FINAL
CLEAN WATER ACT SECTION 404(b)(1) GUIDELINES EVALUATION
FOR
THE NEWHALL LAND AND FARMING COMPANY'S
NEWHALL RANCH RESOURCE MANAGEMENT AND DEVELOPMENT PLAN

I. Introduction

The following evaluation is prepared in accordance with Section 404(b)(1) of the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500) as amended by the Clean Water Act of 1977 (CWA)(Public Law 95-217). The intent of this document is to state and evaluate information regarding the effects of the discharge of dredged or fill material into waters of the United States. As a result, this analysis is not meant to stand-alone and relies heavily upon information provided in the Draft and Final Environmental Impact Statement/Environmental Impact Report for the Newhall Ranch Resource Management and Development Plan (RMDP) and Spineflower Conservation Plan (SCP) as well as information from the Section 404(b)(1) Alternatives Analysis that was prepared by the applicant. The applicant's proposed project (Alternative 2) is to permanently discharge fill material into approximately 93.3 acres and temporarily impact 33.3 acres of waters of the United States for the construction and maintenance of flood control facilities, roads, utilities, infrastructure and other components associated with the proposed RMDP near the city of Santa Clarita, Los Angeles County, California.

II. Project Description

A. Location

The 12,000-acre project site encompasses approximately 5.5 linear miles of the Santa Clara River and several tributaries to the Santa Clara River including Potrero Canyon, Long Canyon, Middle Canyon, San Martinez Grande Canyon and Chiquito Canyon near Santa Clarita, northwestern Los Angeles County, California (at: lat:34-24-5.0040 lon:118-37-46.9920).

B. General Description

The proposed RMDP component of the Newhall Ranch Specific Plan would facilitate a broad range of residential, mixed-use, commercial and industrial land uses, various public facilities, and public services and utilities, together with preservation of large tracts of open space. At build-out, the project originally proposed by the applicant would result in approximately 2,550 acres of residential uses (9,081 single-family homes on 1,559 acres, and 11,804 multi-family homes on 991 acres), 5.5 million square feet of commercial uses on 258 acres; and the development of approximately 643 acres devoted to public facilities such as community parks, neighborhood parks, golf course, community lake, new elementary, junior high and high schools, library, electrical substation, fire stations, and a 6.8 million gallon per day (mgd) water reclamation plant (WRP). Open space would be provided on approximately 8,683 acres on the project site, and an additional 1,517 acres of open space in the Salt Creek area adjacent to the project

area (for a total of about 10,200 acres of open space within the project site including the Salt Creek preservation area). The open space would also include land dedicated to the preservation of the San Fernando Valley spineflower (spineflower).

All alternatives would include discharges of fill material to construct infrastructure and other components in the Santa Clara River and its tributary drainages. The proposed infrastructure and other elements would include debris and detention basins, water quality control facilities, bank stabilization, bridges, culverted road crossings, grade control structures, temporary haul routes, utilities, storm drains, habitat enhancement and geotechnical survey activities. In addition, the existing channels for some drainages would be realigned, recontoured, or converted to buried storm drain systems to accommodate the proposed development. Of the 660.1 acres of waters of the United States within the project area, Alternative 2 would permanently impact 93.3 acres, or approximately 14.1 percent of waters of the United States on site. Of the 660.1 acres of waters of the United States, approximately 276.9 acres are jurisdictional wetlands, the proposal under Alternative 2 would permanently fill approximately 20.5 acres of wetlands (avoidance of permanent impacts to approximately 92% of the total wetland area). Temporary impacts would occur in jurisdictional areas where necessary to allow construction and maintenance of proposed facilities. To minimize impacts to waters of the United States, the temporary impacts would occur outside the actual footprint of the facility once constructed, thereby allowing rehabilitation of channel substrate and riparian vegetation. For example, construction of bridges across the Santa Clara River would require disturbance of lands on either side of the proposed bridge location during construction, but these areas would not be occupied by the bridge once completed. Temporary impact zones would be restored to appropriate grade and revegetated, following completion of construction activities in the area. Although proposed maintenance areas would remain waters of the United States, these areas would exhibit a permanent reduction in functions and services, which would require compensatory mitigation. In total, Alternative 2 would result in temporary discharges of fill material in approximately 33.3 acres of waters of the United States in the Santa Clara River and its tributaries, approximately 533.5 acres of waters of the United States would be completely avoided (approximately 80% of the jurisdictional areas) and approximately 566.8 acres of waters of the United States would not be affected by permanent discharges of fill material (approximately 86% of the jurisdictional areas). Aquatic resource areas that exhibit relatively high physical and biological functions that would be avoided by the proposed project design include the Middle Canyon Spring, the majority of the wetlands adjacent to the Santa Clara River and the entire Salt Creek subwatershed.

C. Overall and Basic Project Purpose

The "overall project purpose" is the development of a master planned community with interrelated villages in the vicinity of the Santa Clarita Valley in northwestern Los Angeles County that achieves the basic objectives of the Specific Plan by providing a broad range of land uses of approximately the same size and proportions as approved in the Specific Plan, including residential, mixed-use, commercial and industrial uses, public services (schools, parks, *etc.*), and a water reclamation plant. As part of the overall project purpose, the basic objectives of the Specific Plan are:

Land Use Basic Objectives:

- Create a major new community with interrelated Villages that allows for residential, commercial and industrial development, while preserving significant natural resources, important landforms and open areas.
- Avoid leapfrog development and accommodate projected regional growth in a location which is adjacent to existing and planned infrastructure, urban services, transportation corridors, and major employment centers.
- Cluster development within the site to preserve regionally significant natural resource areas, sensitive habitat, and major landforms.
- Provide development and transitional land use patterns which do not conflict with surrounding communities and land uses.
- Arrange land uses to reduce vehicle miles traveled and energy consumption.
- Provide a complementary and supportive array of land uses which will enable development of a community with homes, shopping, employment, schools, recreation, cultural and worship facilities, public services, and open areas.
- Organize development into Villages to create a unique identity and sense of community for each.
- Design Villages where a variety of higher intensity residential and nonresidential land uses are located in proximity to each other and to major road corridors and transit stops.
- Establish land uses and development regulations that permit a wide range of housing densities, types, styles, prices, and tenancy (for sale and rental).
- Designate sites for needed public facilities such as schools, fire stations, libraries, water reclamation plant and parks.
- Allow for the development of community services and amenities by the public and private sectors, such as medical facilities, child care, colleges, worship facilities, cultural facilities, and commercial recreation.
  Create a physically safe environment by avoiding building on fault lines and avoiding or correcting other geologically unstable landforms; by constructing flood control infrastructure to protect urban areas; and by implementing a fuel modification program to protect against wildfire.

Economic Basic Objectives:

- Adopt development regulations which provide flexibility to respond to changing economic and market conditions over the life of Newhall Ranch.
- Provide a tax base to support public services.
- Adopt development regulations and guidelines which allow site, parking, and facility sharing and other innovations which reduce the costs of providing public services (Specific Plan § 2.1.).

The Corps recognizes that many of the basic objectives are key elements of the Specific Plan that the County of Los Angeles adopted after years of review under California land use and environmental laws. In addition, the Corps recognizes that the Specific Plan was developed by the County of Los Angeles to meet projected population and housing needs in northern Los Angeles County over the next twenty years. The Specific Plan

includes a total of 37 basic objectives, of which the Corps selected a total of 15 basic objectives to be included in the overall project purpose. By including the above subset of the basic objectives in Specific Plan, the Corps developed an overall project purpose that includes some consideration of local land use decisions without unduly constraining the alternatives analysis by including a specific number of residential units or square feet of commercial space, as stipulated in the approved Specific Plan. The Ninth Circuit in *Sylvester v. United States Army Corps of Eng'rs,* 882 F.2d 407, 409 (9th Cir. 1989), states that while the Corps needs to consider the applicant's project purpose, it also must ensure that the statement of the overall project purpose is specific enough to allow meaningful analysis of the practicability of alternatives, but not so narrow as to exclude alternatives unnecessarily, "thus mak[ing] what is practicable appear impracticable." Therefore, elements included in the overall project purpose and used to evaluate alternatives must be "necessary" and "legitimate," not merely "incidental" to the basic project purpose.

As part of the purpose and need in the Final EIS/EIR, the Corps and the California Department of Fish and Game (CDFG) also recognized a need to develop and implement a practicable and feasible SCP that would permanently protect and manage a system of preserves designed to maximize the long-term persistence of the spineflower within the applicant's land holdings containing known spineflower populations, and to authorize the take of spineflower in areas located outside of designated preserves. However, because the above basic objectives included provisions for preserving significant natural resources and clustering development to preserve sensitive natural habitat, the SCP was not specifically identified in the overall project purpose.

The "basic project purpose" is to provide housing and commercial/industrial/mixed-use development. The basic project purpose is not water dependent and because special aquatic sites would be impacted, the rebuttable presumptions in the CWA Section 404(b)(1) Guidelines (Guidelines) apply. For detailed background information concerning the overall and basic project purpose, please reference the Section 404(b)(1) Alternatives Analysis that was prepared by the applicant (Appendix F1.0 in the Final EIS/EIR).

D. General Description of Dredged or Fill Material

The proposed infrastructure and other components include debris and detention basins, bank stabilization, water quality control facilities, bridges, culverted road crossings, grade control structures, utilities, habitat enhancement, temporary haul routes, storm drains and geotechnical survey activities. In addition, the existing channels of some drainages would be realigned, recontoured, or converted to buried storm drain systems to accommodate the proposed development. The originally proposed project and alternatives would include placement of upland substrate from the project area in waters of the United States as well as standard construction materials for roads and flood control facilities such as compacted substrate, sheet pile, soil cement, rip rap and concrete.

E. Description of Proposed Discharge of Fill Location

The Santa Clara River is the largest watercourse within the project site, and all other drainages within the site are tributary drainages to this river. There are 21 jurisdictional

drainages within the project site (including a 5.5 mile reach of the Santa Clara River). The smallest, ephemeral drainages on site have been combined into a single group, and have a jurisdictional area totaling 34.4 acres (approximately 5.2 percent of the total Corps jurisdiction on the project site). The project originally proposed by the applicant would permanently discharge fill material into approximately 93.3 acres and temporarily impact 33.3 acres of waters of the United States for the construction and maintenance of flood control facilities, roads, infrastructure and other components associated with the RMDP. For detailed information concerning the proposed locations for the discharge of fill material, please reference the Section 404(b)(1) Alternatives Analysis that was prepared by the applicant (Appendix F1.0 in the Final EIS/EIR).

F. Description of Fill Methods

All alternatives would include construction of up to three bridges across the Santa Clara River main-stem to accommodate future traffic associated with development of the Newhall Ranch Specific Plan and other development within the region. The proposed bridges would include two bridges, at Potrero Canyon Road and Long Canyon Road, and one previously permitted bridge at Commerce Center Drive. The bridges would consist of concrete roadway decks atop concrete, pier walls, columns and/or piers spaced approximately 100 feet apart. Each bridge would require an abutment on either bank of the river, and the bridge piers would be either poured in place or constructed by pile-driving, depending on circumstances. Where pile-driving technology is used, the piers would be constructed without the need to place fill material into waters of the United States. Instead, the piles would be driven sequentially, and equipment would be supported by one pile while driving the next. Where poured-in-place technology is employed, construction equipment would need to enter the riverbed, excavate to suitable depth, and construct forms for the piers, which would then be filled with concrete. This construction method could potentially require dewatering activities in the river channel, if the proposed pier location is within the active channel or if subsurface flows are encountered during construction. Alternative 2 does not include any bridges across tributary drainages; but many of the other alternatives evaluated in the Final EIS/EIR and herein include them as a means for avoiding and minimizing impacts to waters of the United States that would be associated with proposed culvert drainage crossings.

The design of proposed bridges crossing tributary drainages would be substantially similar to that proposed for bridges across the river main-stem, except that, in many cases, the tributary drainage channels are narrow enough that piers would not be required. In these cases, fill of waters of the United States would be limited to impacts along the banks caused by the bridge abutments. Where interior supports are needed, the same technologies proposed for the Santa Clara River bridges would be implemented (pile-driving, concrete poured in place). Because the proposed bridges crossing tributary channels would be smaller than those proposed across the river main-stem, the temporary construction zone would not be as large, and would only extend approximately 60 feet upstream and downstream of the bridge.

All alternatives would utilize culvert road crossings to facilitate vehicle traffic over tributary drainages. These crossings would accomplish the same basic function as

bridges across tributary drainages, discussed above, but would result in greater fill of waters of the United States. Under Alternative 2, 15 new road crossing culverts would cross six of the larger on-site tributaries of the Santa Clara River (Chiquito, San Martinez Grande, Lion, Long, Potrero, and Ayers Canyons). Extension of Magic Mountain Parkway to the west, as envisioned with the proposed project, likewise would require culvert road crossings on an additional two unnamed drainages. Each road crossing would be constructed of earthen fill and pre-fabricated arched culverts, and would temporarily disturb a 60-foot wide (approximate) corridor on each side of the crossing, in addition to a permanent impact within the actual footprint of the crossing. Following construction, the temporary impact zone would be restored to pre-project contours and revegetated with native riparian and upland species as appropriate, minimizing impacts to waters of the United States. If damaged during large storm events, the proposed brides and culverted road crossings would need to be repaired, resulting in short-term temporary construction impacts in waters of the United States. Maintenance of the proposed bridges and culverted road crossings is discussed in detail in Appendix A of the RMDP.

The proposed bank protection would include buried soil cement, grouted and ungrouted rock riprap, turf reinforcement mats, and limited gunite slope lining around bridge abutments. These types of bank protection can be divided into two different categories, flexible and rigid revetments. Ungrouted rock riprap and turf reinforcement mats are flexible revetment systems that would be used as exposed bank protection in areas without earthen cover where stream velocities are low enough that the stabilization can resist erosive hydraulic forces in a Los Angeles County capital storm. Generally, this would be a maximum stream velocity of 12-14 feet per second (fps). Rigid revetments can resist much higher velocities (20+ fps) and erosive forces; however, they do not adjust or move like flexible systems. The bank stabilization would be installed over an approximate 20-year period to coincide with development of individual tracts within the project area, and in accordance with the development phasing program. All the proposed development areas would be raised above the FEMA flood hazard elevation to protect land uses from potential flooding.

Along the river main-stem, the majority of the proposed bank stabilization would be constructed of buried soil cement, with the use of gunite and rip-rap being limited to areas in the immediate vicinity of bridges and storm drain outlets. Installation of buried soil cement would involve placement of fill material in the footprint of the stabilization itself, as well as temporary impacts in the construction zone on the riverward side of the structure. Bank stabilization along the river would be installed under all of the alternatives considered, but the location and extent of the stabilization would vary. To minimize impacts, the bank stabilization would be constructed outside the lateral limits of waters of the United States under all alternatives, and fill of waters would be limited to temporary impacts during construction. By locating bank stabilization outside the active floodplain, hydrologic impacts of bank stabilization would be reduced under most alternatives. Along tributary drainages, buried bank stabilization would be installed in post-development channels to limit lateral channel migration and protect adjacent land uses. The construction methods would be identical to those employed along the river main-stem, but in many cases the stabilization would be constructed

within waters of the United States. The alternatives considered in this analysis would generally reduce impacts from bank stabilization by featuring wider channels, with bank stabilization set back laterally from the active floodplain. If damaged during large storm events, the proposed buried bank protections would need to be repaired, resulting in potential short-term temporary construction impacts in waters of the United States. Maintenance of the proposed bank protection structures is discussed in detail in Appendix A of the RMDP.

Under each of the alternatives, the five modified drainages described above (Chiquito, Lion, Long, Potrero, and San Martinez Grande) would contain bank and channel-bed protection designed to mimic natural features and use a combination of structural and vegetative methods to provide drainages that are stable, visually aesthetic, and support native vegetation following implementation of the proposed project. The grade stabilization structures are designed to contain the hydraulic "jump" that occurs when there is a substantial drop in streambed elevation, so that higher velocities are dissipated within the area; the proposed structures would help control erosion and changes to the configuration of the streambed channel. Such structures would be constructed of soil cement, sheet piles, or reinforced concrete.

All alternatives incorporate various treatments of tributary drainages to accommodate County-approved land uses within the project area. In order to optimize the location of development within portions of the project area, mass grading would occur in portions of the northern and southern tributary watersheds. Generally, there would be some higher areas that would be graded or "cut" and lower valley areas that would be elevated with fill material, balancing the distribution of cut and fill soil material throughout the project area. In many cases, the excavation of native material and placement of compacted fill material is necessary to achieve geotechnically-stable development pads. The wet-weather flows in these drainages meet the Los Angeles County flood criteria (less than 2,000 cubic feet per second (cfs)) to be conveyed by storm drain.

For example, Alternative 2 does not propose to create new drainage channels to replace these impacted drainages. Rather, the wet-weather flows that currently occupy the drainages would be routed into the development's storm drain system, and would be discharged to the Santa Clara River via the installation of approximately 35 storm drain outlets. Figure 2.0-36 in the Final EIS/EIR depicts the approximate locations of the storm drain outlets. A typical storm drain outlet and associated schematic are shown on Figure 2.0-37 in the Final EIS/EIR. Installation of storm drain outlets would generally require a 20-foot wide excavation/construction zone. All of the storm drain outlets would drain to jurisdictional areas of the Corps and CDFG, although most are constructed outside of jurisdictional areas. In total, approximately 0.2 acre of jurisdictional area would be permanently impacted by construction of the 35 storm drain outlets. Associated maintenance access ramps would impact up to an additional 0.2 acre at the outlet locations. Maintenance of storm drain outlets would include clearing vegetation and removal of accumulated sediment. In situations where drain outlets are not draining sufficiently, pilot channels up to 75 feet long by 10 feet wide may be created to facilitate the conveyance of storm flows. See Appendix A of the RMDP for additional details on the proposed maintenance for storm drain outlet structures.

Pursuant to NPDES requirements, Best Management Practices (BMPs) would be implemented at the project site under all alternatives to avoid and minimize impacts to water quality. These BMPs include the following water quality control facilities: (1) water quality basins; (2) debris basins, located just upstream of the interface between developed and undeveloped areas, primarily to trap debris coming from the upper watersheds; (3) detention basins, which are typically sized to capture the predicted runoff volume and retain the water volume for a period of time (usually 24 to 48 hours); (4) catch basin inserts or screens/filters installed in existing or new storm drains to capture pollutants in the stormwater runoff; (5) bioretention, such as vegetated grassy swales, that provide water quality benefits and convey storm water runoff; and (6) solids separator units or in-line structures that reduce or manipulate runoff velocities such that particulate matter falls out of suspension and settles in a collection chamber. Many of these proposed facilities would be constructed outside waters of the United States or as components of storm drain systems or newly created channels. However, construction and maintenance of some of the proposed water quality facilities would require work in jurisdictional areas. Maintenance of the proposed water quality features is discussed in detail in Appendix A of the RMDP.

Due to the existing conditions within portions of some drainages in the project site (Potrero Canyon, Long Canyon, and portions of Chiquito, San Martinez Grande, and Lion Canyons), stabilization of the existing drainages is not feasible as part of the proposed project. In order to meet Los Angeles County flood protection objectives, these drainages would be graded and a new drainage would be constructed in the same or similar location. The new drainages would be designed to incorporate buried bank stabilization and grade stabilization, and would have sufficient hydrologic capacity to pass the Los Angeles County Capital Flood without the need for clearing vegetation from the channels. The new channel banks would be planted with riparian vegetation following construction. Some of the drainages within the project site, including many of the smaller, ephemeral drainages, would be graded and replaced with underground storm drains as part of the construction operations required to facilitate build-out of the proposed development. The wet-weather flows in these drainages meet the Los Angeles County flood criteria (less than 2,000 cfs) to be conveyed by storm drain. Where large-scale removal of drainages are not required to meet flood protection objectives, the alternatives would integrate the flood control and grade stabilizing measures described above, to maintain sediment equilibrium to avoid and minimize impacts to the channel bed and banks from hydromodification while providing adequate flood protection to adjacent developed lands. In some instances, existing degraded conditions within on-site drainages are such that if no modifications were implemented, excessive vertical scour or lateral channel migration would occur. In these locations, grade control measures are proposed regardless of any need to provide flood protection, as complete avoidance of such drainages would allow existing channel degradation to continue unabated. The proposed grade control measures would include installation of grade control structures, described above, and could also require recontouring of existing banks to restore stable channel morphology and minimize channel incision. These proposed channel stabilization activities would result in permanent and temporary fill of waters of the United States. If damaged during large storm events, the proposed buried bank protection and grade stabilizers would need to be repaired, resulting in

short-term temporary construction impacts in waters of the United States. Maintenance of the proposed bank protection and grade control structures is discussed in detail in Appendix A of the RMDP.

Primary electrical, sewer, water, gas, and communications lines would be installed south of SR-126 and across the Santa Clara River (two locations), Castaic Creek, Chiquito Canyon, and San Martinez Canyon to serve the proposed development. Other locally-serving utilities would be installed across other tributaries and drainages. On the river, utility lines would be installed in rights-of-way adjacent to bridges where access for installation and repair could be readily accommodated. Directional drilling techniques would be used to avoid the environmental impacts associated with trenching across the Santa Clara River. In the Chiquito Canyon and San Martinez Grande Canyon tributaries, where trenching would be used, installation of buried lines would require a 30- to 50-foot-wide construction zone. In other tributaries and drainages, trenching is likely to be used with similar construction zones. Buried lines across watercourses would be located below scour depth and weighted or cemented in place, where appropriate, or co-located with bed stabilization features that provide scour protection. Following completion of construction activities, the temporary impact zone would be restored to channel grade and revegetated with native riparian and upland species as appropriate. Permanent access for maintenance of utilities would be located outside the jurisdictional limits of the streambed and associated habitats. Maintenance of the proposed utility crossings is discussed in detail in Appendix A of the RMDP.

