbasins in the Yucaipa Groundwater Basin. The groundwater levels have increased in the Crafton Subbasin, Gateway Subbasin, and Wilson Creek Subbasin by 32,280 acre-feet when comparing groundwater conditions of 2005 with groundwater conditions in 2015. During the same period of time, the change in storage of the Calimesa Subbasin, Oak Glen Subbasin, Triple Falls Creek Subbasin and the Western Heights Subbasin decreased by 9,349 acre-feet. Therefore, comparing the groundwater conditions of 2005 with those of 2015, the subbasins of the Yucaipa Groundwater Basin have improved, with a net increase in groundwater storage of 22,931 acre-feet (RUWMP 2015).

Additionally, the project will use a piped domestic water system, so it will not have a demonstrable effect on groundwater supplies or quality. Thus, impacts associated with ground water supply and recharge would be less than significant.

Level of Significance Before Mitigation
Less than significant impact.

Mitigation Measures
No mitigation measures are required.

Level of Significance After Mitigation
Less than significant impact.

Drainage Pattern-Erosion or Siltation

Impact HYD-3: The project would not substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site.

Impact Analysis
Development of the project will increase runoff from the site by increasing the amount of impervious surfaces and decreasing the pervious surfaces that could allow infiltration of precipitation. Impervious and paved areas for the site include project streets, curbs, sidewalks and gutters, concrete ribbon, terrace and down drains, parking areas, driveways and the impervious roofs of each building and the top of the two on-site water tanks (Albert A. Webb 2014a).
However, the project includes pervious areas for the site, including stormwater detention basins, landscaped areas, and the conserved riparian zone that will be maintained along the project frontage. These areas shall include native/drought tolerant plant species. All private landscaping shall be maintained by the owner. Landscaping located in the public areas will be owned and maintained by the County of Riverside through Cherry Valley #27 County Service Area (Hunter Landscape 2014).

As included in the Off-site Hydrology Report for Tentative Parcel Map 36564 (Appendix G) prepared for the project, there are two drainage areas in the existing condition: Drainage Area “A” and “B” (Exhibit 3.9-2). Drainage Area “A” comprises approximately 903.3 acres, with peak stormwater discharge rates of approximately 739.7 cfs and 1171.4 cfs, for 10-year and 100-year storms, respectively. Drainage Area “B” comprises approximately 258.1 acres, with peak discharge rates of 359.4 cfs and 563.2 cfs, for 10-year and 100-year storms, respectively.

The project would not result in a substantial increase in water erosion or siltation either on-site or off-site. The drainage system includes a number of drainage features including:

- Concrete channels;
- Landscape areas to the north and south that provide self-treating infiltration and convey flows directly off-site;
- Storm drain facilities that will collect and route on-site runoff through detention basins that are sized to limit 10-year and 100-year storm discharge from the site to be equal or less than flows under existing conditions;
- A water quality basin west of Building 2;
- A grouted riprap berm and a water quality infiltration trench located north of Building 2. (Riprap is a foundation or sustaining wall of stones or chunks of concrete, which can be used to line channels);
- Riprap berms located east of Building 2;
- A publicly maintained trapezoidal concrete channel located between the building sites and Cherry Valley Boulevard;
- On-site wetland mitigation areas; and
- Detention basins that will incorporate hydromodification requirements by limiting the increase in 2-year storm flow caused by the proposed development to less than 10 percent beyond existing conditions.

Additionally, off-site drainage improvements are required to capture and direct flows. The east side drainage improvements would include a rock protection berm (Exhibit 3.9-3). This berm would capture the off-site runoff and drain into a concrete wingwall structure. This inlet structure will be connected to a concrete culvert and will discharge into the trap channel on site. This water will eventually drain from the outlet structure on the Calimesa side (western side) of the project.
Exhibit 3.9-3
Proposed Protection Berm
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Improvements within the City of Calimesa consist of drainage channels and appurtenances, including a concrete trap channel, a concrete box culvert, two concrete outlet structures, and riprap rock energy dissipaters. The Applicant has also agreed to construct and maintain a rock-lined berm to protect the adjacent property owners (see Exhibit 3.9-3).