During construction, the proposed temporary haul routes would cross the Santa Clara River and be used to move excavated soil and provide general construction access to locations within the project area where fill material is required. The approximate locations of the proposed temporary haul routes are depicted on Figure 2.0-33 in the Final EIS/EIR. The proposed crossings would be two-way with 60 feet of travel surface width. In locations where the riverbank is steep and ramping is required, fill would be placed in the river channel to facilitate a safe slope ratio for passage of heavy equipment. Extra width for the side slopes of such crossings would be also required. Passage of river flows would be maintained for all periods that the temporary haul routes are in use, and may include culverts or a simple span bridge crossing. Crossings may be removed as necessary to allow larger winter flows to pass. Upon on-site determination that the routes are no longer required to serve as temporary haul routes, the routes would either: (a) revert back to agricultural routes to continue to serve the needs of agricultural activities; (b) in the event that the routes are to be preserved for future haul route activities, the crossings would be gated during times of non-activity to prevent unauthorized access; or (c) if no longer needed for agricultural activities, the temporary river crossings would be removed and restored to pre-project contours and revegetated with native riparian plant species.

G. Alternatives Considered

There are eight on-site alternatives described and analyzed in the Final EIS/EIR, including the No Action/No Project Alternative (Alternative 1), the applicant's originally proposed project (Alternative 2), and six other "build" alternatives (Alternatives 3-7 and Modified Alternative 3 (Draft LEDPA)). These alternatives are

further evaluated and compared in Section 5.0, Comparison of Alternatives, of the Final EIS/EIR.

In general, the No-Action/No Project Alternative (Alternative 1) is a description of what would occur should the lead agencies (*i.e.*, the Corps and CDFG) decide not to approve the permits and other approvals to implement both the RMDP and SCP components of the proposed project. Thus, the No Action/No Project Alternative would result in the inability to develop any of the proposed RMDP infrastructure or facilitated development, none of the proposed spineflower preserves would be established, and none of the open space within the project area would be dedicated and managed as contemplated by the proposed project.[1]

Alternative 2 would implement the RMDP and SCP components of the originally proposed project and facilitate development of the approved Specific Plan, the approved development in the VCC planning area, and the planned development in a portion of the Entrada planning area.

The six build alternatives (Alternatives 3-7 and Modified Version 3) address a broad range of different configurations for the major RMDP infrastructure in or adjacent to waters of the United States (Santa Clara River and tributary drainages), which are necessary to facilitate development of the Specific Plan. These alternatives also focus on different configurations for the spineflower preserves, which, in turn, affects the conservation of sensitive biotic and aquatic resources within a managed open space/preserve system.

Combined, the six build alternatives focus on avoiding or minimizing impacts to jurisdictional waters and spineflower. As impacts to jurisdictional waters are primarily associated with construction of bridges, bank stabilization, the grading and realigning of tributary drainages to facilitate Specific Plan development, and the conversion of minor tributary drainages to buried storm drains, alternative configurations for the major RMDP infrastructure are reflected in each build alternative. Similarly, because the proposed development could impact spineflower outside of designated preserves, a broad range of spineflower preserve design options and their connectivity to open space were evaluated. Each of the build alternatives (Alternatives 3-7 and Modified Alternative 3) reduce the RMDP infrastructure and increase the size of spineflower preserves, resulting in reduced development facilitated in the Specific Plan and the VCC and Entrada planning areas, and, correspondingly, minimize or avoid jurisdictional waters and spineflower impacts. The build alternatives also have been designed so that the impact reduction characteristics of the preceding alternative are generally incorporated into the subsequent alternatives.

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[1] If implemented, the Specific Plan would provide approximately 10,200 acres of open space (including the 1,517-acre Salt Creek area), the VCC planning area would provide 143.6 acres, and the Entrada portion would provide 129.5 acres, for a combined total of approximately 10,473 acres of open space (see **Table 3.0-5**).

For example, Alternative 3 would modify the proposed RMDP and SCP, respectively, by eliminating the planned Potrero Canyon Road bridge and increasing spineflower preserve acreage in the Specific Plan's Airport Mesa preserve and on Entrada. Alternative 4 would eliminate Potrero Canyon Road bridge, but retain the preserve acreage added by Alternative 3, and increase further the preserve acreage in the Specific Plan's Airport Mesa, Potrero, and Grapevine Mesa preserves and on Entrada. Alternative 4 also would add a spineflower preserve in the VCC planning area. Alternative 5 would widen tributary drainages, add a spineflower preserve within the VCC planning area, and would include the same three bridge crossings over the Santa Clara River as Alternative 2. Alternative 6 would eliminate the planned Commerce Center Drive bridge and maximize spineflower preserve buffers and open space connectivity. Alternative 7 would incorporate a two-prong approach: (i) preservation of all spineflower occurrences along with 300-foot buffers; and (ii) elimination of two planned bridges (Commerce Center and Potrero Canyon Road bridges), and the avoidance of the 100-year floodplain along the Santa Clara River and nearly all of the tributary drainages. Modified Alternative 3 would eliminate the planned Potrero Canyon Road bridge, increase spineflower preserve acreage, and include wider tributary drainage areas when compared to Alternative 2.

Based on the assessment in the Draft Section 404(b)(1) Alternatives Analysis (Appendix F1.0 in the Final EIS/EIR), the Draft LEDPA was identified as Modified Alternative 3. Modified Alternative 3 includes additional avoidance of waters of the United States, increased spineflower preserve acreage in the Potrero, San Martinez Grande, Grapevine Mesa, and Airport Mesa areas, based on input received from CDFG, and larger riparian corridors within five major tributaries. Under Modified Alternative 3, two of the three bridges crossing the Santa Clara River and the associated bank stabilization would be constructed (Commerce Center Drive bridge and the Long Canyon Road bridge). Modified Alternative 3 would not construct Potrero Canyon Road bridge and would incorporate open space along the main-stem of Potrero Canyon, reducing impacts to jurisdictional waters and wetlands in the Santa Clara River and Potrero Canyon. In addition, like Alternative 3, a 19-acre compensatory wetland mitigation area would be implemented in lower Potrero Canyon, contiguous with the existing lower mesic meadow (cismontane alkali marsh).

In two major tributary drainages, Long Canyon and Potrero Canyon, most of the existing drainages would be filled and re-constructed so that there would not be a net loss of Corps jurisdiction. In the three other major tributary drainages, Lion Canyon, San Martinez Grande Canyon, and Chiquito Canyon, Modified Alternative 3 would incorporate limited channel grading to expand the drainage and adjacent riparian areas and realign their banks. The remainder of the jurisdictional areas in Lion, San Martinez Grande and Chiquito Canyon would be avoided. Overall, of the 660.1 acres of waters of the United States on the project site, implementation of Modified Alternative 3 would result in the permanent fill of 66.3 acres of waters of the United States (approximately ten percent of the total site jurisdiction and four percent less than Alternative 2). Modified Alternative 3 would temporarily disturb an additional 32.2 acres (approximately one acre less than Alternative 2). The compensatory mitigation associated with Modified Alternative 3 would ensure a no net loss of acreage and

functions and services of waters of the United States. Further, Modified Alternative 3 also would comply with all of the mitigation measures required by CDFG under the streambed alteration program under California Fish & Game Code sections 1602 and 1605. Modified Alternative 3 would reduce impacts to CDFG jurisdictional areas by approximately 34.4 acres.

This alternative adds one additional spineflower preserve to those planned under Alternative 2, increasing the acreage within the preserves from 167 acres to 227 acres (approximately 227 acres including Entrada and Valencia Commerce Center). Under this alternative, the acreage of occupied spineflower habitat protected would increase from 13.88 acres under Alternative 2 to 15.4 acres, while the area of impacted occupied habitat would be decreased from 6.36 acres to 4.85 acres. This alternative would result in a greater level of spineflower protection than the proposed SCP, with increased preservation of occupied habitat and less loss when compared to Alternative 2.

Modified Alternative 3's impacts are the same as Alternative 3 with respect to water quality; traffic; cultural resources; agricultural resources; visual resources; parks, recreation and trails; and socioeconomics and environmental justice. Modified Alternative 3 and Alternative 3 also have slightly less impacts compared to Alternative 2 with respect to water resources; biological resources; jurisdictional waters and streams; air quality; and noise. Modified Alternative 3 and Alternative 3 also have substantially similar impacts when compared to Alternative 2 with respect to surface water hydrology and flood control; geomorphology and riparian resources; paleontological resources; geology and geologic hazards; land use; hazards, hazardous materials, and public safety; public services; solid waste services; and global climate change. Modified Alternative 3's specific, minor variations to Alternative 3, are discussed in Section 3.5 of the Final EIS/EIR and the associated analysis of the reduced impacts, are described in detail in Section 5 of the Final EIS/EIR and in Section VI below.

On 30 May 2011, the applicant submitted a letter to the Corps stating they would accept a permit decision for Modified Alternative 3 if the Corps makes a final determination that Alternative 2 (originally proposed project) is not the least environmentally damaging practicable alternative. The applicant also attached a revised project description to the above letter which included detailed, project-specific information for Modified Alternative 3. The revised project description also documented additional measures to further reduce impacts to the aquatic environment including additional avoidance of approximately 19 acres of waters of the United States in Potrero Canyon, revised project design for low impact development features that would increase infiltration and retention of storm flows and a revised design for ungrouted boulder rock grade control structures and road crossings with soft-bottom, clear span arch culverts to minimize impacts in Potrero Canyon. On 11 August 2011, the applicant submitted an updated project description that included additional mitigation measures that would be implemented as part of Modified Alternative 3. The additional measures include recording a restrictive covenant for floodplain protection on approximately 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent upland floodplain area in the Santa Clara River immediately downstream of the RMDP area and restrictions on new drilling, mining, exploring and/or operating,

storing in, and/or removing of oil, minerals, natural gas and other hydrocarbons in the preserved and compensatory mitigation areas.

III. **Physical/chemical characteristics and anticipated changes**

(X) **substrate:** With Alternative 2, of the 660.1 acres of waters of the United States within the project area, the originally proposed project would permanently impact 93.3 acres of channel substrate (approximately 14.1 percent of the waters of the United States in the project area). Temporary impacts to channel substrate would occur in approximately 33.3 acres of jurisdictional areas, to facilitate construction and maintenance of the proposed facilities. To avoid and minimize impacts to channel substrate, the proposed temporary impacts would occur outside the actual footprint of the facility once constructed, thereby allowing rehabilitation of channel morphology and vegetation. For example, construction of bridges across the Santa Clara River would require disturbance of channel substrate upstream and downstream of the proposed bridge location during construction, but these areas would not be occupied by the bridge once completed. To avoid and minimize impacts, all temporary impact areas would be restored to pre-project contours and revegetated, following completion of construction activities in waters of the United States. Of the approximately 660.1 acres of waters of the United States within the project site, approximately 533.5 acres (approximately 80 percent of total acreage) would be completely avoided under Alternative 2. Sensitive resource areas avoided under Alternative 2 would include the majority of the Santa Clara River main-stem, the Middle Canyon spring complex (a high-quality wetland), and the entire Salt Creek sub-watershed.

Alternative 2 could disrupt the sediment equilibrium in the Santa Clara River main-stem or tributaries, thereby causing adverse geomorphic impacts on waters of the United States. In addition, the conversion of existing undeveloped lands to a non-erodible urban condition would slightly reduce the available sand supply reaching beaches in Ventura County. These indirect/secondary effects to channel substrate generally would be minor. In the main-stem of the Santa Clara River, the proposal under Alternative 2 could increase sediment flows during storm events, resulting in downstream erosion and deposition impacts. Under Alternative 2, the total floodplain area subject to potentially erosive velocities (four fps or greater) would decrease for all modeled storms with the exception of the 5-year return period, under which the area susceptible to erosion increases by 0.6 acre. However, this minor increase during the 5-year return interval is not considered significant relative to the substantial decrease in area subject to erosive velocities during 2-, 10-, 20-, 50-, 100-year, and capital flood events. In some areas, velocities greater than four fps would correspond with outlet structures, access ramps, or bridge abutments, which could result in localized erosion impacts. Where necessary to minimize erosion and structural damage, materials such as grouted riprap or reinforced concrete would be used according to the standards, criteria, and specifications developed by the County of Los Angeles. No changes in flow velocity would occur upstream or downstream of

the proposed project area. For detailed information regarding the hydrologic impacts and associated direct and indirect/secondary impacts to channel substrate, please reference Section 4.2 of the Final EIS/EIR.

Sikand Engineering also characterized the hydrology of the river in two technical reports (Sikand, 2000a, 2000b); the results of the two Sikand studies were summarized in the County of Los Angeles certified Newhall Ranch Revised Additional Analysis (RAA; ISI, 2003). The Sikand reports estimated that the maximum extent of indirect/secondary impacts were limited to a point about four miles downstream of the Specific Plan site in Ventura County. Sikand found that after a certain distance downstream of the Los Angeles County/Ventura County line, the predicted increases in peak flows in the Santa Clara River dissipates. This downstream distance varies by return frequency, with the change in the 2-year peak flow dissipating approximately 2.1 miles downstream and the change in the 100-year peak flow attenuating to pre-project conditions at approximately 3.2 miles downstream of the Los Angeles County/Ventura County line. Sediment calculations were also prepared by Sikand using the HEC-6 program for the section of the Santa Clara River within the Specific Plan boundary to a point approximately four miles downstream of the Los Angeles County/Ventura County line.

Based on the results from the HEC-6 program, Alternative 2 could result in localized variations in scour and sedimentation due to the changes in flow velocity described above. The RAA found that the proposed Specific Plan would result in a pattern of localized variations in scour and sedimentation that reflect predicted changes in flow velocity. The precise location and extent of material removal and deposition would shift with project development, much as it does in the existing condition over time, but the overall pattern would remain substantially unchanged. The modeling results indicate that there would be no significant changes in local patterns of sediment deposition and scouring in the Specific Plan site and no impact would be expected in Ventura County (ISI, 2003, pages 2.3-48-49). Overall, the precise location and extent of material removal and deposition would shift with the installation of the various project components, similar to natural changes in channel morphology that occur with large storm events. Modeling results indicate that there would be no significant changes in local patterns of sediment deposition and erosion. In some areas, velocities greater than four fps would correspond with outlet structures, access ramps, or bridge abutments, which could result in a significant localized erosion impacts and minor changes in channel substrate. To minimize erosion and structural damage to such structures, erosion resistant materials such as concrete, soil cement or secured rip-rap would be used according to the standards, criteria, and specifications developed by the County to ensure long-term stability. For detailed information concerning changes to the sediment budget and associated direct and indirect/secondary impacts to channel substrate, please reference Section 4.2 of the Final EIS/EIR.

Within the tributary drainages in the project area, certain drainages would not be graded and would remain undisturbed, while other drainage areas would be

graded, reconstructed to a soft-bottom drainage channel with buried bank stabilization along each side of the drainage, or converted to buried storm drains. In channels where reconstructed drainages are proposed, the channel designs would integrate flood control and grade stabilizing measures (*i.e.*, a combination of drop structures/grade stabilizers and bank protection) to maintain sediment equilibrium and protect the channel substrate, bed and banks from hydromodification impacts. The proposed design methodology is intended to create stable drainage channels that would support the in-channel riparian vegetation following project implementation. For detailed information concerning the proposed channel structures and associated direct and indirect/ secondary impacts to channel substrate, please reference Section 4.2 of the Final EIS/EIR.

The proposed design methodology focuses on developing channel width, depth, slope, and other parameters based on the predicted flow and sediment regime for each of the drainages. The intent is to develop and establish stable channel characteristics through an integrated analysis, and then use structures and other measures only in those drainage locations where erosional forces are shown to exceed the natural stability of the drainage channel. All such structures (*i.e.*, bank and channel bed protection) would be designed to mimic natural features and use a combination of structural and vegetative methods to provide drainage channels that are stable, aesthetic, and maintain native habitat (*e.g.*, riparian, wetland, and upland habitat) after implementing the proposed construction activities in waters of the United States. The proposed road crossing culverts and bridges would traverse various drainages to accommodate the proposed circulation system. The exact channel configuration within each of the drainages would be determined at the final design stage of project implementation, but would be submitted to the Corps for final review and approval prior to construction activities in waters of the United States. Under Alternative 2, the project site's five largest tributary drainages (Chiquito, San Martinez Grande, Potrero, Long, and Lion Canyons) would be modified or reconstructed, but would not be entirely replaced by storm drain systems. The modified channels would be designed for geomorphic equilibrium in terms of channel stability, sediment transport, and flow conveyance under future conditions. The channels and floodplains would be designed to account for geomorphic stability, flood conveyance, ecological functions, hydromodification, and low maintenance. Although the final design details for the proposed modified and reconstructed drainages have not been determined, the criteria listed above would ensure that the channels would be free from geomorphic instabilities in the post-project condition. For detailed information concerning the proposed post-project hydrologic condition and associated direct and indirect/secondary impacts to channel substrate, please reference Section 4.2 of the Final EIS/EIR.

The indirect/secondary effects of Alternative 2's proposed components on beach replenishment are a function of the sediment load delivered through the project reach. The Santa Clara River watershed contributes approximately 60 percent of beach sand within Ventura County, with other streams and sand from upcoast

providing the remaining 40 percent. In total, the Santa Clara River watershed yields approximately 4.08 million tons of suspended sediment per year (1,170 tons per square mile) from its mouth into the Santa Barbara Channel. By reducing the erodible area within the project site, Alternative 2 could cause a reduction in suspended sediment and bedload during storm events, which could negatively affect beaches, as incrementally less sediment would be available for their replenishment. Alternative 2 would convert approximately 5,307 acres of currently undeveloped lands to a non-erodible, urban condition. This conversion would translate to an average loss of approximately 9,700 tons of suspended sediment per year, or 0.24 percent of the river's total annual yield.

To determine the total sediment yield in the project area, the EIS/EIR utilized information from the "Santa Clara River Parkway Floodplain Restoration Feasibility Study" prepared for the Coastal Conservancy by Stillwater Sciences, dated July 2008. However, the analysis in the EIS/EIR is also influenced by the area affected by Alternative 2. The project area represents approximately 8.52 square miles (or 0.52 percent) of the 1,626 square mile larger Santa Clara River watershed. Given the scale of the originally proposed project, the watershed-based sediment yield derived from the study is generally indicative of the project area and is suitable for this analysis. Using Stillwater's entire watershed suspended sediment estimate of 4.08 million tons, a watershed-wide (1,626 square miles) sediment production rate of 2,512.3 tons per square mile was derived. Stillwater also evaluated historic debris basin activity within the Ventura County portion of the Santa Clara River watershed, which provided sedimentation information more related to the coarser hillslope-produced fraction of sediment than suspended sediment. Stillwater estimated that approximately 27.87 million tons of sediment in total is exported to the Santa Barbara channel annually, or 17,158 tons of sediment per square mile of the entire watershed. Using the same methodology described above to estimate the quantity of suspended sediment that would be reduced by each of the project alternatives the total sediment reduction was derived based on the reduction in sediment-producing area. Under Alternative 2, there would be a net reduction of 146,155 tons of sediment per year (originating from the project area tributaries and project reach of the Santa Clara River), or approximately 0.52 percent of the total estimated sediment discharge (suspended and coarse sediment load) to the Santa Barbara channel. Because the reduction of 146,155 tons is relatively minor when compared to the total sediment load of 27.87 million tons, Alternative 2 would not substantially affect recruitment of sand onto Ventura County beaches. For detailed information concerning potential indirect/secondary impacts to beaches, please reference Section 4.2 of the Final EIS/EIR.

Alternatives 3 through 7 and Modified Alternative 3 would have similar direct and indirect/secondary impacts to channel substrate, but would be reduced, in some cases substantially, when compared to Alternative 2. With the build alternatives, permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with temporary impacts to channel substrate for the construction and maintenance of bridges, bank stabilization and debris

and detention basins varying from 41.6 acres to 20.3 acres. With less permanent and temporary impacts to waters of the United States, the area of channel substrate permanently affected by flood control structures and other infrastructure and temporary disturbance to the substrate profile from stockpiles, dewatering structures, excavation and backfill would also be reduced when compared to Alternative 2. As documented in Sections 4.1 and 4.2 of the Final EIS/EIR, the direct and indirect/secondary effects of the proposed fill activities in waters of the United States would include placing permanent fill in waters of the United States for various structures, temporary disturbance to the substrate profile, localized changes in erosion and accretion patterns associated with permanent structures in waters of the United States, less than significant indirect/secondary impacts to channel morphology and substrate in the Santa Clara River, both in the project area as well as in downstream reaches and less than significant indirect/secondary impacts to sediment transport and associated beach replenishment in Ventura County. In addition, all the build alternatives would include project design and other minimization measures to reduce impacts to channel substrate, including standard best management practices, returning temporary impact areas to pre-project contours with revegetation as well as buried bank stabilization to eliminate or reduce direct and indirect/ secondary impacts to channel substrate in waters of the United States. Based on the above information, discharges of fill material associated with Alternatives 3 through 7 and Modified Alternative 3 would have less than significant direct and indirect/secondary impacts to channel substrate in the Santa Clara River and the tributary drainages.