Under the proposed post-project conditions, Drainage Area “A” would comprise approximately 917.2 acres, with peak stormwater discharge rates of approximately 729.0 cfs and 1,165.1 cfs, for 10-year and 100-year storms, respectively. Drainage Area “B” would comprise approximately 244.2 acres, with peak discharge rates of 344.5 cfs and 537.4 cfs, for 10-year and 100-year storms, respectively (Albert A. Webb Associates 2015). To minimize the increase of the runoff due to the site development, two on-site extended detention basins (one for each sub-watershed) are proposed for water quality treatment and hydro-modification. Although the mitigation for 100-year storm events is not required, the Hydrological Reports (Appendix G) show that the proposed development (with its storm drain and detention facilities) will not cause adverse impacts to the downstream properties at either exit point.

As discussed in Section 3.9.1, Existing Conditions, a watercourse flows westerly through the southerly portion of the site that is delineated by the Department of Water Resources and is governed by County Ordinance No. 458. The proposed site will replace this natural channel with an improved channel that will convey the off-site runoff and treated on-site flows to the west toward the basin west of Roberts Street. The northerly off-site flows will be conveyed to the west by a channel and will not enter the site. All flows will continue to reach San Timoteo Creek, and impacts would be less than significant. Furthermore, the intent of Ordinance No. 458 is to (1) ensure that any new construction and/or substantial improvement within a mapped floodplain is done in a manner that reduces damage to the public and property; and (2) discourage any new development within floodways. The project would not damage the public or property. Additionally, the project would not substantially alter the existing flows through this channel. However, because the watercourse would be channelized as part of the project, the County’s Environmental Programs Department (EPD) will review and approve the planned channelization of the area. Project compliance with Ordinance No. 458 would reduce any impacts to drainage patterns to less than significant. Thus, no mitigation is required.

Building 1 with associated parking, loading docks, drive aisles, and landscaped areas will drain to Extended Detention Basin A. Building 2 with associated parking, loading docks, drive aisles and landscaped areas will drain to Extended Detention Basin B. The runoff will be conveyed to each basin by surface flow and an on-site storm drain system. Each basin will outlet to a storm drainpipe, which discharges to the on-site channel along the southern property boundary and conveys off-site flows through the site.

The proposed detention basins will reduce the 2-year, 10-year, and 100-year, 24-hour duration stormwater runoffs to less than existing conditions for applicable storm events.

As provided in the Preliminary Water Quality Management Plan, the proposed detention basins have been sized to incorporate hydromodification requirements by limiting the increase in runoff during a 2-year storm event to less than or equal to existing conditions (Albert A Webb 2014). Basin A and Basin B will include a low-flow trench and collector trenches to convey runoff to the bottom stage and outlet structure, which will be located in the middle of the basin on the east and west sides,
respectively. The outlet structure has been designed to mitigate the 2-year, 24-hour and 1-year, 24-hour events with orifaces, and the 100-year event will spill over the top of the outlet structure.

Under existing conditions, water flow is erosive. As designed, the detention basin in conjunction with infiltration BMPs will limit the 2-year, 24-hour storm runoff, reducing the potential for off-site erosion. Thus, the project would have a less than significant impact with regard to erosion.

**Level of Significance Before Mitigation**
Less than significant impact.

**Mitigation Measures**
No mitigation measures are required.

**Level of Significance After Mitigation**
Less than significant impact.

**Drainage Pattern-Flooding**

| Impact HYD-4: | The project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. |

**Impact Analysis**
Development of the project will increase runoff from the site by increasing the amount of impervious surfaces (e.g., asphalt, concrete, water tanks, rooftops, etc.) and decreasing the pervious surfaces that could allow infiltration of precipitation. As part of project implementation, grading of land surfaces will occur prior to construction. On-site grading has the potential to alter existing drainage patterns; however, the project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding.