The revised project description for Modified Alternative 3 includes additional measures to further reduce direct and indirect/secondary impacts to waters of the United States. These project design features would include additional avoidance of approximately 19 acres of waters of the United States in Potrero Canyon, a revised design for low impact development features that would increase infiltration and retention of storm flows and a revised design for ungrouted boulder rock grade control structures and road crossings with soft-bottom, clear span arch culverts to minimize impacts in Potrero Canyon. With the proposed avoidance and minimization of permanent impacts to approximately 612 acres (92%) of waters of the United States in the project area, the direct and indirect impacts to channel substrate associated with Modified Alternative 3 would be substantially reduced when compared to Alternative 2. To further minimize and mitigate for less than significant impacts to floodplain areas, a restrictive covenant for floodplain protection would be recorded on approximately 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent floodplain area in the Santa Clara River immediately downstream of the project area. Furthermore, to maintain existing functions and services in the preserved and compensatory mitigation jurisdictional features and adjacent upland areas shown on Figure 12 of the Newhall Ranch Project Description dated 11 August 2011, no new drilling, mining, exploring and operating, storing in, and removing of oil, minerals, natural gas and other hydrocarbons would occur through the surface of the

above areas or the upper 500 feet of the subsurface and no new or additional surface entry associated with the above activities would occur at the surface. In addition, suitable erosion control best management practices (BMPs) would be installed between any existing oil wells and waters of the United States and the BMPs would be required to be maintained in good working condition until the existing wells were abandoned and remediated. With the inclusion of the proposed mitigation program to compensate for permanent and temporary impacts to waters of the United States through the enhancement, establishment and rehabilitation of approximately 114.04 acres of waters of the United States, discharges of fill material associated with Modified Alternative 3 would result in no net loss of functions and services in the Santa Clara River and the tributary drainages.

For detailed information concerning the direct and indirect/secondary impacts to channel substrate that would be associated with the various project alternatives, please refer to Section 4.1 and Section 4.2 of the Final EIS/EIR.

(X) currents, circulation or drainage patterns: The originally proposed project (Alternative 2) and alternatives could result in direct and indirect/secondary impacts to currents, circulation and/or drainage patterns, reducing the hydrologic function of waters of the United States in the project area. In general, hydrologic function is affected by the source of water, the duration and magnitude of flows (hydroperiod), whether flows reach the floodplain, the presence of flow restrictions, the duration of ponding on the floodplain, and the width of the floodplain. An increase in water depth in the Santa Clara River could result in significant impacts to currents and drainage patterns if the additional water depth causes greater "shear forces" (*i.e.*, friction caused by the weight of water) on the channel bottom, and thereby increasing scouring of the channel bed and removal of riparian vegetation. This effect could reduce the extent of aquatic, wetland, and riparian habitats in waters of the United States.

Table 4.2-12 in the Final EIS/EIR provides the general hydrologic characteristics of the Santa Clara River channel for the two-, five-, 10-, 20-, 50-, and 100-year events, both with and without Alternative 2. The results of the hydraulic analysis indicate that water depths and, correspondingly, total shear in the Santa Clara River would not increase significantly with Alternative 2. Based on PACE HEC-RAS and HEC-RMS modeling of the 100-year storm event, project-related infrastructure would result in 52 locations of increased water surface elevation exceeding one foot, and no decreased water surface elevation locations in the Santa Clara River. No impacts to water surface elevation would be realized upstream or downstream of the project site (PACE, 2007). The additional riparian vegetation area subject to inundation would not be changed during the two-year flood event, but would be reduced by approximately 0.3, 2.6, 80.2. 131.5, 137.1, and 225.1 acres as a result of Alternative 2 during the five-, 10-, 20-, 50-, 100-year, and capital flood (discharge resulting from a hypothetical four-day storm with a 50-year return period falling on a saturated watershed with debris from a wildfire) events, respectively (PACE, 2008A). Figures 4.2-9 and 4.2-10 in the Final EIS/EIR show the area of inundation and velocity distribution for the

10- and 100-year flow events for both existing conditions and Alternative 2. As shown in these figures, the decrease in inundated area (by percentage and acreage) would primarily affect areas of currently disturbed, agricultural land. Accordingly, direct and indirect/secondary impacts to currents and drainage patterns under Alternative 2 would be limited such that water flow depths, velocities, and total shear for all return events would not be significantly different in the river channel between existing and proposed conditions in the project area. Since there would not be a significant change in flow depths or total shear in existing channel, the direct and indirect/secondary impacts to the amount and pattern of aquatic, wetland, and riparian habitats in the Santa Clara River would be less than significant.

Sikand Engineering also characterized the hydrology of the river in two technical reports (Sikand, 2000a, 2000b); the results of the two Sikand studies were summarized in the RAA. The Sikand reports estimated that the maximum extent of indirect/secondary impacts were limited to a point about four miles downstream of the Specific Plan site in Ventura County. Sikand found that after a certain distance downstream of the Los Angeles County/Ventura County line, the predicted increases in peak flows in the Santa Clara River dissipates. This downstream distance varies by return frequency, with the change in the 2-year peak flow dissipating approximately 2.1 miles downstream and the change in the 100-year peak flow attenuating to pre-project conditions at approximately 3.2 miles downstream of the Los Angeles County/Ventura County line.

The Hybrid Assessment of Riparian Condition (HARC) analysis indicates that, overall, Alternative 2 would result in substantial changes to the hydrologic function, including currents and drainage patterns, of the tributaries with net losses observed for the source water and hydroperiod and net gains observed for the floodplain connection, surface water persistence, and flood prone area metrics. In total, Alternative 2 would result in a net loss of 19.98 hydrology area weighted (AW)-score units but a net gain of 35.68 total HARC AW-score units within the tributaries. Absent mitigation, the decrease in HARC AW-score units within the tributaries may be the result of an increase in the frequency and magnitude of scouring of riparian vegetation which, absent mitigation, would be a significant impact. Accordingly, the impacts of Alternative 2 to the currents, drainage patterns and riparian habitat in the tributaries are considered significant prior to mitigation, but less than significant under Significance Criterion 4 in the EIS/EIR through implementation of Mitigation Measures SW-2, SW-3, SW-5, BIO-1, BIO-6, and BIO-7.

The HARC hydrology score indicates the relative extent to which the assessment reaches on site perform the above functions. Lost hydrologic function due to the proposed discharges of fill material in waters of the United States was calculated by applying the HARC hydrology score as a weighting factor to the acreages filled. Fill from Alternative 2 would cause the permanent loss of 66.1 HARC hydrology-weighted acres, and the temporary loss of 27.7 HARC hydrology-weighted acres of waters of the United States. Losses of hydrologic function could include changes to the fluctuations in water level that occur within the on-

site drainages during storm events. The storm hydrograph is dictated by a number of factors, including rainfall intensity, slope and permeability of the watershed, channel slope and width, and the presence of any manmade features that would detain or attenuate flows. Adverse changes to some of these parameters (*e.g.*, increased impervious surfaces in the project area, narrowed stream channels) could result in more severe fluctuations in water depth, while changes to others (*e.g.*, installation of detention basins) would make the fluctuations less severe. Because all of the waters within the project area are riverine, rather than impoundments or tidal waters, on-site surface flows are unidirectional. Therefore, the hydrologic functioning of these waters does not include large-scale water circulation. For detailed information concerning direct and indirect/secondary impacts to currents, circulation and drainage patterns, please reference Section 4.1 and Section 4.2 of the Final EIS/EIR.

Alternatives 3 through 7 and Modified Alternative 3 would have similar direct and indirect/secondary impacts to currents, circulation and drainage patterns, but would be reduced, in some cases substantially, when compared to Alternative 2. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres and temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins would vary from 41.6 acres to 20.3 acres. With temporary construction impacts and the proposed placement of fill material in waters of the United States, there would be short-term adverse impacts to drainage patterns from the use of construction equipment in and adjacent to stream channels. However, most construction activities would take place in unnamed tributaries during the dry season when surface flows are absent. In addition the six build alternatives would include similar minimization measures to reduce impacts to currents and drainage patterns, including returning temporary impact areas to pre-project contours with revegetation as well as buried bank stabilization to eliminate or reduce indirect/secondary impacts to currents and drainage patterns. With the proposed placement of compacted fill material, bank stabilization, storm drains and other flood control facilities in the stream channels as well as increased impermeable surface area, currents and drainage patterns would be permanently altered in the above tributaries to the Santa Clara River. Probable hydrologic changes include increased flow velocity, increased peak flows and reduced time to peak flow. The proposed drainage plan, which includes substantial on-site infiltration and retention of storm flows, would reduce direct and indirect/secondary impacts to drainage patterns in the Santa Clara River. With the inclusion of the above mitigation measures, discharges of fill material associated with Alternatives 3 through 7 and Modified Alternative 3 would result in less than significant direct and indirect/secondary impacts to currents, circulation and drainage patterns in the Santa Clara River and the tributary drainages.

Overall, Modified Alternative 3 would result in long-term adverse impacts to approximately 42.1 acres of ephemeral/intermittent drainages and 5.8 acres in the main-stem in the upper Santa Clara River watershed. The revised project

description for Modified Alternative 3 includes additional measures to further reduce direct and indirect/secondary impacts to waters of the United States. These project design features would include additional avoidance of approximately 19 acres of waters of the United States in Potrero Canyon, a revised design for low impact development features that would increase infiltration and retention of storm flows and a revised design for ungrouted boulder rock grade control structures and road crossings with soft-bottom, clear span arch culverts in Potrero Canyon. With the proposed avoidance and minimization of permanent impacts to approximately 612 acres and approximately 8,500 acres of upland habitat in the project area, the direct and indirect/secondary impacts to currents, circulation and drainage patterns associated with Modified Alternative 3 would be substantially reduced when compared to Alternative 2. To further minimize and mitigate for less than significant impacts to floodplain areas, a restrictive covenant for floodplain protection would be recorded on approximately 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent floodplain area in the Santa Clara River immediately downstream of the project area. With the inclusion of the proposed mitigation program to compensate for permanent and temporary impacts to waters of the United States through the enhancement, establishment and rehabilitation of approximately 114.04 acres of waters of the United States, Modified Alternative 3 would result in no net loss of functions and services in the Santa Clara River and the tributary drainages.

For detailed information concerning the direct and indirect/secondary impacts to currents, circulation and drainage patterns that would be associated with the various project alternatives, please reference Section 4.1 and Section 4.2 of the Final EIS/EIR.

(X) **suspended particulates; turbidity:** The originally proposed project (Alternative 2) and alternatives would involve large-scale construction operations and would result in permanent changes to the channels and/or watersheds of most tributary drainages within the project site. During construction, concentrations of sediment (Total Suspended Solids (TSS) and turbidity), nutrients, heavy metals, and pesticides in tributary drainages could potentially be altered when vegetation removal, grading, and trenching activities expose soils to wind and water erosion. On a long-term basis, many of the on-site watersheds would be largely comprised of impervious surfaces following build out of the proposed development and natural drainage patterns would be replaced with engineered paths reaching the tributaries via storm drains and detention basins.

The potential water quality impacts from proposed construction activities, construction materials, and non-stormwater runoff during the construction phase relate primarily to sediment (TSS and turbidity) and non-sediment related pollutants, such as nutrients, heavy metals, and certain pesticides, including legacy pesticides. Construction-related sediment releases are most often caused by exposing soils to rain/runoff and wind. A number of pollutants not related to sediment also pose water quality problems during the construction phase. These include construction materials (*e.g.*, paint), chemicals, liquid products, and

petroleum products used in facility construction or the maintenance of heavy equipment; and concrete-related pollutants.

Construction impacts would be minimized through compliance with the NPDES permit for stormwater discharges from construction sites ([NPDES No. CAR000002] Water Quality Order 2009-0009-DWQ, State Water Resources Control Board [SWRCB] NPDES General Permit for Stormwater Discharges Associated with Construction Activity [Construction General Permit]). This permit imposes specific, tiered requirements depending on which of three risk levels are assigned to the project's discharges, by watershed, based on prescribed formulas. These formulas determine sediment and receiving water risk during periods of soil exposure, using calculation tools provided in Appendix 1 of the permit. Receiving water risk is categorized as either "high" or 'low," and sediment risk is categorized as "low," "medium" or "high." Under the Construction General Permit, Risk Level 1 applies if both sediment risk and receiving water risk are deemed to be "low;" such sites have minimum BMP requirements but require no effluent monitoring (except for non-visible pollutants, if identified as potentially present). Risk Level 2 applies at all other sites unless both sediment risk and receiving water risk are determined to be "high." Risk Level 2 sites are subject to numeric action levels for turbidity and pH, and effluent monitoring requirements. If both receiving water and sediment risk are calculated to be "high," then the project is assigned Risk Level 3, and the site is subject to turbidity and pH numeric effluent limits and more rigorous monitoring requirements.

All projects are required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP itself must include erosion and sediment control BMPs to reduce or eliminate the discharge of sediment and other potential construction-related pollutants. The SWPPP must also contain a Construction Site Monitoring Program that identifies monitoring and sampling requirements during construction. Preliminary analysis indicates that the proposed project would most likely be categorized as a Risk Level 2. BMPs and monitoring required by the Construction General Permit will be incorporated into the proposed project to comply with the Risk Level 2 requirements, as described in Attachment D of the Construction General Permit. If final design analysis indicates that the proposed project will fall under Risk Level 3, the additional Level 3 permit requirements will be implemented as necessary.

Construction and maintenance of the in-stream elements within the project area would require dewatering discharges as well as discharges not related to stormwater. For example, excavation depths needed for bank protection would be below the river bottom and, as a result, would frequently encounter groundwater that would have to be removed during the construction period. The dewatering activity would place shallow wells close to the excavation, drawing down the groundwater in the construction zone. Typically, soil composition within the dry streambed would allow the discharged dewatering flows to percolate quickly back into the ground. However, in some instances, the amount of discharged water may create sufficient flow during dewatering operations to

form a continuous wetted channel from the work site to the Santa Clara River or a tributary.

In general, the Construction General Permit authorizes construction dewatering activities and other non-stormwater discharges related to construction not subject to a separate general permit adopted by a Regional Board, as long as: (1) they do not cause or contribute to violation of any water quality standards; (2) they do not violate any other provisions of the permit; (3) they are not prohibited by a Basin Plan provision; (4) the discharger has included and implemented specific BMPs required by the permit to prevent or reduce the contact of the non-stormwater discharge with construction materials or equipment; (5) the discharge does not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants; (6) the discharge is monitored and meets the applicable numeric action levels (NALs) and numeric effluent limitations (NELs); and (7) the discharger reports the sampling information in the Annual Report.

BMPs would also be implemented to protect receiving waters from dewatering and construction related non-stormwater discharges. In the case of dewatering discharges, such BMPs would include source control and treatment control BMPs in compliance with either: (a) the Los Angeles RWQCB's general waste discharge requirements (WDRs) (under Order No. R4-2003-0111; NPDES No. CAG994004), regulating construction-related dewatering discharges within the project area; or (b) an individual WDR/NPDES permit specific to the proposed project dewatering activities. Typical BMPs for in-stream construction dewatering include infiltration of clean groundwater or on-site treatment using an engineered system, such as a weir tank, which is designed to remove suspended particulates from the water before it is discharged. To avoid significant impacts to receiving waters from dewatering activities, discharged water would be allowed to "sheet-flow" from energy dissipaters so that it soaks into the dry soils, or it would be routed through a sprinkler field and sprayed over a large upland area adjacent to the river/streambed with the intent to percolate the entire discharge.

Under Alternative 2, implementation of erosion and sedimentation source control BMPs during the construction of the proposed RMDP infrastructure and other components would prevent significant erosion and sediment transport from the project site during the construction phases for the proposed project. These same BMPs would also avoid and minimize direct and indirect/secondary impacts associated with the transport of other pollutants potentially entrained in the sediment. The BMPs would meet best available technology (BAT)/best conventional pollutant control technology (BCT) standards to ensure that discharges during construction would not cause or contribute to any exceedance of water quality standards in the receiving waters. During construction of Alternative 2, the BMPs would be implemented in compliance with the Construction General Permit and the general waste discharge requirements in the Dewatering General WDRs, or in compliance with an individual WDR/NPDES permit specific to the project dewatering activities. All discharges from qualifying storm events would be sampled for turbidity and pH, and the

results would be compared to NALs to ensure that BMPs are functioning as intended. If discharge sample results fall outside of these action levels, the existing site BMPs and potential causative agents would be reviewed. In addition, the existing BMPs would be maintained and/or repaired and/or additional BMPs would be provided to ensure that future discharges meet these criteria. Future maintenance activities for the proposed structures in waters of the United States could result in short-term impacts to turbidity levels, but would be minimized with the implementation of the above BMPs. For detailed information concerning the direct and indirect/ secondary impacts to turbidity as well as the associated mitigation measures, please reference Section 4.4 of the Final EIS/EIR.

Alternatives 3 through 7 and Modified Alternative 3 would have similar direct and indirect/secondary impacts to turbidity levels, but would be reduced, in some cases substantially, when compared to Alternative 2. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins varying from 41.6 acres to 20.3 acres. During the proposed construction activities, all the alternatives would include the large-scale grading activities, construction of an underground storm drain system and debris basins in order to prepare the site for housing pads. With the clearing of the existing scrub and chaparral vegetation from the graded areas, sediment that was held in place by grass, upland shrubs and other species could be more easily entrained by overland flow. As a result, short-term adverse indirect/secondary impacts to downstream turbidity levels and sediment loads during the proposed construction activities are anticipated, especially during the winter storm season. Based on the above, the first large winter storm could produce channel flows which have higher than normal levels of suspended sediment and bedload. However, with the implementation of standard best management practices and the SWPPP, the potential direct and indirect/secondary impacts to turbidity levels would be avoided and minimized. With the construction of Alternatives 3 through 7 and Modified Alternative 3, the replacement of natural channels with underground storm drains or similar conveyance structures would reduce the suspension of particulates and turbidity levels within these channels, as water will be conveyed through a storm drain system. However, the effect of placing natural channels into a storm drain system may result in adverse indirect/secondary effects to suspended sediment and turbidity downstream, as reduced infiltration and increased flow velocities and volumes may lead to downstream increases in steam channel erosion. With the construction of numerous on-site infiltration, retention, detention and debris facilities, the potential downstream indirect/secondary impacts to erosion and turbidity levels would be substantially reduced. Ongoing maintenance activities in debris/detention basins would result in minor substrate disturbance and increases in turbidity, but implementation of standard best management practices would reduce the above short-term impacts substantially. With the inclusion of the above mitigation measures, discharges of fill material associated

with Alternatives 3 through 7 and Modified Alternative 3 would result in less than significant direct and indirect/secondary impacts to turbidity levels in the Santa Clara River and the tributary drainages.

Modified Alternative 3 would result in long-term impacts to 47.9 acres of ephemeral and intermittent tributary drainages and the main-stem of the Santa Clara River. The revised project description for Modified Alternative 3 includes additional measures to further reduce direct and indirect/secondary impacts to waters of the United States. These project design features would include additional avoidance of approximately 19 acres of waters of the United States in Potrero Canyon, a revised design for low impact development features that would increase infiltration and retention of storm flows and a revised design for ungrouted boulder rock grade control structures and road crossings with soft-bottom, clear span arch culverts in Potrero Canyon. With the proposed avoidance of permanent impacts in approximately 612 acres of waters of the United States and approximately 8,500 acres of upland habitat in the project area, the above direct and indirect/secondary impacts to existing turbidity levels would be reduced when compared to Alternative 2. In addition, all temporary impacts to waters of the United States would be minimized with full restoration of the area after the completion of grading activities.

To further minimize and mitigate for less than significant impacts to floodplain areas, a restrictive covenant for floodplain protection would be recorded on approximately 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent floodplain area in the Santa Clara River immediately downstream of the project area. Furthermore, to maintain existing functions and services in the preserved and compensatory mitigation jurisdictional features and adjacent upland areas shown on Figure 12 of the Newhall Ranch Project Description dated 11 August 2011, no new drilling, mining, exploring and operating, storing in, and removing of oil, minerals, natural gas and other hydrocarbons would occur through the surface of the above areas or the upper 500 feet of the subsurface and no new or additional surface entry associated with the above activities would occur at the surface. In addition, suitable erosion control best management practices (BMPs) would be installed between any existing oil wells and waters of the United States and the BMPs would be required to be maintained in good working condition until the existing wells were abandoned and remediated. To compensate for unavoidable permanent impacts to 47.9 acres of waters of the United States that would result from Modified Alternative 3, the applicant would enhance, rehabilitate and/or establish approximately 114.04 acres of waters of the United States on the project site. With the implementation of best management practices, the relatively high degree of on-site avoidance (92%), and the inclusion of the above mitigation measures, discharges of fill material associated with Modified Alternative 3 would result in no net loss of functions and services in the Santa Clara River and the tributary drainages.

For detailed information concerning the direct and indirect/secondary impacts to turbidity that would be associated with the various project alternatives, please

refer to Section 4.4 of the Final EIS/EIR.

(X) water quality (temperature, salinity patterns and other parameters): The originally proposed project (Alternative 2) and alternatives would facilitate the development of up to 20,885 residential dwelling units and a maximum of approximately 5.5 msf of nonresidential uses on the project site.