**Hydrologic Conditions of Concern**
Impacts to the hydrologic regime resulting from the project may include increased runoff volume and velocity; reduced infiltration; increased flow frequency, duration, and peaks; faster time to reach peak flow; and water quality degradation. Under certain circumstances, changes could also result in the reduction in the amount of available sediment for transport; storm flows could fill this sediment carrying capacity by eroding the downstream channel. These changes have the potential to permanently impact downstream channels and habitat integrity. A change to the hydrologic regime of a project site would be considered a hydrologic condition of concern if the change would have a significant impact on downstream natural channels and habitat integrity, alone or as part of a cumulative impact from development in the watershed (Hunsaker 2014).

The project’s runoff flow rate, volume, velocity, and duration for the post-development condition will not exceed 110 percent of the pre-development condition for the 2-year, 24-hour and 10-year, 24-hour rainfall events. This condition can be achieved by minimizing impervious area on a site and
incorporating other site-design concepts that mimic pre-development conditions. This condition must be substantiated by hydrologic modeling methods acceptable to the Co-Permittee.2

Pre-Development Hydrology (On-site)
As included in the Hydrology Analysis for Tentative Parcel Map 36564 (Appendix G) prepared for the project, there are two drainage areas in the existing condition: Drainage Area “A” and “B.” Drainage Area “A” comprises approximately 903.3 acres, with peak stormwater discharge rates of approximately 739.7 cfs and 1171.4 cfs, for 10-year and 100-year storms, respectively. Drainage Area “B” comprises approximately 258.1 acres, with peak discharge rates of 359.4 cfs and 563.2 cfs, for 10-year and 100-year storms, respectively.

Post-Development Hydrology (On-site)
The project would not result in an increase in erosion due to water either on-site or off-site. The proposed drainage system includes:

- Open channels designed to intercept and convey off-site flows through the project site without commingling them with flows generated from the proposed developed area.
- Infiltration BMPs (basins and trenches) sized to filter first flush flows (water quality flows) generated in the proposed development area.
- Storm drain facilities that will collect and route on-site runoff through detention basins that are sized to limit 10-year and 100-year storm discharge from the site to be equal or less than flows under existing conditions.
- Detention basins that will incorporate hydromodification requirements by limiting the increase in 2-year storm flow caused by the proposed development to less than 10 percent beyond existing conditions.

As discussed, under the proposed post-project conditions, Drainage Area “A” would comprise approximately 917.2 acres, with peak stormwater discharge rates of approximately 729.0 cfs and 1,165.1 cfs, for 10-year and 100-year storms, respectively. Drainage Area “B” would comprise approximately 244.2 acres, with peak discharge rates of 344.5 cfs and 537.4 cfs, for 10-year and 100-year storms, respectively (Albert A. Webb Associates 2015).

The proposed detention basins will reduce the 10-year and 100-year, 24-hour duration stormwater runoffs to less than existing conditions. The proposed detention basin will include a low-flow channel, and basin function as a flow-by detention basin for low-flow conditions. Therefore, implementation of the project would not increase the amount or rate of surface runoff in a manner that could produce flooding on- or off-site.

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2 A Co-Permittee means any operator of a regulated small municipal separate storm sewer system that applies jointly with one or more applicants for coverage under a municipal stormwater permit. In this context it refers to the City of Calimesa and County of Riverside.
Source Control Best Management Practices

Below is a list of Source Control BMPs (permanent structural and operational) that will be included in the project:

Operational Source Control BMPs
1. Trash, sediment, and debris removal
2. Education for Property Owner, Operators, Tenants, Occupants, or Employees
3. Maintain landscaping using minimum or no pesticides
4. Activity Restrictions
5. Irrigation System and Landscape Maintenance
6. Common Area Litter Control
7. Street Sweeping Public Streets and Parking Lots
8. Drainage Facility Inspection and Maintenance

Permanent Structural Source Control BMPs
1. Storm Drain System Stenciling and Signage
2. Inspection and maintenance of on-site drainage structures
3. Landscape and Irrigation System Design
4. Rooftop areas
5. Pesticide use
6. Floor drains
7. Fueling Areas
8. Air/Water Supply Area Drainage
9. Loading Docks
10. Maintenance Bays
11. Vehicle and Equipment Wash Areas
12. Outdoor Material Storage Areas

As described above, both site design and source control BMPs will be used to reduce runoff and improve water quality. Thus, with implementation of the BMPs described above, impacts from flooding are anticipated to be less than significant.

There are no streams or rivers on-site that would be impacted by the project, but direct impacts to USACE jurisdictional areas would result from development of the project. Impacts to USACE jurisdictional areas total 0.46 acre, all consisting of ephemeral drainages.

As discussed within Section 3.4, Biological Resources, direct impacts to CDFW jurisdictional areas would also result from development of the project. Areas under CDFW jurisdiction exist in the same areas as those that are USACE jurisdictional, but they are slightly wider. Approximately 1.37 acres of the CDFW drainages are ephemeral, along with 0.04 acre of disturbed wetland. Although project construction could alter the existing drainage pattern (including these ephemeral drainages and disturbed wetland), it would not result in an increase in the amount or rate of runoff that could result in flooding on or off-site with implementation of Mitigation Measure HYD-1, which requires preparation of a WQMP and a SWPPP. Channels, basins and trenches, storm drain facilities, and
detention basins that will be part of the post-development drainage system will reduce stormwater runoff to less than existing conditions. Likewise, any changes in absorption rates or the rate or amount of surface runoff would be less than significant.

**Level of Significance Before Mitigation**

Potentially significant impact.

**Mitigation Measures**

Implement Mitigation Measure HYD-1.

**Level of Significance After Mitigation**

Less than significant impact. Mitigation Measure HYD-1 requires preparation of a WQMP and a SWPPP. Channels, basins and trenches, storm drain facilities, and detention basins that will be part of the post-development drainage system will reduce stormwater runoff to less than existing conditions, such that the project will not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site.

**Runoff Water**

| Impact HYD-5: | The project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. |

**Impact Analysis**

A water quality basin would be constructed to the west of Building 1. A rectangular concrete channel would be located north and south of Buildings 1 and 2. Additionally, a grouted riprap berm and a water quality infiltration trench would be located north of Building 2. Riprap is a foundation or sustaining wall of stones or chunks of concrete, which can be used to line channels. Riprap berms would also be located east of Building 2, and a water quality basin is planned west of Building 2. Additionally, a publicly maintained trapezoidal concrete channel would be located between the building sites and Cherry Valley Boulevard.

Under the proposed post-project conditions, Drainage Area “A” would comprise approximately 917.2 acres, with peak stormwater discharge rates of approximately 729.0 cfs and 1,165.1 cfs, for 10-year and 100-year storms, respectively. Drainage Area “B” would comprise approximately 244.2 acres, with peak discharge rates of 344.5 cfs and 537.4 cfs, for 10-year and 100-year storms, respectively (Albert A. Webb Associates 2015); refer to Exhibit 3.9-3 through Exhibit 3.9-5, and Exhibit 3.9-6. The proposed detention basins will reduce the 10-year and 100-year, 24-hour duration stormwater runoffs to less than existing conditions. The proposed detention basin will include a low-flow channel, with perforated underdrain, sand and gravel layers, weir for 100-year/1-hour overflows, as well as orifices. Furthermore, 2-year, 24-hour flows would be reduced to achieve Hydrological Conditions of Concern requirements, and proposed detention basin orifices would reduce these flows to no more than 10 percent beyond existing conditions.
The proposed project will comply with NPDES requirements and employ source control BMPs to reduce water quality impacts. Construction of the project will comply with SWPPP and WQMP requirements (Appendix G). Thus, any runoff will be treated before it is released into the existing storm drain system.