Runoff volume and all pollutant loads, with the exception of TSS and nitrate + nitrite-N, are predicted to increase with Alternative 2 when compared to existing conditions. Concentrations of all pollutants, with the exception of dissolved copper, are predicted to decrease under Alternative 2 when compared to existing conditions; dissolved copper concentrations are predicted to increase. All concentrations are predicted to be below benchmark criteria and within the range of observed concentrations in Santa Clara River.

Pursuant to NPDES requirements, BMPs would be implemented at the project site under all alternatives to avoid and minimize impacts to water quality. These BMPs include the following water quality control facilities: (1) water quality basins; (2) debris basins, located just upstream of the interface between developed and undeveloped areas, primarily to trap debris coming from the upper watersheds; (3) detention basins, which are typically sized to capture the predicted runoff volume and retain the water volume for a period of time (usually 24 to 48 hours); (4) catch basin inserts or screens/filters installed in existing or new storm drains to capture pollutants in the stormwater runoff; (5) bioretention, such as vegetated grassy swales, that provide water quality benefits and convey storm water runoff; and (6) solids separator units or in-line structures that reduce or manipulate runoff velocities such that particulate matter falls out of suspension and settles in a collection chamber. Many of these proposed facilities would be constructed outside waters of the United States or as components of storm drain systems or newly created channels. However, construction and maintenance of some of the proposed water quality facilities would require work in jurisdictional areas. Maintenance of the proposed water quality features is discussed in detail in Appendix A of the RMDP. For the qualitatively assessed pollutants of concern, concentrations of hydrocarbons and MBAS would be expected to increase with implementation of Alternative 2. Concentrations of pathogens, pesticides, trash and debris, and cyanide also may increase under the proposed project when compared to existing conditions, resulting in a potentially significant impact to water quality. However, none of the pollutants of concern are expected to significantly impact receiving waters, as these pollutants would be effectively reduced by implementation of the comprehensive site design/low impact development, source control, and treatment control BMPs specified in the Newhall Ranch Specific Plan Sub-Regional Stormwater Mitigation Plan. The originally proposed plan, developed by the applicant consistent with local stormwater regulatory requirements, sets forth the urban runoff management program that would be implemented for the build-out of Alternative 2.

Wastewater generated by the build-out of Alternative 2 would be treated in the proposed Newhall Ranch WRP. Treatment at the Newhall Ranch WRP would consist of screening, activated sludge secondary treatment with membrane bioreactors, nitrification/denitrification, ultraviolet disinfection, and partial reverse osmosis. The result of the above is that the effluent discharged to the Santa Clara River through the permitted Newhall Ranch WRP outfall would result in discharge equivalent to 100 mg/L chloride (or other applicable standard). The NPDES Permit and WDRs for the Newhall Ranch WRP (Order No. R4-2007-0046, effective October 27, 2007 (Los Angeles RWQCB, 2007)) include effluent limitations that are protective of surface receiving water quality and designated beneficial uses. Treated effluent from the WRP would be used to supply distribution of recycled water throughout the proposed development area in the form of irrigation of landscaping and other approved uses. Future maintenance activities for the proposed structures in waters of the United States could result in short-term impacts to turbidity levels, but would be minimized with the implementation of the above BMPs. For detailed information concerning the direct and indirect/secondary water quality impacts and associated mitigation measures, please reference Section 4.4 of the Final EIS/EIR.

Alternative 2 would result in a loss of biogeochemical function of waters of the United States on the project site. Biogeochemical function measures the ability of wetland and riparian areas to perform specific processes such as maintenance of water quality, cycling of nutrients, retention of particulates, and export of organic carbon. The HARC biogeochemical score indicates the relative extent to which the assessment reaches on site perform this function. Lost biogeochemical function due to the proposed fill was calculated by applying the HARC biogeochemical score as a weighting factor to the acreages filled. The fill from implementation of the proposed RMDP would result in the permanent loss of 60.3 HARC biogeochemical-weighted acres and a temporary loss of 25.7 HARC biogeochemical-weighted acres of waters of the United States. For detailed information concerning the direct and indirect/secondary impacts to water quality, please reference Section 4.4 of the Final EIS/EIR.

Alternatives 3 through 7 and Modified Alternative 3, would have similar direct and indirect/secondary impacts to water quality, but would be reduced, in some cases substantially, when compared to Alternative 2. To minimize water quality impacts, all alternatives would include an urban runoff management program similar to the plan discussed above for Alternative 2. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres and temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins would vary from 41.6 acres to 20.3 acres. With the proposed grading activities and placement of fill material in waters of the United States as well as adjacent upland areas, there would be short-term adverse impacts to water quality parameters from the use of construction equipment in and adjacent to the stream channel. As a result, there could be a short-term adverse increase in suspended sediment and bedload during the proposed construction activities. To minimize

the above short-term construction impacts, the applicant would be required to implement standard best management practices to reduce indirect/secondary impacts associated with downstream sedimentation. In addition, all temporary impacts to waters of the United States would be minimized with full restoration of the area after the completion of grading activities. With the construction of storm drains, channel flow would be placed in underground facilities, permanently reducing water temperature in these unnamed drainages. Construction of debris and detention basins would reduce downstream sediment transport during small and moderate storm events. Ongoing maintenance activities in debris/detention basins would result in minor substrate disturbance and increases in turbidity, but implementation of standard best management practices would reduce the above short-term construction impacts. Absent mitigation Alternatives 3 through 7 and modified Alternative 3 could result in significant impacts to water quality. With the inclusion of all the proposed mitigation measures, discharges of fill material associated with Alternatives 3 through 7, including Modified Alternative 3, would result in less than significant direct and indirect/secondary impacts to water quality in the Santa Clara River and the tributary drainages.

As documented above, absent mitigation Modified Alternative 3 could result in potentially significant direct and indirect/secondary impacts to 47.9 acres of ephemeral/intermittent drainages and the main-stem of the Santa Clara River. The revised project description for Modified Alternative 3 includes additional measures to further reduce direct and indirect/secondary impacts to waters of the United States. These project design features would include additional avoidance of approximately 19 acres of waters of the United States in Potrero Canyon, a revised design for low impact development features that would increase infiltration and retention of storm flows and a revised design for ungrouted boulder rock grade control structures and road crossings with soft-bottom, clear span arch culverts in Potrero Canyon. With the proposed avoidance of permanent impacts in approximately 612 acres of waters of the United States, including 271 acres of wetlands, and approximately 8,500 acres of upland habitat in the project area, the above direct and indirect/secondary impacts to existing water quality parameters would be substantially reduced when compared to Alternative 2.

To further minimize and mitigate for less than significant impacts to floodplain areas, a restrictive covenant for floodplain protection would be recorded on approximately 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent floodplain area in the Santa Clara River immediately downstream of the project area. Furthermore, to maintain existing functions and services in the preserved and compensatory mitigation jurisdictional features and adjacent upland areas shown on Figure 12 of the Newhall Ranch Project Description dated 11 August 2011, no new drilling, mining, exploring and operating, storing in, and removing of oil, minerals, natural gas and other hydrocarbons would occur through the surface of the above areas or the upper 500 feet of the subsurface and no new or additional

surface entry associated with the above activities would occur at the surface. In addition, suitable erosion control best management practices (BMPs) would be installed between any existing oil wells and waters of the United States and the BMPs would be required to be maintained in good working condition until the existing wells were abandoned and remediated. To compensate for unavoidable impacts to 47.9 acres of waters of the United States, including 5.2 acres of wetlands, Modified Alternative 3 would enhance, establish or rehabilitate approximately 114.04 acres of waters of the United States, including 35.2 acres of wetlands, in the project area.

To further minimize less than significant direct and indirect/secondary impacts to water quality, the Low Impact Development (LID) project design for the LEDPA has been modified. LID project design features will be selected and sized to retain the volume of stormwater produced from a 0.75 inch storm event to reduce the percentage of Effective Impervious Area (EIA) to five percent or less of the total project area within the Newhall Ranch Specific Plan. Runoff from all EIA will be treated with effective treatment control measures that are selected to address pollutants of concern and are sized to capture and treat 80 percent of the average annual runoff. Compliance with the LID Performance Standard will be evaluated by the RWQCB for each phase of the project (Villages) within the RMDP as part of the Tier 2 evaluation process. Each Tier 2 project must demonstrate that the LID Performance Standard is achieved cumulatively considering the retention volume provided by the current project phase and all previous project phases within the RMDP area.

The current LID Performance Standard will be implemented for institutional, commercial, multi-family residential, recreation and park land use parcels using retention or biofiltration BMPs on-site to the extent feasible. Based on an assessment of feasibility, one of three BMP strategies would be applied. In areas where infiltration is feasible for all of the runoff produced from the 0.75 inch design storm volume, bioretention (without an underdrain), permeable pavement, infiltration galleries, infiltration basins or trenches, or an equivalent infiltration BMP would be utilized. In areas where infiltration is allowable but low infiltration rates or deep fills are present, bioretention facilities (with an underdrain) would be used to retain a portion of the runoff from the design storm, then the remaining runoff would be biofiltered. In areas where infiltration is not technically feasible due to geotechnical hazards, high groundwater table or other factors identified as part of the Tier 2 evaluation process, biofiltration BMPs would be used to biofilter the runoff produced from the design storm in developed areas.

In addition, runoff from roofs, patios and walkways in single family residential parcels would be disconnected over landscape areas designed to retain the volume from the 0.75 inch storm event. Runoff from the remaining parcels that does not infiltrate would flow through the storm drain system to the regional/sub-regional infiltration/biofiltration facilities. Runoff from roadways would be retained or biofiltered in retention or biofiltration BMPs sized to capture the design storm volume or flow, as stipulated by USEPA's "Managing

Wet Weather with Green Infrastructure/Green Streets.". Furthermore, no more than five percent of the total project area would be treated using conventional treatment methods that address the pollutants of concern, including the use of media filters to capture and treat 80% of the average annual runoff volume from the allowable EIA. Regional and sub-regional infiltration/ biofiltration facilities would also be implemented. These facilities would be designed to incorporate a biofilter in the bottom of the facility, which will allow for infiltration if feasible, with detention storage above the biofilter. These facilities would infiltrate or biofilter the design storm volume that has not been retained or biofiltered on the parcels in the area tributary to the facility and would provide extended detention treatment for the additional runoff volume required to provide 80% capture and treatment of the average annual runoff volume as stipulated in the Newhall Ranch Specific Plan Sub-Regional Stormwater Mitigation Plan treatment performance standard and the Newhall Ranch Specific Plan LID Performance Standard. The above LID performance standards would be revised if more stringent standards are adopted in a renewed Municipal Separate Storm Sewer System permit for Los Angeles County.

Wastewater generated by the build-out of Modified Alternative 3 would be treated in the proposed Newhall Ranch WRP. Treatment at the Newhall Ranch WRP would consist of screening, activated sludge secondary treatment with membrane bioreactors, nitrification/denitrification, ultraviolet disinfection, and partial reverse osmosis. To confirm full and complete compliance with the chloride TMDL, the first two phases of the development would include interim chloride reduction treatment at the Valencia WRP. This project design feature involves chloride treatment of the effluent amount originating from Newhall Ranch (up to 6,000 units) at the Valencia WRP during the operation period of the 2002 Interconnection Agreement. The result of the above is that the effluent originating from Newhall Ranch that is discharged to the Santa Clara River through the permitted Valencia WRP outfall would be equivalent to 100 mg/L chloride (or other applicable standard). The NPDES Permit and WDRs for the Newhall Ranch WRP (Order No. R4-2007-0046, effective October 27, 2007 (Los Angeles RWQCB, 2007)) include effluent limitations that are protective of surface receiving water quality and designated beneficial uses. During the first two phases of the development, treated effluent from the Valencia WRP would be used to supply distribution of recycled water throughout the proposed development area in the form of irrigation of landscaping and other approved uses.

For more information concerning the direct and indirect/secondary impacts to water quality that would be associated with the various project alternatives, please refer to Section 4.4 of the Final EIS/EIR.

(X) **flood control functions**: As discussed in the Final EIS/EIR, the areas proposed for development within the floodplain would be elevated above floodplain levels, thereby removing the development from flood hazards (see Final EIS/EIR, p. 4.1-2). Alternative 2 would authorize the construction and maintenance of flood control features, such as bank stabilization, grade control

structures, storm drains, and debris and detention basins, throughout the project site to protect proposed development areas from flooding. All facilities would be constructed to Los Angeles County standards, which require that they be sized to convey flows from the Capital Flood, a worst-case situation combining a modeled 50-year storm with a bulking factor simulating a burned watershed. Because the Los Angeles County Capital Flood substantially exceeds the 100-year flood in magnitude in all modeled watersheds within the project site, the proposed facilities would be adequate to protect the proposed development areas from 100-year storm events. Based on the above information, Alternative 2 would provide for adequate flood conveyance. To address potential downstream effects to floodplain areas, Sikand Engineering characterized the hydrology of the river in two technical reports that were completed in 2000. The Sikand reports estimated that the maximum extent of indirect/secondary impacts to hydrology and associated floodplain areas were limited to a point about four miles downstream of the Specific Plan site in Ventura County. Sikand found that after a certain distance downstream of the Los Angeles County/Ventura County line, the predicted increases in peak flows in the Santa Clara River dissipates. This downstream distance varies by return frequency, with the change in the 2-year peak flow dissipating approximately 2.1 miles downstream and the change in the 100-year peak flow attenuating to pre-project conditions at approximately 3.2 miles downstream of the Los Angeles County/Ventura County line. Therefore, indirect/secondary effects to downstream floodplain areas would be less than significant. For detailed information concerning the direct and indirect/secondary impacts to flood control functions associated with Alternative 2, please reference Section 4.1 of the Final EIS/EIR.

Alternatives 3 through 7 and Modified Alternative 3 would have similar direct and indirect/secondary impacts to flood control functions, but would be reduced, in some cases substantially, when compared to Alternative 2. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins varying from 41.6 acres to 20.3 acres. All project alternatives would include avoidance and minimization measures similar to Alternative 2, reducing direct and indirect/secondary impacts to flood control functions. In addition, all the project alternatives would include project design features to increase on-site infiltration and retention of storm flows to eliminate or reduce direct and indirect/secondary impacts to flood control functions in the Santa Clara River and the tributary drainages. By placing existing natural channels and adjacent uplands into underground storm drains and related structures (debris/detention basins), natural flood control functions in the project area would be eliminated and the new underground structures would serve to control floods in the developed sections of the project site. All project alternatives have been designed to maintain appropriate levels of flood protection both in and downstream of the project area. The Los Angeles County Flood Control District, the City of Santa Clarita Engineer and FEMA would review all hydrology and

drainage plans for the site to determine if the drainage plans adequately convey peak flows and meet all flood control requirements (the applicant has already successfully processed Conditional Letters of Map Revision (CLOMR) applications for both the Landmark Village and Mission Village subdivision projects; based on the CLOMR applications, neither subdivision would encroach upon a regulatory floodway, as that area is delineated on the effective Flood Insurance Rate Map (FIRM), nor cause any rise in basic flood levels in any such area). Based on the above information, all project alternatives would result in less than significant direct and indirect/secondary impacts to flood control functions in the Santa Clara River and the tributary drainages.

The revised project description for Modified Alternative 3 includes additional measures to further reduce direct and indirect/secondary impacts to waters of the United States. These project design features would include additional avoidance of approximately 19 acres of waters of the United States in Potrero Canyon, a revised design for low impact development features that would increase infiltration and retention of storm flows and a revised design for ungrouted boulder rock grade control structures and road crossings with soft-bottom, clear span arch culverts in Potrero Canyon. Modified Alternative 3 would include a net loss of approximately 110 acres of 100-year floodplain out of 1,408 acres of floodplain in 5.5 linear miles of the Santa Clara River in the project area (of the approximate 110 acres of developed floodplain area only approximately 5.8 acres are jurisdictional waters of the United States). To further minimize and mitigate for less than significant impacts to floodplain areas, a restrictive covenant for floodplain protection would be recorded on approximately 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent floodplain area in the Santa Clara River immediately downstream of the project area. Based on the above information, Modified Alternative 3 would include additional avoidance and minimization measures to further reduce direct and indirect/secondary impacts to flood control functions in the Santa Clara River and the tributary drainages.

For more information concerning the direct and indirect/secondary impacts to flood control functions that would be associated with the various project alternatives, please refer to Section 4.1 of the Final EIS/EIR.

( ) **storm, wave and erosion buffers:** Not applicable.

(X) **erosion and accretion patterns**: The originally proposed project (Alternative 2) and alternatives could increase downstream sediment flows during storm events, resulting in substantial downstream erosion and deposition impacts.

Under Alternative 2, the total floodplain area subject to potentially erosive velocities (four fps or greater) would decrease for all modeled storms with the exception of the 5-year return period, under which the area susceptible to erosion increases by 0.6 acre. However, this minor increase during the 5-year return interval is not considered significant relative to the substantial decrease in area subject to erosive velocities during 2-, 10-, 20-, 50-, 100-year, and capital flood events. In some areas, velocities greater than four fps would correspond with

outlet structures, access ramps, or bridge abutments, which could result in localized erosion impacts. Where necessary to minimize erosion and structural damage, materials such as grouted riprap or reinforced concrete would be used according to the standards, criteria, and specifications developed by Los Angeles County. No changes in flow velocity would be realized upstream or downstream of the project area.

Sediment calculations were also prepared by Sikand using the HEC-6 program for the section of the Santa Clara River within the Specific Plan boundary to a point approximately four miles downstream of the Los Angeles County/Ventura County line. Based on the results from the HEC-6 program, Alternative 2 could result in localized variations in scour and sedimentation due to the changes in flow velocity described above. The RAA found that the proposed Specific Plan would result in a pattern of localized variations in scour and sedimentation that reflect predicted changes in flow velocity. The precise location and extent of material removal and deposition would shift with project development, much as it does in the existing condition over time, but the overall pattern would remain substantially unchanged. The modeling results indicate that there would be no significant changes in local patterns of sediment deposition and scouring in the Specific Plan site and no impact would be expected in Ventura County (ISI, 2003, pages 2.3-48-49). Overall, the precise location and extent of material removal and deposition would shift with the installation of the various project components, similar to natural changes in channel morphology that occur with large storm events. Modeling results indicate that there would be no significant changes in local patterns of sediment deposition and erosion. In some areas, velocities greater than four fps would correspond with outlet structures, access ramps, or bridge abutments, which could result in a significant localized erosion impacts and minor changes in channel substrate. To minimize erosion and structural damage to such structures, erosion resistant materials such as concrete, soil cement or secured rip-rap would be used according to the standards, criteria, and specifications developed by Los Angeles County to ensure long-term stability. For detailed information concerning changes to the sediment budget and associated direct and indirect/secondary impacts to channel substrate, please reference Section 4.2 of the Final EIS/EIR.

The indirect/secondary effects of the proposed infrastructure on beach replenishment are a function of the sediment load delivered through the project area. The Santa Clara River watershed contributes approximately 60 percent of beach sand within Ventura County, with other streams and sand from upcoast providing the remaining 40 percent. In total, the Santa Clara River watershed yields approximately 4.08 million tons of suspended sediment per year (1,170 tons per square mile) from its mouth into the Santa Barbara Channel. By reducing the erodible area within the project site, Alternative 2 could cause a reduction in this floodwater sediment, which could negatively affect beaches, as incrementally less sediment would be available for their replenishment. The analysis in the EIS/EIR, however, is more reliant on the area affected by Alternative 2 than the sediment yield derived from the Stillwater Feasibility

Study. Alternative 2's proposed design represents approximately 8.52 square miles (or 0.52 percent) of the 1,626 square mile larger Santa Clara River watershed. Given the scale of Alternative 2, the watershed-based sediment yield derived from the study is generally indicative of the project area and is suitable for this analysis. As documented above, using Stillwater's entire watershed suspended sediment estimate of 4.08 million tons, a watershed-wide (1,626 square miles) sediment production rate of 2,512.3 tons per square mile was derived. Stillwater also evaluated historic debris basin activity within the Ventura County portion of the Santa Clara River watershed, which provided sedimentation information more related to the coarser hillslope-produced fraction of sediment than suspended sediment. Stillwater estimated that approximately 27.87 million tons of sediment in total is exported to the Santa Barbara channel annually, or 17,158 tons of sediment per square mile of the entire watershed. Using the same methodology described above to estimate the quantity of suspended sediment that would be reduced by each of the project alternatives the total sediment reduction was derived based on the reduction in sediment-producing area. For Alternative 2, there would be a net reduction of 146,155 tons of sediment per year (originating from the project area tributaries and project reach of the Santa Clara River), or approximately 0.52 percent of the total estimated sediment discharge (suspended and coarse sediment load) to the Santa Barbara channel. Because the reduction of 146,155 tons is relatively minor when compared to the 27.87 million ton total, Alternative 2 would not substantially affect recruitment of sand onto Ventura County beaches. For detailed information concerning potential indirect/secondary impacts to beaches, please reference Section 4.2 of the Final EIS/EIR.

Alternatives 3 through 7 and Modified Alternative 3 would have similar direct and indirect/secondary impacts to erosion and accretion patterns, but would be reduced, in some cases substantially, when compared to the proposed project. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins varying from 41.6 acres to 20.3 acres. During the proposed construction activities, there would be large-scale disturbance to substrate both in and adjacent to waters of the United States. With increased erosion, sediment could be deposited in downstream reaches of the unnamed tributaries and the main-stem of the Santa Clara River. As a result, there would be a short-term adverse change in erosion and accretion patterns during project construction. Implementation of best management practices and the SWPPP during all construction activities in and adjacent to waters of the United States would substantially reduce the above direct and indirect/secondary impacts. With the placement of compacted earthen fill, storm drains and impermeable surfaces in and adjacent to the existing stream channels, erosion from upland areas would be reduced. Furthermore, the proposed storm drains would eliminate in-channel erosion and increase flow velocity. As a result, there could be a long-term increase in channel erosion downstream of the proposed project. Use of on-site infiltration/retention areas and detention/debris basins would decrease

indirect/secondary impacts to downstream erosion and accretion patterns. Ongoing maintenance activities in debris/detention basins would result in minor substrate disturbance and increases in turbidity, but implementation of standard best management practices would reduce the above short-term impacts. With the inclusion of the above mitigation measures, discharges of fill material associated with Alternatives 3 through 7 and Modified Alternative 3 would result in less than significant direct and indirect/secondary impacts to erosion and accretion levels in the Santa Clara River and the tributary drainages.

The revised project description for Modified Alternative 3 includes additional measures to further reduce direct and indirect/secondary impacts to waters of the United States. These project design features would include additional avoidance of approximately 19 acres of waters of the United States in Potrero Canyon, a revised design for low impact development features that would increase infiltration and retention of storm flows and a revised design for ungrouted boulder rock grade control structures and road crossings with soft-bottom, clear span arch culverts in Potrero Canyon. The avoidance of permanent impacts to approximately 612 acres of waters of the United States, including approximately 271 acres of wetlands, and approximately 8,500 acres of upland habitat would minimize changes to downstream erosion and accretion patterns. In addition, temporary impacts to waters of the United States would be minimized with full restoration of the area after the completion of grading activities.

To further minimize and mitigate for less than significant impacts to floodplain areas, a restrictive covenant for floodplain protection would be recorded on approximately 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent floodplain area in the Santa Clara River immediately downstream of the project area. Furthermore, to maintain existing functions and services in the preserved and compensatory mitigation jurisdictional features and adjacent upland areas shown on Figure 12 of the Newhall Ranch Project Description dated 11 August 2011, no new drilling, mining, exploring and operating, storing in, and removing of oil, minerals, natural gas and other hydrocarbons would occur through the surface of the above areas or the upper 500 feet of the subsurface and no new or additional surface entry associated with the above activities would occur at the surface. In addition, suitable erosion control best management practices (BMPs) would be installed between any existing oil wells and waters of the United States and the BMPs would be required to be maintained in good working condition until the existing wells were abandoned and remediated. To compensate for unavoidable impacts to 47.9 acres of waters of the United States, Modified Alternative 3 would include enhancement, rehabilitation or establishment of approximately 114.04 acres of waters of the United States, including 35.2 acres of wetlands, in several drainages and the main-stem of the Santa Clara River, in the project area. With the inclusion of the above mitigation measures, Modified Alternative 3 would result in no net loss of functions and services in the Santa Clara River and the tributary drainages.

For more information concerning the direct and indirect/secondary impacts to erosion and accretion patterns that would be associated with the various project alternatives, please refer to Section 4.2 of the Final EIS/EIR.

(X) **aquifer recharge (water supply):** In general, the amount of impervious ground cover affects the degree to which rainfall will be able to infiltrate to groundwater. In heavily industrialized areas, such as exists in portions of the Los Angeles Basin, recharge due to stormwater infiltration is highly restricted due to the high percentages of impervious surfaces. In contrast, stormwater that flows across impervious surfaces in the Santa Clarita Valley is routed to stormwater detention basins and to the Santa Clara River and its tributaries whose channels are predominantly natural and consist of vegetation and coarse-grained sediments. The porous nature of the sands and gravels forming the Santa Clara River and the tributary streambeds allow for substantial infiltration to occur to the underlying alluvial aquifer. Streamflow records and model calibration together demonstrate that year-to-year fluctuations in total recharge in the Santa Clarita Valley arise not just from year-to-year variations in incident rainfall within the valley, but also from year-to-year variations in streamflows in the Santa Clara River and its tributaries. Long-term water level records for wells in the alluvial aquifer show that groundwater levels and the amount of groundwater in storage in the Santa Clarita Valley were similar in both the late 1990s and the early 1980s, despite a substantial increase in the urbanized area during these two decades. This long-term stability is attributed, in part, to the substantial volume of natural recharge from riverbed infiltration.

Under Alternative 2, aquifer recharge would not be substantially impacted by the water demands based on the best available information. This information shows that no adverse impacts on aquifer recharge have occurred or would occur due to the existing or projected use of local groundwater supplies. Based on a memorandum prepared by CH2MHill (Effect of Urbanization on Aquifer Recharge in the Santa Clarita Valley, February 22, 2004; see Final EIS/EIR, **Appendix 4.3**), no significant impacts would occur to the groundwater basin with respect to aquifer recharge. Urbanization and associated impervious surfaces in the Santa Clarita Valley has been accompanied by long-term stability in pumping and groundwater levels and the addition of imported State Water Project (SWP) water to the valley; together, these actions have not reduced aquifer recharge, nor depleted the amount or level of groundwater in storage within the local groundwater basin. These findings are also consistent with the CLWA/purveyor groundwater operating plan for the Basin (see Final EIS/EIR, **Appendix 4.3**, 2005 Basin Yield Report). Under Alternative 2, construction of numerous on-site infiltration/retention areas and detention/debris basins would substantially reduce, but not eliminate all potential direct and indirect/secondary impacts to aquifer recharge. Based on the above information, increased impervious surfaces and project infrastructure associated with Alternative 2 would result in less than significant impacts to aquifer recharge in the Santa Clara River and the tributary drainages.

Alternative 2 is not expected to result in any direct or indirect/secondary impacts on groundwater supplies. The applicant has utilized a low of 5,971 acre-feet to a high of 14,303 acre-feet of groundwater from the alluvial aquifer and the Saugus Formation from 1980 through 2008. This groundwater was used primarily for the applicant's agriculture, farming, and grazing operations. In contrast, implementation of Alternative 2 would require only approximately 3.3 to 8.1 acre-feet per year (afy) of water to install the infrastructure (*e.g.*, bridges, road-crossing culverts, bank stabilization). Construction water would either be trucked to the project area, or come from existing on-site wells, located within the project area. This water demand is expected to be required during the approximately 20-year construction period for the required infrastructure to support the proposed project, and this demand would be met by the applicant's existing groundwater supply.

Supplying water to support development for Alternative 2 would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge volume or levels. There are sufficient local groundwater supplies to support construction of the proposed infrastructure, in addition to existing and future development in the Santa Clarita Valley. An evaluation of groundwater supplies in the 2005 Urban Water Management Plan (UWMP), the 2005 Basin Yield Report, and the 2009 Basin Yield Update resulted in the following findings: (a) both the Alluvial aquifer and the Saugus Formation are reasonable and sustainable sources of local water supplies at the yields stated in the 2005 UWMP; (b) the yields are not overstated and will not deplete or "dry-up" the groundwater basin; and (c) there is no need to reduce the yields for purposes of planning, as shown in the 2005 UWMP, the 2005 Basin Yield Report, and the 2009 Basin Yield Update. In addition, these reports determined that neither the alluvial aquifer nor the Saugus Formation is in an overdraft condition, or projected to become overdrafted as a result of implementation of Alternative 2. For detailed information concerning potential direct and indirect/secondary impacts to aquifer recharge and water supply please reference Section 4.3 of the Final EIS/EIR.

Alternatives 3 through 7 and Modified Alternative 3 would have similar direct and indirect/secondary impacts to aquifer recharge, but would be reduced, in some cases substantially, when compared to Alternative 2. Based on the above groundwater technical reports, supplying water to support development for Alternatives 3 through 7 (including Modified Alternative 3) would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge volume or levels. There are sufficient local groundwater supplies to support construction of the proposed infrastructure, in addition to existing and future development in the Santa Clarita Valley. As a result, similar to Alternative 2, supplying water to any of the build alternatives, including Modified Alternative 3, would not substantially deplete groundwater supplies or interfere substantially with aquifer recharge volume or levels. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with temporary impacts for the construction

and maintenance of bridges, bank stabilization and debris and detention basins varying from 41.6 acres to 20.3 acres. With the reduction in natural substrate associated with all the build alternatives, infiltration would be reduced and there could be increased overland flow in the project area, resulting in reduced aquifer recharge. Construction of numerous on-site infiltration/retention areas and detention/debris basins would substantially reduce, but not eliminate all potential direct and indirect/secondary impacts to aquifer recharge in waters of the United States. With the inclusion of the proposed project design features, Alternatives 3 through 7 and Modified Alternative 3 would result in less than significant direct and indirect/secondary impacts to aquifer recharge in the Santa Clara River and the tributary drainages.

The revised project description for Modified Alternative 3 includes additional measures to further reduce direct and indirect/secondary impacts to waters of the United States. These project design features would include additional avoidance of approximately 19 acres of waters of the United States in Potrero Canyon, a revised design for low impact development features that would increase infiltration and retention of storm flows and a revised design for ungrouted boulder rock grade control structures and road crossings with soft-bottom, clear span arch culverts in Potrero Canyon. Based on the avoidance of permanent impacts to approximately 8,500 acres of open space, including the 612 acres of waters of the United States, including 271 acres of wetlands, potentially significant impacts to aquifer recharge would be substantially reduced, and would be mitigated by the infiltration/retention project design features in the project area. To further minimize and mitigate for less than significant impacts to floodplain areas, a restrictive covenant for floodplain protection would be recorded on approximately 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent floodplain area in the Santa Clara River immediately downstream of the project area. Based on the above information, Modified Alternative 3 would include additional avoidance and minimization measures to further reduce direct and indirect/secondary impacts to aquifer recharge in the Santa Clara River and the tributary drainages.

For more information concerning the direct and indirect/secondary impacts to water supply that would be associated with the various project alternatives, please refer to Section 4.3 of the Final EIS/EIR.

(X) **baseflow**: The originally proposed project (Alternative 2) is not expected to have significant direct or indirect/secondary impacts to baseflow. The Santa Clara River is perennial from the existing Valencia (WRP) to approximately 3.5 miles downstream of the Los Angeles County/Ventura County line near Rancho Camulos. Further downstream, the Santa Clara River flows through the Piru groundwater basin where surface water flow in the river is lost to groundwater. GSI Water Solutions, Inc. (2008) evaluated a series of historic air photos from 1927 to present, and assessed observed conditions in conjunction with known vegetation and geological information. GSI noted a fault control on the upstream end of the Piru basin, leading to a thick accumulation of alluvial sediments and a deep groundwater table. Taken together, these factors led to an ephemeral Santa

Clara River in this zone during each year evaluated. Specifically, surface water flow in the Santa Clara River disappears completely and infiltrates into the Piru groundwater basin, forming an ephemeral "Dry Gap" reach for most of the year.

Two existing WRPs are located upstream of the proposed Newhall Ranch WRP. These two WRPs are the Valencia WRP and the Saugus WRP, which are operated by the County Sanitation Districts of Los Angeles County (CSD), the agency that would operate the Newhall Ranch WRP. Both upstream WRPs discharge water to the Santa Clara River. Discharges from the Saugus WRP began in 1966, and discharges from the Valencia WRP began in 1967. The Saugus WRP, located near the Bouquet Canyon Road bridge, has a permitted dry weather average design capacity of 6.5 mgd, and the Valencia WRP has a permitted dry weather average design capacity of 21.6 mgd. The combined average discharge of treated water from the Saugus and Valencia WRPs was approximately 20 mgd during the period January 2004 through June 2007. In 2006, the combined annual discharge volume from these two WRPs was 22,913 acre-feet per year (afy).

The timing and magnitude of future discharges from the Newhall Ranch WRP were originally identified from water demand projections for the proposed Newhall Ranch community. These projections were developed and presented in documents supporting the Newhall Ranch Specific Plan (FORMA, 2003) which was approved by Los Angeles County on May 27, 2003. As discussed in the Draft Additional Analysis for the Specific Plan (Impact Sciences, 2001), the Newhall Ranch WRP will be a near-zero discharge facility. Most of the treated water generated by the Newhall WRP would be recycled to meet non-potable (outdoor irrigation) demands of Alternative 2. Based on a detailed water demand analysis presented in the Final EIS/EIR, the inflows to the Newhall Ranch WRP would average 5,630 afy, of which 5,344 afy would be recycled. The remaining 286 afy would be discharged to the Santa Clara River during the wettest (winter) months, at a rate of between 0.6 and 2.0 mgd, which is equivalent to rates of 0.9 to 3.1 cubic feet per second (cfs). This discharge would occur primarily during December and January. Additionally, during wet years (when rainfall is above average because of large winter storms), non-potable demands may be lower than average during the winter and early spring months, resulting in Newhall Ranch WRP discharge volumes greater than 286 afy. This discharge volume could amount to as much as 1,025 afy, based on a 5- to 6-month discharge period (beginning as early as October or November and potentially extending through March) and the discharge limit of 2 mgd that is specified in the permit for the Newhall Ranch WRP (Los Angeles RWQCB, 2007).

Compared with the 2006 annual discharge of 22,913 afy from the Valencia WRP and the Saugus WRP, the future Newhall Ranch WRP discharge of 286 afy is low (about 1.25%). Additionally, future discharges from the Saugus and Valencia WRPs would increase over time. Specifically, the annual discharges to the Santa Clara River from the Saugus and Valencia WRPs could increase to about 24,300 afy in the future, an increase of 1,400 afy compared with annual discharge for 2006 (GSI Water Solutions, Inc., 2008). Accordingly, in the future, the volume of

discharge from the Newhall Ranch WRP would likely represent a smaller fraction of the total discharges from WRPs to the Santa Clara River.

Under Alternative 2, the Newhall Ranch WRP discharge is also negligible compared with the total river flow volume, which consists of WRP discharges, groundwater discharges to the river, and storm flows. During a recent 5-year period of low rainfall (calendar years 1999 through 2003), total annual flow in the Santa Clara River, as measured at the Los Angeles County/Ventura County line, ranged from about 25,000 to 44,000 afy, and the non-storm flow (groundwater discharge and WRP flows) ranged from about 23,000 to 30,000 afy (GSI Water Solutions, Inc., 2008). For this period of dry conditions, the proposed Newhall Ranch WRP average discharge of 286 afy would have represented between 0.6 and 1.1 percent of the total annual flow volume in the river. The Newhall Ranch WRP discharge would represent a much smaller percentage of the total annual flow volume in the River during wet years when the annual volume of river flow at the county line can exceed 100,000 afy (and even 200,000 afy because of high rainfall runoff from the watershed). For example, historical streamflow measurements at the Los Angeles County/Ventura County line during the period 1977 through 2006 indicate that the 90th and 95th percentile values of November-March streamflow, which are indicative of significant rainfall years, are 385 and 692 cfs, respectively (GSI Water Solutions, Inc., 2008). These flows are substantially greater than the future discharges from the Newhall Ranch WRP. Specifically, the future average discharge from the Newhall Ranch WRP (0.6 mgd [0.9 cfs]) is 0.13 percent to 0.23 percent of these streamflows, while the future potential maximum discharge from the Newhall Ranch WRP (2.0 mgd [3.1 cfs]) is 0.45 percent to 0.81 percent of these streamflows. Additionally, the total non-storm flow during wet years can exceed 50,000 afy, with the year-to-year variability reflecting the influence of groundwater discharges to the river (which vary according to rainfall-induced fluctuations in the water table elevation). In summary, the proposed Newhall Ranch WRP discharges under Alternative 2 would be very small compared with future river flows, comprising 1 percent or less of river flow during average and dry years, and only 0.1 percent to 0.8 percent of river flows during wet years, which would not substantially lengthen the duration of seasonal flows in the Dry Gap.

The potential indirect/secondary impacts of the proposed Newhall Ranch WRP to the Dry Gap are considered less than significant since they would not substantially lengthen the duration of seasonal flow in the Dry Gap. This significance finding is based on the fact that discharge from the Newhall Ranch WRP would occur in the winter and would be small relative to the overall flow in the Santa Clara River, and the existing data shows that increases in base flow due to discharges from the Valencia WRP and the Saugus WRP since the 1960s have not led to a substantial change in the duration of seasonal flow in the Dry Gap.

For more information concerning the direct and indirect/secondary impacts to baseflow that would be associated with Alternative 2, please reference to Sections 4.1, 4.2, and 4.4 of the Final EIS/EIR.

Alternatives 3 through 7 and Modified Alternative 3 would have similar direct and indirect/secondary impacts to baseflow, but would be reduced, in some cases substantially, when compared to Alternative 2. With the project alternatives, permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins varying from 41.6 acres to 20.3 acres. With the construction of the proposed development, impermeable surfaces would reduce infiltration during storm events, potentially increasing surface flow and decreasing recessional flows after storm events. However, due to the ephemeral nature of stream flow in the majority of the project area, these fluvial systems are dominated by storm flow and exhibit little or no baseflow flows under natural conditions. With the construction of the proposed development and associated irrigated landscaping, surface flow during the dry season could be augmented. To substantially reduce runoff from developed areas and associated alterations in baseflow in waters of the United States, Alternative 3 through 7 and Modified Alternative 3 would include numerous infiltration/retention areas as well as water quality basins throughout the developed area. As documented above, Alternatives 3 through 7 and Modified Alternative 3 would result in less than significant direct and indirect/secondary impacts to baseflow in the Santa Clara River and the tributary drainages.

The revised project description for Modified Alternative 3 includes additional measures to further reduce direct and indirect/secondary impacts to waters of the United States. These project design features would include additional avoidance of approximately 19 acres of waters of the United States in Potrero Canyon, a revised design for low impact development features that would increase infiltration and retention of storm flows and a revised design for ungrouted boulder rock grade control structures and road crossings with soft-bottom, clear span arch culverts in Potrero Canyon. With the avoidance of permanent impacts to approximately 612 acres of waters of the United States and approximately 8,500 acres of uplands, the above direct and indirect/secondary impacts would be substantially reduced when compared to Alternative 2. To further minimize and mitigate for less than significant impacts to floodplain areas, a restrictive covenant for floodplain protection would be recorded on approximately 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent floodplain area in the Santa Clara River immediately downstream of the project area. As a result, Modified Alternative 3 includes additional avoidance and minimization measures that would further reduce direct and indirect/secondary impacts to baseflow in the Santa Clara River and the tributary drainages.

For more information concerning the direct and indirect/secondary impacts to baseflow that would be associated with the various project alternatives, please reference to Sections 4.1, 4.2, and 4.4 of the Final EIS/EIR.

For projects involving the discharge of dredged material;

(X) mixing zone, in light of the depth of water at the disposal site; current velocity, direction and variability at the disposal site; degree of turbulence; water column stratification; discharge vessel speed and direction; rate of discharge; dredged material characteristics; number of discharges per unit of time; and any other relevant factors affecting rates and patterns of mixing: Not applicable – the originally proposed project and alternatives would not include discharges of dredged material.

IV. Biological Characteristics

(X) special aquatic sites (wetlands, mudflats, coral reefs, pool and riffle areas, vegetated shallows, sanctuaries and refuges, as defined in 40 CFR 230.40-45): For detailed information concerning direct and indirect/secondary impacts to waters of the United States, including wetlands, please reference Section 4.6 of the Final EIS/EIR. Of the various types of special aquatic sites, only wetlands occur in the project area.

The project site contains a total of approximately 276.9 acres of wetlands.[2] Because the site does not contain any other type of special aquatic site, the originally proposed project's (Alternative 2) impact on wetlands would constitute the whole of the impact on special aquatic sites. Most of the site's wetlands are located adjacent to the active channel of the Santa Clara River, which exhibits perennial flows and supports extensive riparian vegetation in the project area. However, two of the site's larger tributary drainages, Salt Creek and Potrero Canyon, also support wetlands along intermittent/perennial reaches. In addition, the project site also contains a spring complex, located near Middle Canyon, the entirety of which is also a wetland. Alternative 2 would permanently disturb 20.5 acres of wetlands, and would temporarily disturb an additional 11.2 acres of wetlands. These impacts would occur primarily due to bridge construction along the Santa Clara River main-stem, but Alternative 2 would also affect two cismontane alkali marsh wetlands in lower and middle Potrero Canyon. The entire Salt Creek watershed and the Middle Canyon spring complex would be preserved under Alternative 2, and no permanent impacts to wetlands in those areas would occur (temporary impacts would only be associated with wetland rehabilitation and establishment activities). In total, Alternative 2 would avoid permanent impacts to approximately 92 percent of all wetlands on site. To minimize temporary impacts to 11.2 acres, under Alternative 2 the applicant would restore all construction areas in wetlands to pre-project contours with revegetation using native wetland species (future maintenance areas in close proximity to proposed structures and the maintenance areas would not be included in the revegetation areas). All restored wetland areas would be monitored for at least five years as described in the

[2] Wetland acres are a subset of waters of the United States within the Santa Clara River mainstem and the tributary drainages.

attached Final Mitigation Plan. To compensate for permanent impacts to 20.5 acres of wetlands, Alternative 2 would include several compensatory mitigation areas in the Santa Clara River, Potrero Canyon and Salt Creek, as described in the attached Final Mitigation Plan, resulting in a minimum of 1:1 replacement for wetland functions and services (e.g. Alternative 2 would require a minimum of approximately 20.5 acres of compensatory mitigation to offset impacts to wetlands). With the inclusion of the above mitigation measures, Alternative 2 would have less than significant direct and indirect/secondary impacts to wetlands in the Santa Clara River and tributary drainages. For detailed information concerning the direct and indirect/secondary impacts to wetlands that would be associated with Alternative 2, please reference Section 4.6 of the Final EIS/EIR.