This project is designated as a Priority Project. Therefore, bio-treatment control BMPs are required to remove pollutants typically associated with urban runoff. The Design Capture Volume\(^3\) will be treated by two extended detention basins. In general, each building with associated parking, loading docks, drive aisles, and landscaped areas would drain to its respective extended detention basin. Both basins are located in fill material and treat very large areas, so infiltration and bio-retention were not feasible options for this project. The project is required to mitigate these increased flows (Albert A. Webb Associates 2014a).

Runoff will be dispersed to the extended detention basins, further discussed below. Landscaped areas on the north and south will be self-treating pervious areas that will convey the flows generated by the respective areas directly off-site. Runoff will enter Basin A primarily from the on-site storm drain system. The middle of the basin will be the lowest elevation and slope up to the north and south at 0.5 percent. A low-flow trench and collector trenches will convey the runoff to the bottom stage and outlet structure that will be located in the middle of the basin on the east side. The outlet structure has been designed to allow for treatment of the Design Capture Volume (Vbmp). The Vbmp depth is 3.4 feet. The outlet structure has also been designed to mitigate the 2-year, 24-hour and 10-year, 24-hour events with orifices and the 100-year event will spill over the top of the outlet structure. The basin depth will be 7.2 feet, including 1 foot of freeboard.

Runoff will enter Basin B primarily from the on-site storm drain systems. The middle of the basin will be the lowest elevation and will slope up to the north and south at 0.5 percent. A low-flow trench and collector trenches will convey the runoff to the bottom stage and outlet structure that will be located in the middle of the basin on the west side. The outlet structure has been designed to allow for treatment of the Design Capture Volume. The Vbmp depth is 1.9 feet. The 100-year event will spill over the top of the outlet structure. The basin depth will be 4.6 feet, including 1 foot of freeboard.

Additionally, the project proponent shall be responsible for the detention basins as well as the private area landscaping. Landscape maintenance shall include all maintenance and replacement of dead vegetation, erosion rills, proper disposal of green wastes, etc. Irrigation systems shall be tested regularly to ensure that all systems are functioning optimally. Thus, odors will be controlled via removal of dead vegetation and proper disposal of green wastes. Vectors are not anticipated to be an issue because irrigation systems will be tested regularly to ensure optional function, which will reduce pooling of water, thus reducing areas that have the potential to be used by mosquitoes. On-site BMPs will be maintained during operation, ensuring that there are no issues associated with vectors or odors.

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3 Design Capture Volume is the volume of runoff resulting from the Design Storm. This volume must be captured within Stormwater BMPs to achieve pollutant removal.
Exhibit 3.9-4b
Proposed Drainage Plan

Exhibit 3.9-5
Proposed Drainage Area

Q = 344.5 cfs
Q = 537.4 cfs
Q = 729.0 cfs
Q = 1,165.1 cfs
A = 244.2 AC
A = 917.2 AC

DRAINAGE AREA "B"
AREA = 244.2 ACRES

DRAINAGE AREA "A"
AREA = 917.2 ACRES

Legend:
- STUDY AREA BOUNDARY
- DRAINAGE AREA BOUNDARY
- DISCHARGE POINT (EXIT NODES)
- FLOWLINE OF NATURAL WATERCOURSE
Exhibit 3.9-6
Proposed Condition Hydrology Map

Source: Albert A. Webb Associates, November 2015
In summary, the project will not substantially increase the rate or amount of surface runoff or result in flooding; either on-site or off-site, and project runoff will not exceed the capacity of existing or planned stormwater drainage systems. Therefore, impacts are less than significant.