Alternatives 3 through 7 and Modified Alternative 3 would have similar direct and indirect/secondary impacts to wetlands, but would be reduced, in some cases substantially, when compared to Alternative 2. With the project alternatives permanent impacts to wetlands would vary from approximately 14.6 acres to 3.2 acres, with temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins varying from 13.5 acres to 9.0 acres. All the project alternatives would include similar avoidance and minimization measures to reduce impacts to wetlands including restoring temporary impact areas to pre-project contours and revegetating the areas with native wetland species. All restored wetland areas would be monitored for at least five years as described in the attached Final Mitigation Plan. To compensate for permanent impacts to wetlands, all the project alternatives would include compensatory mitigation to ensure no net loss of wetland functions and services in the Santa Clara River and the tributary drainages. With the inclusion of the above mitigation measures, Alternatives 3 through 7 and Modified Alternative 3 would have less than significant direct and indirect/secondary impacts to wetlands in the Santa Clara River and tributary drainages.

The revised project description for Modified Alternative 3 includes additional measures to further reduce direct and indirect/secondary impacts to waters of the United States, including wetlands. These project design features would include additional avoidance of approximately 19 acres of waters of the United States, including 3.5 acres of wetlands, in Potrero Canyon, a revised design for low impact development features that would increase infiltration and retention of storm flows and a revised design for ungrouted boulder rock grade control structures and road crossings with soft-bottom, clear span arch culverts in Potrero Canyon. Implementation of Modified Alternative 3 would permanently impact 5.1 acres of wetlands (76 percent reduction in impact acreage compared to Alternative 2), and would temporarily disturb 11.8 acres of wetlands (2 percent decrease in impact acreage compared to Alternative 2). Overall, Modified Alternative 3 would avoid permanent impacts to approximately 98 percent of the wetlands in the project area (271.8 acres of wetlands). To further minimize and mitigate for less than significant impacts to floodplain areas, a restrictive

covenant for floodplain protection would be recorded on approximately 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent floodplain area in the Santa Clara River immediately downstream of the project area. Furthermore, to maintain existing functions and services in the preserved and compensatory mitigation jurisdictional features and adjacent upland areas shown on Figure 12 of the Newhall Ranch Project Description dated 11 August 2011, no new drilling, mining, exploring and operating, storing in, and removing of oil, minerals, natural gas and other hydrocarbons would occur through the surface of the above areas or the upper 500 feet of the subsurface and no new or additional surface entry associated with the above activities would occur at the surface. In addition, suitable erosion control best management practices (BMPs) would be installed between any existing oil wells and waters of the United States and the BMPs would be required to be maintained in good working condition until the existing wells were abandoned and remediated. To compensate for unavoidable impacts to wetlands, Modified Alternative 3 would include approximately 114.04 acres, including 35.2 acres of wetlands, of enhancement, establishment and rehabilitation in the Santa Clara River, Potrero Canyon and Salt Creek, as documented in the attached Final Mitigation Plan. With the avoidance of approximately 271.8 acres wetlands combined with the 35.2 acres of wetland establishment and rehabilitation, Modified Alternative 3 would result in no net loss of functions and services in the Santa Clara River and the tributary drainages.

For detailed information concerning the direct and indirect/secondary impacts to wetlands that would be associated with the various project alternatives, please reference Section 4.6 of the Final EIS/EIR.

(X) **habitat for fish and other aquatic organisms:** With the originally proposed project (Alternative 2), of the 660.1 acres of waters of the United States within the project area, Alternative 2 would permanently impact 93.3 acres of aquatic and riparian habitat, or approximately 14.1 percent of waters of the United States on site. Temporary impacts to channel substrate would occur in approximately 33.3 acres of jurisdictional areas, where necessary to allow construction and maintenance of the proposed project facilities. To avoid and minimize impacts to aquatic habitat, the proposed temporary impacts would occur outside the actual footprint of the facility once constructed, thereby allowing rehabilitation. For example, construction of bridges across the Santa Clara River would require disturbance of channel substrate upstream and downstream of the proposed bridge location during construction, but these areas would not be occupied by the bridge once completed. To avoid and minimize impacts, all temporary impact areas would be restored to pre-project contours and revegetated, following completion of construction activities in waters of the United States. Approximately 533.5 acres (approximately 80 percent of total acreage), of waters of the United States would be completely avoided under Alternative 2. Sensitive aquatic resource areas avoided under Alternative 2 would include the majority

of the Santa Clara River main-stem, the Middle Canyon spring complex (a high-quality wetland), and the entire Salt Creek sub-watershed.

Alternative 2 would reduce habitat function of waters of the United States on the project site. Habitat function takes into account such factors as plant species diversity, percentage of native plant species, biological structure, and evidence of vegetation recruitment (*i.e.*, the presence of seedlings and/or saplings), and the width of the floodplain. The HARC habitat score indicates the relative extent to which the assessment reaches on site perform this function. Lost habitat function due to the proposed fill in waters of the United States was calculated by applying the HARC habitat score as a weighting factor to the acreages filled. The fill from implementation of Alternative 2 would result in the permanent loss of 67.7 HARC habitat-weighted acres and the temporary loss of 25.9 HARC habitat-weighted acres of waters of the United States.

Alternative 2 could result in permanent physical changes to the Santa Clara River corridor and surrounding watershed, including changes to hydrology and fluvial processes, which could affect suitable fish habitat, as discussed in the stickleback analysis section (Section 4.5.5.3 of the Final EIS/EIR). ENTRIX (2009) analyzed project-related hydrologic changes in the Santa Clara River and tributaries. While the placement of the proposed bridge footings would result in the loss of river channel, the large width and hydrology of the river would maintain the formation of natural channels to support fish species. Most of the tributaries do not support perennial flows; and none of the tributaries has surface water connectivity with the Santa Clara River, except for Middle and Potrero Canyons, which, although they contain perennial flow, have substantial blockages (bedrock headcuts or cascades) that are impassable to fish (ENTRIX 2009).

Direct and indirect/secondary impacts to crustaceans, mollusks, and other aquatic organisms in the food web would be minor as the diversity of invertebrates is generally low due to the substrate being dominated by sand and gravel. Impacts to these organisms would be caused by the changes in water quality, substrate and sediment dynamics, and hydrologic function as discussed in Section 4.5 of the Final EIS/EIR. No significant water quality-related effects are anticipated as Alternative 2 would comply with all applicable water quality regulations. Hydrologically, Alternative 2 would reconfigure some in-channel habitat through alterations of the velocity distribution regime. The two most important effects of construction within the river channel are alteration of natural stream hydrology and loss of available fish habitat. The ENTRIX report indicates that the alteration of the stream hydrology would not result in significant impacts related to fish access to floodplain refugia during flood events, since the general morphology of the Santa Clara River, adjacent rearing habitat, and high-flow floodplain refugia would not be substantially altered. Therefore, there would not be large-scale changes in the distribution or abundance of aquatic organisms as a result of construction of Alternative 2.

An increase in water depth in the Santa Clara River could result in significant direct and indirect/secondary impacts to riparian habitat if the additional water

depth causes greater "shear forces" (*i.e.*, friction caused by the weight of water) on the channel bottom, and thereby increasing scouring of the channel bed and removal of riparian vegetation. This effect could reduce the extent of aquatic, wetland, and riparian habitats in waters of the United States. Table 4.2-12 in the Final EIS/EIR provides the general hydrologic characteristics of the Santa Clara River channel for the two-, five-, 10-, 20-, 50-, and 100-year events, both with and without Alternative 2. The results of the hydraulic analysis indicate that water depths and, correspondingly, total shear in the Santa Clara River would not increase significantly due to the originally proposed project. Based on PACE HEC-RAS and HEC-RMS modeling of the 100-year storm event, project-related infrastructure would result in 52 locations of increased water surface elevation exceeding one foot, and no decreased water surface elevation locations in the Santa Clara River. No impacts to water surface elevation would be realized upstream or downstream of the project site (PACE, 2007). The additional riparian vegetation area subject to inundation would not be changed during the two-year flood event, but would be reduced by approximately 0.3, 2.6, 80.2. 131.5, 137.1, and 225.1 acres as a result of Alternative 2 during the five-, 10-, 20-, 50-, 100-year, and capital flood (discharge resulting from a hypothetical four-day storm with a 50-year return period falling on a saturated watershed with debris from a wildfire) events, respectively (PACE, 2008A). Figures 4.2-9 and 4.2-10 in the Final EIS/EIR show the area of inundation and velocity distribution for the 10- and 100-year flow events for both existing conditions and Alternative 2. As shown in these figures, the decrease in inundated area (by percentage and acreage) would primarily affect areas of currently disturbed, agricultural land. Accordingly, impacts to riparian habitat would be limited such that water flow depths, velocities, and total shear for all return events would not be significantly different in riparian habitat between existing and proposed conditions in the project area.

Sikand Engineering also characterized the hydrology of the river in two technical reports (Sikand, 2000a, 2000b); the results of the two Sikand studies were summarized in the RAA. The Sikand reports estimated that the maximum extent of impacts were limited to a point about four miles downstream of the Specific Plan site in Ventura County. Sikand found that after a certain distance downstream of the Los Angeles County/Ventura County line, the predicted increases in peak flows in the Santa Clara River dissipates. This downstream distance varies by return frequency, with the change in the 2-year peak flow dissipating approximately 2.1 miles downstream and the change in the 100-year peak flow attenuating to pre-project conditions at approximately 3.2 miles downstream of the Los Angeles County/Ventura County line.

Since there would not be a significant change in flow depths or total shear in existing riparian habitat, the direct and indirect/secondary impacts to the amount and pattern of aquatic, wetland, and riparian habitats in the Santa Clara River would be less than significant. The HARC analysis indicates that, overall, Alternative 2 would result in substantial changes to the hydrologic function of the tributaries with net losses observed for the source water and hydroperiod

and net gains observed for the floodplain connection, surface water persistence, and flood prone area metrics. In total, Alternative 2 would result in a net loss of 19.98 hydrology AW-score units but a net gain of 35.68 total HARC AW-score units within the tributaries. Absent mitigation, the decrease in HARC AW-score units may be the result of an increase in the frequency and magnitude of scouring of riparian vegetation which, absent mitigation, would be a significant impact. Accordingly, the impacts of Alternative 2 to the riparian habitat of the tributaries are considered significant prior to mitigation, but less than significant under Significance Criterion 4 in the Final EIS/EIR through implementation of Mitigation Measures SW-2, SW-3, SW-5, BIO-1, BIO-2, BIO-6, and BIO-7.

Alternatives 3 through 7 and Modified Alternative 3 would have similar direct and indirect/secondary impacts to aquatic habitat, but would be reduced, in some cases substantially, when compared to Alternative 2. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins varying from 41.6 acres to 20.3 acres. In addition, with Alternatives 3 through 7 and Modified Alternative 3, changes to HARC-AW scores would vary from +56.9 to +434.3 when compared to Alternative 2. During the proposed construction activities, there would be short-term adverse impacts to aquatic habitat in the project area. All the alternatives would incorporate minimization measures including restoring temporary impact areas to pre-project contours and revegetating the areas with native species. All restored waters of the United States would be monitored for at least five years as described in the attached Final Mitigation Plan. The proposed placement of compacted fill material and construction of storm drains/debris basins could result in increased turbidity, changes in water quality parameters and impacts to channel substrate. To minimize potential direct and indirect/secondary impacts to water quality, the six build alternatives would include standard best management practices and a SWPPP during all work in and adjacent to waters of the United States. With the construction of the proposed flood control facilities and the associated development, there could be long-term adverse changes in the hydrologic regime, erosion and accretion patterns and drainage patterns in the project area, as well as immediately downstream of the proposed flood control structures. The proposed drainage plan, which includes substantial on-site infiltration and retention of storm flows, would reduce direct and indirect/secondary impacts to drainage patterns in the Santa Clara River and the tributary drainages. The proposed maintenance of the debris/detention basins would also result in minor temporary construction impacts to waters of the United States. With the inclusion of the above mitigation measures, Alternatives 3 through 7 and Modified Alternative 3 would have less than significant direct and indirect/secondary impacts to habitat for fish and other aquatic organisms in the Santa Clara River and tributary drainages.

The revised project description for Modified Alternative 3 includes additional measures to further reduce direct and indirect/secondary impacts to waters of

the United States. These project design features would include additional avoidance of approximately 19 acres of waters of the United States in Potrero Canyon, a revised design for low impact development features that would increase infiltration and retention of storm flows and a revised design for ungrouted boulder rock grade control structures and road crossings with soft-bottom, clear span arch culverts in Potrero Canyon. The project area supports a total of approximately 660 acres of waters of the United States of which 47.9 acres would be permanently affected and 35.3 acres would be temporarily affected with Modified Alternative 3 (approximately 87% avoidance of all impacts to waters of the United States). To avoid and minimize impacts to waters of the United States, Modified Alternative 3 would avoid permanent impacts to approximately 612 acres of waters of the United States (approximately 92% avoidance of the waters of the United States in the project area). Avoidance areas would include the entire Salt Creek watershed, two wetland areas in Potrero Canyon and approximately 99% of the waters of the United States in the Santa Clara River, resulting in the preservation of the majority of the aquatic resources that exhibit the highest physical and biological functions in the project area.

To further minimize and mitigate for less than significant impacts to floodplain areas, a restrictive covenant for floodplain protection would be recorded on approximately 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent floodplain area in the Santa Clara River immediately downstream of the project area. Furthermore, to maintain existing functions and services in the preserved and compensatory mitigation jurisdictional features and adjacent upland areas shown on Figure 12 of the Newhall Ranch Project Description dated 11 August 2011, no new drilling, mining, exploring and operating, storing in, and removing of oil, minerals, natural gas and other hydrocarbons would occur through the surface of the above areas or the upper 500 feet of the subsurface and no new or additional surface entry associated with the above activities would occur at the surface. In addition, suitable erosion control best management practices (BMPs) would be installed between any existing oil wells and waters of the United States and the BMPs would be required to be maintained in good working condition until the existing wells were abandoned and remediated. To compensate for permanent impacts to 47.9 acres of waters of the United States that supports aquatic and riparian habitat, Modified Alternative 3 would enhance, rehabilitate and establish approximately 114.04 acres of waters of the United States, including 35.2 acres of wetlands, and preserve substantial adjacent upland habitat areas in the project area, as described in the Final Mitigation Plan. The compensatory mitigation program would be conducted on-site, with the majority of the sites being located in and adjacent to the 612 acres of preserved jurisdictional features in the project area. Appropriate legal restrictions would be placed on these mitigation sites to ensure long-term protection and maintenance for these aquatic/riparian resources. With the inclusion of the above mitigation measures, Modified Alternative 3 would result in no net loss of functions and services in the Santa Clara River and the tributary drainages.

For detailed information concerning the direct and indirect/secondary impacts to waters of the United States that would be associated with the various project alternatives as well as the associated mitigation measure to reduce impacts, please reference to Section 4.6 of the Final EIS/EIR.

(X) wildlife habitat (breeding, cover, food, travel, general): Because non-aquatic species typically do not occur within waters of the United States, impacts on such species would generally be limited to indirect effects associated with the construction and maintenance of the structures associated with the originally proposed project (Alternative 2). Alternative 2 would result in direct and indirect/secondary impacts to non-aquatic biological resources, including sensitive terrestrial plants and wildlife, sensitive upland vegetation communities, and wildlife movement corridors. Alternative 2 would also have impacts on habitat for sensitive non-aquatic plants and wildlife. For two species, the San Fernando Valley spineflower and San Emigdio blue butterfly, the Final EIS/EIR determined that impacts under Alternative 2 would be significant and unavoidable. With respect to the spineflower, this determination was made because Alternative 2 would permanently affect a relatively large proportion of occupied habitat on the site (31.4 percent) for this highly endemic species. Impacts on San Emigdio blue butterfly were deemed significant and unavoidable because, under Alternative 2, the proposed infrastructure and flood control facilities in lower Potrero Canyon would fragment the butterfly population west of the Potrero Reserve Area, whereas the other project alternatives would avoid fragmenting this population.

Protocol surveys have not documented the coastal California gnatcatcher in the proposed project area, but the species has been observed twice in the project vicinity during the course of biological monitoring for other projects. Specifically, gnatcatchers were observed in October 2007 in the Valencia Commerce Center (VCC) planning area and in August 2008 at the Del Valle Training Center Road located south of the town of Val Verde. Due to the timing (late summer/fall) and limited number of sightings, the birds observed in both instances are believed to have been dispersing or transient individuals, perhaps from isolated populations of California gnatcatchers that have been periodically observed to the east of the project site.

Alternative 2 would permanently disturb approximately 1,351 acres of suitable habitat for the coastal California gnatcatcher. There are 13.2 acres of suitable habitat identified within Corps' jurisdiction on the project site. Temporary impacts under Alternative 2 would be limited to two acres in waters of the United States. Regarding impacts to individuals, California gnatcatcher is a relatively mobile species that is expected to occasionally occur on site during dispersal, so it is unlikely that project-related construction activities would result in the loss of individual adults. However, if the California gnatcatcher were to nest in the project area in the future, and if construction/grading activities took place during the nesting season, implementation of the proposed development under any of the alternatives could adversely impact nests and/or young gnatcatchers. Potential indirect/secondary impacts to California gnatcatcher

include short-term construction-related effects and long-term development-related effects. These potential impacts on dispersing or transient individuals would be relatively minor, but could be more substantial if the species were to establish territories and breed on site in the future. These potential indirect/secondary impacts are briefly identified here and are analyzed in detail in Subsection 4.5.5.3 of the Final EIS/EIR. Short-term construction impacts could include exposure to construction-related dust, noise, ground vibration, and nighttime lighting. Potential long-term development-related indirect/secondary impacts include habitat fragmentation; habitat degradation from frequent wildfires; increased disturbance from human activity; nighttime lighting; harassment by humans and pet cats and dogs; harassment from stray and feral cats and dogs and other mesopredators; loss of food sources and secondary poisoning from pesticides; and predation of nestlings by Argentine ants along the open space-development interface.

Annual plant surveys conducted from 2002 through 2007 indicate that the number of individual San Fernando Valley spineflower plants in the project site (*i.e.*, Airport Mesa, Grapevine Mesa, Potrero, and San Martinez Grande) varies considerably from year to year (see Final EIS/EIR, Table 4.5-57). Potential impacts to this species are, therefore, evaluated in terms of loss of cumulative area occupied by spineflower mapped between 2002 and 2007 rather than number of individuals. The cumulative spineflower occurrence data show 17.6 acres occupied by spineflower within the project area (*i.e.*, the maximum occupied polygon boundaries; see Final EIS/EIR, Table 4.5-58). Under Alternative 2, the proposed development and infrastructure would result in the permanent loss of 6.4 acres (31.4 percent) of spineflower cumulative occurrence area. The Final EIS/EIR determined that this impact was significant and unavoidable, as it could not feasibly be mitigated to a less-than-significant level. Indirect/secondary short-term construction-related impacts and long-term development-related impacts to spineflower could occur. These include hydrologic alterations and water quality impacts; accidental clearing, trampling, and grading; runoff, sedimentation, erosion and chemical and toxic compound pollution; exposure to fugitive dust; the introduction of non-native, invasive plant and animal species; increased human activity and trampling and soil compaction; and increased risk of fire.

Surveys for San Emigdio blue butterfly were conducted in the project area in 2004 and 2005. In 2004 the butterfly was documented within the project area at the west-central edge of Potrero Canyon. During the 2005 survey, five adult San Emigdio blue butterflies were again observed at this location and one individual was also observed in the High Country SMA at the northwestern edge of Salt Creek. This butterfly usually is associated with its primary host plant, the four-wing saltbush (*Atriplex canescens*), but has also been observed in association with quail brush (*A. lentiformis*) in the project area. Vegetation clearing under the originally proposed project would remove quail brush plants associated with the San Emigdio blue butterfly colony that occurs west of and outside the Potrero Preserve Area. In addition, this colony would be permanently bisected by the

proposed facilities in lower Potrero Canyon. The proposed vegetation clearing and construction activities would result in the loss of San Emigdio blue butterfly adults, eggs, and/or larvae occurring on quail brush plants. Quail brush plants would also be removed from other portions of the project area, but these areas were not found to support the San Emigdio blue butterfly during the 2004 and 2005 surveys. Short-term construction-related and long-term development-related indirect/secondary impacts to the San Emigdio blue butterfly colony could result from implementation of Alternative 2. Short-term construction-related indirect/secondary impacts include vegetation clearing, trampling, exposure to fugitive dust, contact with polluted runoff, and changes in hydrology. Long-term indirect/secondary impacts include intrusion by non-native species, human disturbance, increased fire frequency, isolation of the San Emigdio blue butterfly colony, and use of the proposed road in Potrero Canyon.