**Level of Significance Before Mitigation**
Less than significant impact.

**Mitigation Measures**
No mitigation measures are required.

**Level of Significance After Mitigation**
Less than significant impact.

**Otherwise Degrade Water Quality**

<table>
<thead>
<tr>
<th>Impact HYD-6:</th>
<th>The project could otherwise substantially degrade water quality.</th>
</tr>
</thead>
</table>

**Impact Analysis**
The project has the potential to degrade local water quality. Development of the project site will introduce a number of urban pollutants into the area, most notably oil, grease, rubber residue, brake shoe dust, and other vehicular fluids and materials. However, the project applicant shall prepare a SWPPP and WQMP that conforms to the SWRCB NPDES permit. The SWPPP shall identify BMPs to prevent construction related pollutants from reaching stormwater and all products of erosion from being released outside of the project boundaries. Mitigation Measure HYD-1 requires that a WQMP be prepared to control post-construction urban runoff from the project. Therefore, impacts to water quality will be less than significant.

**Level of Significance Before Mitigation**
Less than significant impact.

**Mitigation Measures**
No mitigation measures are required.

**Level of Significance After Mitigation**
Less than significant impact.

**Housing Placement: Flood Hazard Area**

<table>
<thead>
<tr>
<th>Impact HYD-7:</th>
<th>The project would not 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.</th>
</tr>
</thead>
</table>

**Impact Analysis**
No housing is proposed as part of the project. The project proposes to construct warehouse buildings that are not within a 100-year flood hazard area and will not impede flows as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map (Exhibit 3.9-1). As shown in The Pass
Area Plan’s Figure 11, Flood Hazards, some portions of the Pass Area, including large areas of Cabazon, are flood-prone. However, the project site is not located in an area of The Pass that is within either a 100-Year or 500-Year Flood Zone (The Pass Area Plan). Thus, impacts would be less than significant.

**Level of Significance Before Mitigation**
Less than significant impact.

**Mitigation Measures**
No mitigation measures are required.

**Level of Significance After Mitigation**
Less than significant impact.

**Structure Placement: Flood Hazard Area**

| Impact HYD-8: | The project would not place within a 100-year flood hazard area structures which would impede or redirect flood flows. |

**Impact Analysis**
The project is not within a 100-year flood hazard area and will not be placed within an area where structures would impede flows according to the federal Flood Hazard Boundary or the Flood Insurance Rate Map.

The California Department of Water Resources has delineated a major watercourse/floodplain as flowing westerly through the southern portion of the project site. In response to this delineation, Riverside County is a participating community in the National Flood Insurance Program (NFIP), which requires participating agencies to adopt floodplain management ordinances. The intent of the ordinance, Ordinance No. 458, is to ensure that new construction and/or substantial improvements within mapped floodplains are done in a manner that reduces damage to the public and property. Any development or substantial improvement within a regulatory floodplain may require floodplain review by the County. This includes the submittal of a floodplain application permit form to Riverside County Building and Safety along with corresponding fees and attachments. Project compliance with Ordinance No. 458 would render any impacts to structures due to a flood hazard area less than significant.

**Level of Significance Before Mitigation**
Less than significant impact.

**Mitigation Measures**
No mitigation measures are required.

**Level of Significance After Mitigation**
Less than significant impact.
Risk of Flooding: Levee or Dam

Impact HYD-9: 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.

Impact Analysis

Although the project site has been identified outside of the FEMA 0.2 percent annual chance floodplain, the California Department of Water Resources has delineated a major watercourse/floodplain as flowing westerly through the southern portion of the project site. In response to this delineation, Riverside County is a participating community in the NFIP, which requires participating agencies to adopt floodplain management ordinances. The intent of the County’s Ordinance No. 458 is to ensure that new construction and/or substantial improvements within mapped floodplains is done so in a manner that reduces damage to the public and property. Any development or substantial improvement within a regulatory floodplain may require floodplain review by the County. This includes the submittal of a floodplain application permit form to Riverside County Building and Safety along with corresponding fees and attachments.

Ordinance No. 458 requires the review of permit applications, including a determination of whether proposed building sites will be reasonably safe from flooding and that new structures or construction shall be designed or modified to adequately prevent floatation, collapse, or lateral movement resulting from hydrodynamic and hydrostatic loads.

Whenever an application for a permit involves land that lies within special flood hazard area, the Floodplain Administrator shall determine if the permit would allow the location of any structure, new construction, or substantial improvement. Each application filed with the Floodplain Administrator must include the method by which the applicant proposes to comply with requirements of the ordinance, including proposed elevations of any structures or fills, floodproofing, erosion protection, flow-through area, any proposals to modify existing flow of stormwaters and any other relevant information. All application plans must be prepared and certified by a California registered civil engineer. Within 30 days of receipt, the Riverside County Flood Control and Water Conservation District (RCFC&WCD) shall determine if any further information is required in order to process the application. Within 30 days after determining that all required information has been received, the RCFC&WCD shall issue an approval with conditions or modifications, or deny the proposed plan. Proposed developments located within special flood hazard areas shall be required to meet construction standards as outlined in Ordinance No. 458. For example, new structures, construction, and substantial improvements to existing structures are to be constructed with flood-resistant material. Service facilities and utilities are required to be designed or located to prevent water from entering or accumulating within the components during flooded conditions. Whenever a watercourse or mapped floodplain is to be altered or relocated, the flood carrying capacity of the altered or relocated portion of the watercourse or mapped floodplain must be maintained. Prior to grading and inspection for occupancy, a Letter of Map Revision issued by FEMA for areas shown as floodplain on the effective Flood Insurance Rate Map is required.
Thus, project compliance with Ordinance No. 458 would render any flooding impacts less than significant.

Additionally, the nearest dam (Perris Dam) is approximately 10 miles southwest of the project site. Because of the dam’s location, there is no risk associated with dam failure. There are no levees located anywhere in the project vicinity. Therefore, impacts due to flooding from failure of a dam or levee will be less than significant.

**Level of Significance Before Mitigation**
Less than significant impact.

**Mitigation Measures**
No mitigation measures are required.

**Level of Significance After Mitigation**
Less than significant impact.

**Inundation by Seiche, Tsunami or Mudflow**

**Impact HYD-10:** The project would not expose people or structures from inundation by seiche, tsunami, or mudflow.

**Impact Analysis**

A seiche is defined as a standing wave in an enclosed or partially enclosed body of water. The nearest large body of surface water is Lake Perris, which is approximately 10 miles southwest of the project site. Because of the project site’s distance from Lake Perris, the proposed project will not be subject to impacts associated with a seiche. Likewise, the project site’s distance from the Pacific Ocean will preclude any impacts associated with tsunamis.

Existing drainage flows from off-site areas, including the hilly undeveloped portions of the site to the north, would be conveyed through the site and would ultimately be conveyed off-site to the west side of the project site. Setbacks will be substantial; thus, any potential of mudflow affecting the project would be less than significant.

Project runoff flows will discharge to the west and the southwest project boundary and sheet flow to the west, southwest approximately 2.7 miles via existing storm drain improvements to San Timoteo Creek Channel, thence northwesterly approximately 15 miles to its confluence with the Santa Ana River. Thus, development of the project could change the amount of surface water in the San Timoteo Creek Channel and the Santa Ana River. However, the increase in amount of surface water in these water bodies in anticipated to be less than significant, as the increase in 2-year storm flow caused by the project will be limited to less than 10 percent beyond existing conditions. Thus, the project will have a less than significant impact regarding changes in the amount of surface water in San Timoteo Creek Channel and the Santa Ana River, and will not increase or reduce the volumes of these water bodies to an extent that would cause an impact to downstream habitat.
Level of Significance Before Mitigation
Less than significant impact.

Mitigation Measures
No mitigation measures are required.

Level of Significance After Mitigation
Less than significant impact.