The Final EIS/EIR for the project evaluated the direct and indirect/secondary effects of the originally proposed project (Alternative 2) and alternatives on wildlife movement at three different spatial scales: (1) wildlife landscape habitat linkages; (2) local wildlife corridors; and (3) location-specific wildlife crossings. As part of the analysis, wildlife species were assigned to different guilds based on their similar abilities to move across the landscape, with the assumption that different guilds would interact differently with the habitat linkages, corridors, and crossings. At the largest spatial scale, the Final EIS/EIR concluded that impacts to wildlife landscape habitat linkages would be adverse but not significant under any of the alternatives. This conclusion is based on the fact that the three main wildlife landscape habitat linkages on site (the High Country SMA, River Corridor SMA, and Salt Creek area) would remain intact and functional following implementation of the proposed project. On an intermediate scale, the Final EIS/EIR evaluated impacts on 17 local wildlife corridors within the project site, each of which is associated with one or more tributary drainage connecting the Santa Clara River to the adjacent uplands on site. The analysis concluded that under Alternative 2, four of the wildlife corridors in the project area would be completely eliminated, three would become dead-ends for wildlife, and six would be constrained by surrounding development, but would provide at least limited wildlife movement function. The remaining four corridors would remain fully functional after implementation of Alternative 2.

At the smallest spatial scale, the Final EIS/EIR evaluated whether the various proposed infrastructure components, such as specific bridges and culverts, might serve as wildlife crossings. Allowing north-south movement of wildlife across SR-126 was an objective, as this roadway represents the most substantial existing obstacle to wildlife movement on site. The Final EIS/EIR concluded that the proposed bridges would not preclude use of the Santa Clara River corridor as a wildlife undercrossing, and that the proposed culverts beneath SR-126 would be sufficiently open to allow wildlife use. For more information regarding the direct and indirect/secondary effects of Alternative 2 on wildlife movement, please refer to Section 4.5 of the Final EIS/EIR.

Alternatives 3 through 7 and Modified Alternative 3 would have similar direct and indirect/secondary impacts to wildlife habitat in and adjacent to waters of the United States as well as upland areas, but would be reduced, in some cases substantially, when compared to Alternative 2. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins varying from 41.6 acres to 20.3 acres. During the proposed construction activities in and adjacent to waters of the United States, wildlife would be disturbed by increased noise levels in the project area. As a result, there would be short-term adverse impacts to wildlife associated with the ongoing construction activities. In addition, there would be increased human activity and noise in the project area from the proposed development project. All the build alternatives, including Modified Alternative 3, would reduce the overall biological diversity of the site by permanently altering various habitats, including coastal sage scrub, grassland and oak scrub. The project alternatives would include similar avoidance and minimization measures to reduce direct and indirect/secondary impacts to wildlife habitat including project design features such as buried dank stabilization. The reduction in size and areal extent of the various alternatives would reduce the project's direct and indirect/secondary effects on wildlife habitat and general resource values in the project area when compared to Alternative 2. Direct and indirect/secondary impacts to major dispersal corridors have also been reduced through the design features of the various build alternatives. To minimize impacts to wildlife and wildlife movement through the project area to the Santa Clara River, the direct and indirect/secondary impacts and extensive mitigation measures for wildlife corridors are described in detail in Section 4.5.5.2.4 of the Final EIS/EIR. Furthermore, the reduction of impacts from the original project's footprint would preserve additional, contiguous wildlife habitat in the project area. In addition, the proposed maintenance activities in the debris/detention basins would also result in short-term minor impacts to wildlife due to construction noise and increased activity in proximity to open space areas. Overall, extensive mitigation measures to avoid and minimize direct and indirect/secondary impacts to wildlife habitat are included in Section 4.5 of the Final EIS/EIR. Based on all the above information, Alternatives 3 through 7 and Modified Alternative 3 would result in adverse, but less than significant, direct and indirect/secondary impacts to wildlife habitat in the project area.

The revised project description for Modified Alternative 3 includes additional measures to further reduce direct and indirect/secondary impacts to waters of the United States. These project design features would include additional avoidance of approximately 19 acres of waters of the United States in Potrero Canyon, a revised design for low impact development features that would increase infiltration and retention of storm flows and a revised design for ungrouted boulder rock grade control structures and road crossings with soft-bottom, clear span arch culverts in Potrero Canyon. Modified Alternative 3 would add one additional spineflower preserve to those planned under the

proposed project, increasing the acreage within the preserves from 167 acres to 227 acres (approximately 227 acres including Entrada and Valencia Commerce Center). Under this alternative, the acreage of occupied spineflower habitat protected would increase from 13.88 acres under the proposed project to 15.4 acres, while the area of impacted occupied habitat would be decreased from 6.36 acres to 4.85 acres. This alternative would result in a greater level of spineflower protection than the proposed SCP, with increased preservation of occupied habitat and less loss when compared to the proposed project. To avoid and minimize impacts to waters of the United States, Modified Alternative 3 would avoid permanent impacts to approximately 612 acres of waters of the United States (approximately 92% avoidance of the waters of the United States) and approximately 8,500 acres of upland habitat in the project area. Avoidance areas would include the entire Salt Creek watershed, two wetland areas in Potrero Canyon and approximately 99% of the waters of the United States in the Santa Clara River, resulting in the preservation of the majority of the aquatic resources that exhibit the highest physical and biological functions in the project area.

To further minimize and mitigate for less than significant impacts to floodplain areas, a restrictive covenant for floodplain protection would be recorded on approximately 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent floodplain area in the Santa Clara River immediately downstream of the project area. Furthermore, to maintain existing functions and services in the preserved and compensatory mitigation jurisdictional features and adjacent upland areas shown on Figure 12 of the Newhall Ranch Project Description dated 11 August 2011, no new drilling, mining, exploring and operating, storing in, and removing of oil, minerals, natural gas and other hydrocarbons would occur through the surface of the above areas or the upper 500 feet of the subsurface and no new or additional surface entry associated with the above activities would occur at the surface. In addition, suitable erosion control best management practices (BMPs) would be installed between any existing oil wells and waters of the United States and the BMPs would be required to be maintained in good working condition until the existing wells were abandoned and remediated. To compensate for permanent impacts to 47.9 acres of waters of the United States that supports aquatic and riparian habitat, Modified Alternative 3 would enhance, rehabilitate and establish approximately 114.04 acres of waters of the United States, including 35.2 acres of wetlands, and preserve substantial adjacent upland habitat areas in the project area, as described in the Final Mitigation Plan. The compensatory mitigation program would be conducted on-site, with the majority of the sites being located in and adjacent to the 612 acres of preserved jurisdictional features in the project area. Appropriate legal restrictions would be placed on these mitigation sites to ensure long-term protection and maintenance for these aquatic/riparian resources. With the inclusion of the above mitigation measures, Modified Alternative 3 would result in no net loss of functions and services in the Santa Clara River and the tributary drainages.

For detailed information concerning the direct and indirect/secondary impacts to wildlife habitat that would be associated with the various project alternatives as well as the mitigation measures to reduce impacts, please reference Section 4.5 of the Final EIS/EIR.

(X) endangered or threatened species: Several federally listed threatened or endangered species are known to be present in the project area. The unarmored threespine stickleback (*Gasterosteus aculeatus* ssp. *williamsoni*) occurs in portions of the Santa Clara River mainstem where suitable backwater refuge habitat (*i.e.*, zero to two fps flow) is available. Based on the lack of suitable habitat and existing blockages, the unarmored threespine stickleback does not occur in tributaries to the Santa Clara River in the project area. Alternative 2 would permanently impact 15.1 acres waters of the United States in the Santa Clara River, with the project alternatives permanently impacting 11.3 to 3.5 acres in the Santa Clara River. Alternative 2 could result in permanent physical changes to the Santa Clara River corridor and surrounding watershed, including changes in hydrology and fluvial process. Such impacts could affect habitat suitable for unarmored threespine stickleback. Impacts to individuals and indirect/secondary impacts could also occur absent mitigation. These potential direct and indirect/secondary impacts are described in detail in Subsection 4.5.5.3 of the Final EIS/EIR**.** The ENTRIX report further indicates that the alteration of the stream hydrology would not result in significant impacts related to stickleback access to floodplain refugia during flood events, since the general morphology of the Santa Clara River, adjacent rearing habitat, and high-flow floodplain refugia would not be substantially altered. This is illustrated on the Final EIS/EIR Figures 4.5-61a and 4.5-61b, which indicate stream flow areas with less than two fps during the 20- and 100-year flood events, respectively (see entire set of graphics in ENTRIX 2009 report, Appendix 4.5 to the Final EIS/EIR). Maintenance activities associated with the proposed bridges and bank protection in and adjacent to waters of the United States could result in short-term adverse impacts to stickleback, but would be minimized through the implementation of standard mitigation measures such as pre-project surveys and isolating the maintenance area with nets. Most of the tributaries to the Santa Clara River do not support perennial flows, and none has surface water connectivity with the river, except for Middle and Potrero Canyons, which have substantial blockages (bedrock headcuts or cascades) that are impassable to fish (ENTRIX 2009). For these reasons, stickleback are absent from the tributaries to the Santa Clara River, and would not be affected by the proposed modifications of those tributaries.

Within the Santa Clara River drainage, southern steelhead historically inhabited Piru Creek, Sespe Creek, Santa Paula Creek, Hopper Creek, and possibly Pole Creek (Titus *et al.* n.d.). Presently, southern steelhead (*Oncorhynchus mykiss*) occurs in the Santa Clara River watershed in Piru Creek between the confluence with the Santa Clara River and Santa Felicia Dam, in Sespe Creek, in Santa Paula Creek, and possibly Hopper and Pole Creeks (Stoeker and Kelly 2005). There is no historic record of steelhead use of the Santa Clara River or tributaries upstream of Piru Creek and the Dry Gap approximately five miles downstream

of the project area. Based on information in Section 4.5 of the Final EIS/EIR, steelhead and designated critical habitat for this species is not present in the project area. Alternative 2 would permanently impact 15.1 acres waters of the United States in the Santa Clara River, with the project alternatives permanently impacting 11.3 to 3.5 acres in the Santa Clara River. Following build-out of Alternative 2 potential physical changes to the Santa Clara River include long-term hydrologic, geomorphic, or water quality alterations of the river. To address potential downstream effects to floodplain areas, Sikand Engineering characterized the hydrology of the river in two technical reports that were completed in 2000. The Sikand reports estimated that the maximum extent of indirect/secondary impacts to hydrology and associated floodplain areas were limited to a point about four miles downstream of the Specific Plan site in Ventura County. Sikand found that after a certain distance downstream of the Los Angeles County/Ventura County line, the predicted increases in peak flows in the Santa Clara River dissipates. This downstream distance varies by return frequency, with the change in the 2-year peak flow dissipating approximately 2.1 miles downstream and the change in the 100-year peak flow attenuating to pre-project conditions at approximately 3.2 miles downstream of the Los Angeles County/Ventura County line. Therefore, indirect/secondary effects to downstream floodplain areas and would be less than significant.

The Flood Hydraulics Impacts Assessment (PACE 2009) found that there would be minor changes to water flows, velocities, depth, sedimentation, or floodplain and channel conditions downstream of the project area over the long term as a result of the proposed project improvements. For example, under Alternative 2, the proposed development area would not appreciably alter the existing sediment transport regime (less than a 0.25 percent decrease in average annual sediment supply/delivery to the Santa Clara River). Therefore channel morphology and substrate composition conditions downstream that support steelhead migration in Ventura County would not be affected. These hydraulic effects were also found to be insufficient to alter the amount, location, and nature of aquatic and riparian habitats within the project area and downstream into Ventura County. The PACE study determined that the Santa Clara River would still retain sufficient width to allow natural fluvial processes to continue. As a result, the mosaic of habitats in downstream portions of the river that support various special status fish species would be maintained. Because steelhead has not been recorded in the project area and the above hydrogeomorphic analysis shows that downstream designated critical habitat would exhibit minimal changes, the Corps determined that the proposed project and alternatives would not affect the southern steelhead or downstream designated critical habitat for this species.

The least Bell's vireo (*Vireo bellii pusillus*), in the form of breeding pairs, territorial males, and/or nests, has been observed almost every year along the Santa Clara River within the project area and adjacent to riparian scrub habitat at Castaic Junction, but with yearly fluctuations in level of occupancy and breeding activity. Each of the alternatives, including Alternative 2, would have permanent

and temporary impacts on suitable least Bell's vireo riparian nesting/foraging habitat, and on "foraging only" habitat adjacent to nesting habitat. Specifically, Alternative 2 would permanently disturb approximately 28.1 acres of suitable habitat for least Bell's vireo within the Corps' jurisdiction. Of these, 25.6 acres would be nesting/foraging habitat and 2.6 acres would be adjacent foraging only habitat. Alternative 2 would also temporarily disturb 8.1 acres of vireo nesting/foraging habitat and only 0.1 acre of foraging habitat within Corps jurisdiction. The various project alternatives would result in similar or reduced permanent and temporary impacts to suitable least Bell's vireo riparian nesting/foraging habitat in waters of the United States. Potential indirect/secondary effects to least Bell's vireo for the originally proposed project and alternatives include short-term construction-related impact, short-term impacts associated with future maintenance activities and long-term post-development impacts. These potential indirect/secondary effects are briefly identified here and analyzed in detail in Subsection 4.5.5.3, of the Final EIS/EIR. All of the impacts indicated above occur within designated least Bell's vireo critical habitat containing primary constituent elements (PCEs). Therefore, approximately 25.5 acres of nesting/foraging habitat would be permanently lost with the construction of the proposed project. To mitigate permanent loss of nesting/foraging habitat multiple mitigation measures would be implemented as documented in Section 4.5 and 4.6 of the Final EIS/EIR.

Willow flycatchers have been observed in the project area during migration. The southwestern willow flycatcher subspecies (*Empidonax traillii extimus*) has not been known to nest in the project area. However, recent nesting in the Santa Clara River has been documented near Fillmore, downstream of the project site. Two breeding pairs were observed in 2006 by J. Gallo, with one nest producing two successful fledglings and the other failing (Root 2008). Therefore, impacts to potential southwestern willow flycatcher riparian nesting/foraging habitat were analyzed. Suitable habitat for the southwestern willow flycatcher would be permanently impacted and temporarily impacted under Alternative 2. Under Alternative 2, approximately 28.1 acres of suitable habitat for southwestern willow flycatcher within Corps jurisdiction would be permanently impacted due to implementation of Alternative 2, and an additional 8.1 acres would be temporarily impacted. The various project alternatives would result in similar or reduced permanent and temporary impacts to suitable southwestern willow flycatcher riparian nesting/foraging habitat in waters of the United States. The originally proposed project is not likely to cause the loss of individual adult southwestern willow flycatchers, as the species is relatively mobile. However, if the southwestern willow flycatcher were to nest within the project site in the future, and if construction/grading activities were to take place during the nesting season, the originally proposed project and alternatives could adversely impact nests and young birds. Potential indirect/secondary impacts to southwestern willow flycatcher for the originally proposed project (Alternative 2) and alternatives include short-term construction-related effects, effects associated with future maintenance activities and long-term post-development effects. As documented in Section 4.5.5.3 of the Final EIS/EIR, the nature of these

direct and indirect/secondary impacts and associated mitigation measures would be similar to those affecting the least Bell's vireo, described above.

Arroyo toad (*Bufo californicus*) adults and subadults have not been detected within the project site during protocol surveys. However, during surveys conducted in 2000, Aquatic Consulting Services found arroyo toad tadpoles in the Santa Clara River upstream and downstream of the proposed Commerce Center Drive Bridge site and near the Valencia WRP. This analysis assumes that arroyo toads could occur in suitable habitat within the Santa Clara River floodplain and adjacent upland areas. Suitable arroyo toad habitat was assigned to three categories. "Category 1" habitats are defined as habitats that are capable of supporting all life history phases. In the project area, Category 1 habitat falls primarily within the 100-year floodplain of the Santa Clara River. "Category 2" habitats may support some phases of the arroyo toad's life history, such as foraging and aestivation/hibernation, but do not generally support adequate hydrology for breeding. "Category 3" habitats are missing two or more elements, especially where the hydrologic regime is absent, and thus would be limited to supporting aestivation/hibernation, dispersal, and foraging, but less frequently than Category 2 habitats. Category 3 habitat primarily includes upland areas, including agriculture, outside the Santa Clara River floodplain. For a more detailed discussion of these habitat suitability categories, please refer to Subsection 4.5.5.3 of the Final EIS/EIR. Each of the alternatives, including Alternative 2, would have permanent and temporary impacts on all three categories of arroyo toad habitat. Within Corps jurisdiction, Alternative 2 would permanently affect 14.3 acres of Category 1 habitat, 0.9 acres of Category 2 habitat, and 9.0 acres of Category 3 habitat, for a total of approximately 24.2 acres within Corps jurisdiction. Alternative 2 would also result in temporary impacts to 17 acres of Category 1 habitat, 0.3 acres of Category 2 habitat, and 1.2 acres of Category 3 habitat, for a total of approximately 18.4 acres within Corps jurisdiction. With respect to impacts on arroyo toad individuals, these effects are not expected to be significant under Alternative 2, as the species is generally not present at the project site. Although the project area supports suitable habitat for the arroyo toad, only a few tadpoles and no adult or subadult arroyo toads have been observed during multiple surveys conducted over the last fifteen years. Potential indirect/secondary impacts to arroyo toad under Alternative 2 include short-term construction-related effects, impacts associated with future maintenance activities and long-term development-related effects. These potential direct and indirect/secondary impacts are briefly identified here and are analyzed in detail in Subsection 4.5.5.3 of the Final EIS/EIR. Potential short-term construction-related impacts include ground vibration; dispersion of sediments and pollutants; chemical pollution; increased turbidity; excessive sedimentation; flow interruptions; changes in water temperature; fugitive dust; and trash. Long term effects could include invasion of the on-site habitat by exotic plants (*e.g.*, giant reed, tamarisk, and pampas grass) and wildlife species (*e.g.*, Argentine ants, bullfrogs, African clawed frogs, exotic fish, and crayfish). To mitigate for direct and indirect/secondary impacts to arroyo toad multiple mitigation measures would be implemented as documented in Section 4.5 and

4.6 of the Final EIS/EIR.

As documented in Section 4.5.5.3 of the Final EIS/EIR, the California red-legged frog (*Rana aurora draytonii*) has not been observed in the project site, and conditions generally do not support suitable breeding habitat. While there are no records of California red-legged frog from the site in the numerous wildlife surveys conducted since 1992, the species is known in the area surrounding the project site from verified records upstream and downstream of the project area. The project site is within the potential distribution of the California red-legged frog along the Santa Clara River. Therefore, potential impacts on this species are evaluated in this alternatives analysis. Alternative 2 would permanently disturb approximately 24.2 acres, and temporarily disturb 18.4 acres, of the 329.98 acres of suitable habitat for red-legged frog within Corps jurisdiction on the project site. The potential for impacts to individual red-legged frogs is considered very low, due to the lack of evidence that the species is present on site. However, should California red-legged frog adults, subadults, tadpoles, or egg masses be present within the disturbance footprint, these activities could result in injury or mortality of California red-legged frog individuals due to direct contact with construction equipment, entombment in burrows, and disturbances to aquatic breeding sites that could disturb egg masses and tadpoles. Under Alternative 2, potential indirect/secondary impacts to California red-legged frog, were it to occur in the project area, include short-term construction-related effects, effects associated with future maintenance activities and long-term development-related effects. These potential indirect/secondary impacts would be similar to those affecting the arroyo toad, discussed above. In the Final Biological Opinion, the USFWS determined that because the red-legged frog has not been observed in the project area and with the general lack of suitable habitat, the originally proposed project and alternatives would not adversely affect the red-legged frog.

Protocol surveys have not documented the coastal California gnatcatcher (*Polioptila californica californica)* in the project area, but the species has been observed twice in the project vicinity during the course of biological monitoring for other projects. Specifically, gnatcatchers were observed in October 2007 in the Valencia Commerce Center (VCC) planning area and in August 2008 at the Del Valle Training Center Road located south of the town of Val Verde. Due to the timing (late summer/fall) and limited number of sightings, the birds observed in both instances are believed to have been dispersing or transient individuals, perhaps from isolated populations of California gnatcatchers that have been periodically observed to the east of the project site.

Alternative 2 would permanently disturb 1,351 acres of suitable habitat for the California gnatcatcher. There are approximately 13.2 acres of suitable habitat identified within Corps jurisdiction on the project site. Under Alternative 2, temporary impacts in Corps jurisdiction would be limited to approximately two acres. Regarding impacts to individuals, coastal California gnatcatcher is a relatively mobile species that is expected to occasionally occur on site during dispersal, so it is unlikely that project-related construction activities would result in the loss of individual adults. However, if the coastal California gnatcatcher

were to nest in the project area in the future, and if construction/grading activities took place during the nesting season, implementation of Alternative 2 could adversely impact nests and/or young gnatcatchers. For Alternative 2, potential indirect/secondary impacts to California gnatcatcher include short-term construction-related effects, impacts associated with future maintenance activities and long-term development-related effects. These potential impacts on dispersing or transient individuals would be relatively minor, but could be more substantial if the species were to establish territories and breed on site in the future. These potential indirect/secondary impacts are briefly identified here and are analyzed in detail in Subsection 4.5.5.3 of the Final EIS/EIR. Short-term impacts could include exposure to construction-related dust, noise, ground vibration, and nighttime lighting. Potential long-term development-related indirect/secondary impacts include habitat fragmentation; habitat degradation from frequent wildfires; increased disturbance from human activity; nighttime lighting; harassment by humans and pet cats and dogs; harassment from stray and feral cats and dogs and other mesopredators; loss of food sources and secondary poisoning from pesticides; and predation of nestlings by Argentine ants along the open space-development interface.

Alternative 2 could impact the California condor (*Gymnogyps californianus*) because two occupied critical habitat areas (Tejon Ranch and the Sespe-Piru Condor areas) are within several miles of the project site. As a result, it is likely that the condors may use the airspace above the project site for movement. In addition, this species is highly mobile and has been documented to use the project area for foraging, but not for nesting (based on information in Section 4.5.5.3 of the Final EIS/EIR the project area is not suitable for condor nesting due to the lack of necessary topographic elements). Because of the mobility of the species, it is very unlikely that any California condors would be killed or injured by equipment during the proposed construction activities. However, long-term indirect/secondary impacts associated with the proposed development would include presence of phone towers, power lines and utility poles, which could increase the potential for collisions and increased microtrash within residential and commercial areas, potentially causing sickness or mortality.

For detailed information concerning the direct and indirect/secondary impacts to endangered and threatened species, as well as the proposed mitigation measures, that would be associated with Alternative 2, please reference Section 4.5 and 4.6 of the Final EIS/EIR.

Alternatives 3 through 7 and Modified Alternative 3 would have similar direct and indirect/secondary impacts to endangered and threatened species, but would be reduced, in some cases substantially, when compared to Alternative 2. With the project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins varying from 41.6 acres to 20.3 acres. As a result of the reduced impacts to waters of the United States, Alternatives 3 through 7 and Modified Alternative 3 would have reduced impacts to endangered and threatened species

in aquatic and associated riparian habitat areas, including the unarmored threespine stickleback, arroyo toad, red-legged frog, least Bell's vireo and southwestern willow flycatcher. For the coastal California gnatcatcher and California Condor, which are not as closely associated with aquatic areas, Alternatives 3 through 7 and Modified Alternative 3 would also have similar or reduced impacts to these species when compared to Alternative 2. All the build alternatives would include avoidance and minimization measures to reduce impacts to aquatic habitat including project design features such as buried bank stabilization to reduce direct and indirect impacts to aquatic areas that support endangered species habitat. The proposed minimization measures would also include restoring temporary impact areas to pre-project contours and revegetating the areas with native species. All restored waters of the United States would be monitored for at least five years as described in the attached Final Mitigation Plan. Based on the above information and with the inclusion of all mitigation measures, Alternatives 3 through 7 and Modified Alternative 3 would result in less than significant direct and indirect/secondary impacts to endangered species in the Santa Clara River and the tributary drainages.

The revised project description for Modified Alternative 3 includes additional measures to further reduce direct and indirect/secondary impacts to waters of the United States. These project design features would include additional avoidance of approximately 19 acres of waters of the United States in Potrero Canyon, a revised design for low impact development features that would increase infiltration and retention of storm flows and a revised design for ungrouted boulder rock grade control structures and road crossings with soft-bottom, clear span arch culverts in Potrero Canyon. To avoid and minimize direct and indirect/secondary impacts to waters of the United States, Modified Alternative 3 would avoid permanent impacts to approximately 612 acres of waters of the United States (approximately 92% avoidance of the waters of the United States in the project area). Avoidance areas would include the entire Salt Creek watershed, two wetland areas in Potrero Canyon and approximately 99% of the waters of the United States in the Santa Clara River, resulting in avoidance and preservation of almost all of the jurisdictional areas that support habitat for the red-legged frog, least Bell's vireo, southwestern willow flycatcher, arroyo toad and the unarmored threespine stickleback.

To further minimize and mitigate for less than significant impacts to floodplain areas, a restrictive covenant for floodplain protection would be recorded on approximately 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent floodplain area in the Santa Clara River immediately downstream of the project area. Furthermore, to maintain existing functions and services in the preserved and compensatory mitigation jurisdictional features and adjacent upland areas shown on Figure 12 of the Newhall Ranch Project Description dated 11 August 2011, no new drilling, mining, exploring and operating, storing in, and removing of oil, minerals, natural gas and other hydrocarbons would occur through the surface of the above areas or the upper 500 feet of the subsurface and no new or additional

surface entry associated with the above activities would occur at the surface. In addition, suitable erosion control best management practices (BMPs) would be installed between any existing oil wells and waters of the United States and the BMPs would be required to be maintained in good working condition until the existing wells were abandoned and remediated. To compensate for permanent impacts to 47.9 acres of waters of the United States that supports aquatic and riparian habitat, Modified Alternative 3 would enhance, rehabilitate and/or establish approximately 114.04 acres of waters of the United States, including 35.2 acres of wetlands in the project area, as described in the Final Mitigation Plan. The compensatory mitigation program would be conducted on-site and the majority of the mitigation areas would be located in and adjacent to the 612 acres of preserved jurisdictional features in the project area. Appropriate legal restrictions would be placed on these mitigation sites to ensure that no future development would occur within these aquatic/riparian resources. With the inclusion of the above mitigation measures, Modified Alternative 3 would result in no net loss of functions and services in the Santa Clara River and the tributary drainages.

For detailed information concerning the direct and indirect/secondary impacts to endangered and threatened species, as well as the proposed mitigation measures, that would be associated with the various project alternatives, please reference Section 4.5 and 4.6 of the Final EIS/EIR.

For purposes of Endangered Species Act (ESA) compliance, the Corps determined the originally proposed project and alternatives may affect several federally listed endangered species, including least Bell's vireo (*Vireo bellii pusillus*), unarmored threespine stickleback (*Gasterosteus aculeatus* ssp. *williamsoni*), arroyo toad (*Bufo californicus*), southwestern willow flycatcher (*Empidonax traillii extimus*), California red-legged frog (*Rana aurora draytonii*), California condor (*Gymnogyps californianus*), and coastal California gnatcatcher (*Polioptila californica californica*). The Corps also determined the originally proposed project and alternatives may affect designated critical habitat for the above species. In addition, the Corps determined the originally proposed project and alternatives may affect vernal pool fairy shrimp (*Branchinecta lynchi*) and Riverside fairy shrimp (*Streptocephalus wootoni*), but is not likely to adversely affect these two species. Based on the above determinations, on February 26, 2008 the Corps initiated formal consultation under Section 7 of the ESA with the U.S. Fish and Wildlife Service (USFWS). As part of the formal consultation submittal, the Corps provided the required biological assessment to describe impacts to the above endangered and threatened species as well as their designated critical habitat. In their letter dated November 12, 2008, the USFWS requested additional information for some of the above species and concurred with the Corps' determination that the originally proposed project and alternatives are not likely to adversely affect vernal pool fairy shrimp (*Branchinecta lynchi*) and Riverside fairy shrimp (*Streptocephalus wootoni*). In a letter dated July 24, 2009, the USFWS indicated that they had received sufficient information to prepare a biological opinion (Log Number 8-8-09-F-44). The

USFWS completed a Final Biological Opinion on June 6, 2011, which concluded that the above effects associated with Modified Alternative 3 would not jeopardize the continued existence of the above endangered species and would not adversely modified any designated critical habitat (as documented above in the Final Biological Opinion the USFWS determined that because the red-legged frog has not been observed in the project area and, with the general lack of suitable habitat, the originally proposed project and alternatives were not adversely affect the red-legged frog).

(X) biological availability of possible contaminants in dredged or fill material, considering hydrography in relation to known or anticipated sources of contaminants; results of previous testing of material from the vicinity of the project; known significant sources of persistent pesticides from land runoff or percolation; spill records for petroleum products or designated (Section 311 of the CWA) hazardous substances; other public records of significant introduction of contaminants from industries, municipalities or other sources: The direct and indirect/secondary impacts associated with the originally proposed project (Alternative 2) and the various project alternatives related to hazards and hazardous materials were evaluated in Section 4.17 of the Final EIS/EIR based on existing and proposed land uses within the project area and the potential to expose sensitive receptors, including residents and construction workers, as well as the surrounding environment, to hazards or hazardous materials during construction activities and after development/redevelopment in this area.

There are three oil and natural gas fields in the project area: the Newhall-Potrero Oil Field discovered in 1937, the Del Valle Oil Field discovered in 1979, and the Castaic Junction Oil Field discovered in 1950. The Newhall-Potrero Oil Field is currently operated by Vintage Production California LLC, a subsidiary of Occidental Petroleum Corp.; the Castaic Junction Oil Field, which already has been abandoned and remediated, was previously operated by Exxon Company, USA. The Del Valle Oil Field is also within the project site, and portions of this field are operated by LBTH and Vintage Production California LLC. In addition, pesticides were historically used and stored on the project site are listed in Table 4.17-3 of the Final EIS/EIR and some agricultural uses are likely to continue on the site as development takes place. As described in Subsection 4.17.4.2 of the Final EIS/EIR, multiple site assessment investigations have been conducted on the project site. Based on the results of those investigations, approximately 135 acres of development would occur under Alternative 2 within areas affected by past oil production activities. With the extensive testing and required remediation, the potential for the placement of contaminated material in waters of the United States would be very low. For all the build alternatives, including Modified Alternative 3, the direct and indirect/secondary impacts would be similar to Alternative 2, but slightly reduced. For detailed information concerning the direct and indirect/secondary impacts of the originally proposed project and all alternatives to hazards and hazardous materials, please reference Section 4.17 of the Final EIS/EIR.

(X) Municipal And Private Water Supplies: The originally proposed project (Alternative 2) and alternatives would not involve any activities that would render municipal or public water supplies unfit for consumption. The WRP associated with Alternative 2 and the build alternatives would be designed to comply with applicable NPDES requirements, ensuring that downstream water quality would not be permanently impaired. In addition, to confirm full and complete compliance with the chloride TMDL, the first two phases of the development would include interim chloride reduction treatment at the Valencia Water Reclamation Plant (WRP). This project design feature involves chloride treatment of the effluent amount originating from Newhall Ranch (up to 6,000 units) at the Valencia WRP during the operation period of the 2002 Interconnection Agreement. The result of the above is that the effluent discharged to the Santa Clara River through the permitted Valencia WRP outfall would result in discharge equivalent to 100 mg/L chloride (or other applicable standard). As a result, the quantity and quality of water passing through the project site within the Santa Clara River and tributaries would not be affected by the originally proposed project or alternatives. For detailed information concerning the direct and indirect/secondary impacts of the originally proposed project and all alternatives to water supplies, please reference Section 4.3 of the Final EIS/EIR.

(X) Recreational and Commercial Fisheries: The originally proposed project (Alternative 2) and alternatives would not have any direct or indirect/secondary impacts upon recreational or commercial fisheries on the site as it is private land, where such use of the site is not authorized. Potential direct and indirect/secondary effects upon hydrologic function and water quality would be mitigated to comply with applicable standards such that build-out of the originally proposed project or alternatives would not affect recreational or commercial fishing downstream of the project area.

(X) Water-Related Recreation: As stated in the previous section, the site is on private land, where recreational use of the site is not authorized. Further, the originally proposed project (Alternative 2) and alternatives would not cause off-site impacts to water quality or hydrologic function that would adversely affect water-related recreation upstream and downstream of the project area.

(X) Aesthetics: With the originally proposed project (Alternative 2), of the 660.1 acres of waters of the United States within the project area, Alternative 2 would permanently impact 93.3 acres of aquatic and riparian habitat, or approximately 14.1 percent of waters of the United States on site. Temporary impacts to channel substrate would occur in approximately 33.3 acres of jurisdictional areas, where necessary to allow construction and maintenance of the proposed project facilities. Build-out of Alternative 2 would permanently alter the visual character of the project area as a whole, primarily due to the construction of major development that would be visible to viewers traveling along I-5 and SR-126 (see Section 4.15 of the Final EIS/EIR). However, visual impacts of the activities proposed within Corps jurisdiction would largely be confined to bridges, grade control structures, storm drain outlets, and similar

facilities. These proposed facilities would contrast with existing natural stream banks, but are not expected to result in significant adverse impacts to the aesthetic values of the jurisdictional areas overall. Proposed bank stabilization activities would cause a substantial change in the appearance of jurisdictional areas during construction, but because the stabilization would be buried and revegetated, these impacts would be temporary. In addition, Alternative 2 would include substantial on-site establishment and restoration of aquatic and riparian habitat, which will replace lost functions and services; and the activities would take place in the context of a master-planned community, which would be designed to integrate the resources with the community. Therefore, Alternative 2 would not cause significant adverse impacts to aesthetic values of waters of the United States. For detailed information concerning the direct and indirect/secondary impacts of the Alternative 2 to aesthetics, please reference Section 4.15 of the Final EIS/EIR.

Alternatives 3 through 7 and Modified Alternative 3 would have similar direct and indirect/secondary impacts to aesthetics, but would be reduced, in some cases substantially, when compared to Alternative 2. With the various project alternatives permanent impacts to waters of the United States would vary from approximately 73 acres to 13 acres, with temporary impacts for the construction and maintenance of bridges, bank stabilization and debris and detention basins varying from 41.6 acres to 20.3 acres. All the build alternatives would include avoidance and minimization measures to reduce impacts to aquatic habitat including project design features to reduce direct and indirect/secondary impacts. The proposed minimization measures would also include restoring temporary impact areas to pre-project contours and revegetating the areas with native species. All restored waters of the United States would be monitored for at least five years as described in the attached Final Mitigation Plan. Extensive mitigation measures to avoid and minimize direct and indirect/secondary impacts to aesthetics are included in Section 4.15 of the Final EIS/EIR. Based on the above information, Alternatives 3 through 7 and modified Alternative 3 would result in less than significant direct and indirect/secondary impacts to aesthetics in the Santa Clara River and the tributary drainages.

The revised project description for Modified Alternative 3 includes additional measures to further reduce direct and indirect/secondary impacts to waters of the United States. These project design features would include additional avoidance of approximately 19 acres of waters of the United States in Potrero Canyon, a revised design for low impact development features that would increase infiltration and retention of storm flows and a revised design for ungrouted boulder rock grade control structures and road crossings with soft-bottom, clear span arch culverts in Potrero Canyon. To avoid and minimize impacts to waters of the United States, Modified Alternative 3 would avoid permanent impacts to approximately 612 acres of waters of the United States (approximately 92% avoidance of the waters of the United States in the project area). Avoidance areas would include the entire Salt Creek watershed, two wetland areas in Potrero Canyon and approximately 99% of the waters of the

United States in the Santa Clara River, resulting in the preservation of the majority of the aquatic resources that exhibit the highest physical and biological functions in the project area.

To further minimize and mitigate for less than significant impacts to floodplain areas, a restrictive covenant for floodplain protection would be recorded on approximately 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent floodplain area in the Santa Clara River immediately downstream of the project area. Furthermore, to maintain existing functions and services in the preserved and compensatory mitigation jurisdictional features and adjacent upland areas shown on Figure 12 of the Newhall Ranch Project Description dated 11 August 2011, no new drilling, mining, exploring and operating, storing in, and removing of oil, minerals, natural gas and other hydrocarbons would occur through the surface of the above areas or the upper 500 feet of the subsurface and no new or additional surface entry associated with the above activities would occur at the surface. In addition, suitable erosion control best management practices (BMPs) would be installed between any existing oil wells and waters of the United States and the BMPs would be required to be maintained in good working condition until the existing wells were abandoned and remediated. To compensate for permanent impacts to 47.9 acres of waters of the United States that supports aquatic and riparian habitat, Modified Alternative 3 would enhance, rehabilitate and/or establish approximately 114.04 acres of waters of the United States, including 35.2 acres of wetlands, in the project area, as described in the Final Mitigation Plan. The compensatory mitigation program would be conducted on-site, with the majority of the sites being located in and adjacent to the 612 acres of preserved jurisdictional features in the project area. Appropriate legal restrictions would be placed on these mitigation sites to ensure that no future development would occur within these aquatic/riparian resources. With the inclusion of the above mitigation measures, Modified Alternative 3 would result in no net loss of functions and services in the Santa Clara River and the tributary drainages.

For detailed information concerning the direct and indirect/secondary impacts to aesthetics that would be associated with the various project alternatives, please reference Section 4.15 of the Final EIS/EIR.

(X) Parks, National And Historical Monuments, National Seashores, Wilderness Areas, Research Sites, And Similar Preserves: The originally proposed project (Alternative 2) and alternatives would not impact parks, national and historical monuments, national seashores, wilderness areas, research sites, or similar preserves, as the project site is privately owned and does not contain any such designated features.

V. Summary of indirect/secondary and cumulative effects

Indirect/secondary impacts have been analyzed in the above sections (III and IV). The following section is based on the detailed cumulative impact analysis presented in

Section 6.0 of the Final EIS/EIR for the originally proposed project (Alternative 2) and alternatives.

In the upper Santa Clara River watershed, the first Spanish ranches were established in the 1830's and included both sheep and cattle. Small farms and orchards began developing as early as the 1860's and included the production of wheat, corn, barley, oranges, apples, pears, walnuts and olives. Gold was discovered in Placerita Canyon in the late 1840's and oil was discovered in both Pico Canyon and Placerita Canyon in 1865. In 1876, the Southern Pacific Railroad (Lang Station) was completed, facilitating increased access to the upper Santa Clara River watershed. Population growth in the Santa Clarita area exhibits substantial increases, especially over the last fifty years. In 1940, the population in Santa Clarita was approximately 4,000 people, increasing to 6,950 in 1950, 12,350 in 1960, 46,800 in 1970, 66,700 in 1980, 110,600 in 1990 and approximately 153,000 in 2000. The estimated current population for the entire Santa Clarita area, including unincorporated county areas, is approximately 200,000. Much of the early residential development involved the conversion of existing agricultural areas to housing. In 1960, urban areas in Santa Clarita occupied 1,890 acres with 7,410 acres in agricultural production. By 1970, urban areas had increased to 3,830 acres while agricultural land declined to approximately 5,610 acres. Based on the above information, scattered areas in the upper Santa Clara River watershed have been disturbed for over 100 years by ongoing oil production, mining, ranching and agricultural production, with urban development over the last fifty years being focused in the Santa Clarita area.

Between 1988 and 2006, the Corps issued an average of approximately 12.6 CWA section 404 permits per year within the Santa Clara River watershed. (See revised Figure 6.0-2 and Figure 6.0-3 and Appendix 6.0 of the Final EIS/EIR.) In general, the acreages of waters of the United States affected by activities authorized under CWA section 404 permits in a given year were related to the number of permits authorized that year. The data for 1998 and 2005 (years in which major El Niño events occurred), showed peaks in the number of authorizations granted, and a corresponding trend with respect to acreages of jurisdictional areas impacted. This is likely due to the fact that substantial flood events necessitate the need for repairs and maintenance of existing facilities, and may also underscore the general need to construct additional flood and erosion facilities for protection against future disasters.

Of the 228 permits issued by the Corps under CWA section 404 in the Santa Clara River watershed between 1988 and 2006, more were associated with emergency repairs and maintenance than any other type of activity. Combined, the permits issued for emergency repairs and maintenance of existing facilities accounted for a combined 25 percent of the total permits issued (16 percent were emergency repairs, nine percent maintenance). Flood protection activities, including bank protection, riprap, rock groin, and culver/levee improvements, accounted for 25 percent of the total permits issued. Another 17 percent of the permits issued were associated with residential development. Unknown activities (largely from older permits with minimal available data) comprised 15 percent of the permits. The remaining 18 percent include bridges, channel alterations, sediment removal, storm drains, and other projects. (See Figure 6.0-4 in the Final EIS/EIR). Table 6.0-7 in the Final EIS/EIR summarizes federal biological opinions

issued in the Santa Clara River watershed between 1993 and 2006 as they relate to the species that are the most likely to be reviewed by the USFWS as part of the species-related determinations and/or authorizations that are being sought as part of the proposed project approval process. A total of 25 USFWS biological opinions were reviewed. One of those opinions was not incorporated because it did not affect any species of primary concern. Three opinions were combined into one project because they concern the same request.

In total, the Corps authorized approximately 149 acres of permanent impacts and 480 acres of temporary impacts to waters of the United States between 1988 and 2006.[3] This included 15 acres of permanent impacts to wetlands. The amount of permanent fill (including fill of wetlands and non-wetland waters of the United States) authorized per year (combining all permits) averaged 6.4 acres per year between 1988 and 1997, and 9.5 acres per year between 1998 and 2006. A graph showing acres of impact authorized per year, as well as mitigation acreage, is presented in Figure 6.0-12 of the Final EIS/EIR.[4] A line expressing the cumulative "running total" effect on waters of the United States (defined as the acreage of waters created through mitigation minus the acreage of waters permanently impacted) for the period between 1988 and 2006 is also shown, and illustrates that the acreage of compensatory mitigation required by CWA section 404 permits exceeded the acreage of waters impacted during that period. The distribution of permanent impacts authorized by the Corps over time can best be described as a punctuated equilibrium. During most years the permanent impact acreage was fairly low, although certain years (1998 and 2005, in particular) showed higher impact acreages authorized. This increase in impact acreages is likely due to the increase in activities following large storm events, which occurred in both 1998 and 2005.

Past and present land-use changes that have potentially impacted the fluvial geomorphology of the lower Santa Clara River include the introduction of ranching (and exotic grass species) and the growth in watershed population that has occurred since the 1940s. Much of the associated urban growth, which is estimated to cover over 59,000 acres, has occurred along the main-stem River Corridor. (See Table 6.0-6 in the Final EIS/EIR.) Based on current public lands ownership and currently zoned open space, approximately 733,526 acres (71 percent) of the Santa Clara River watershed is open space. (Dudek, 2008: Table 1 and Figure 3.) As shown in Table 6.0-17 in the Final EIS/EIR, seven of the cumulative projects or groups of projects would have significant or potentially significant impacts prior to mitigation, and all other impacts would be less than significant or the significance criteria were not analyzed in the corresponding environmental documents. Increase in the urban extent is frequently associated with a suite of changes to watershed hydrology and geomorphology, focused particularly in the increased frequency of moderate flood events. However, these impacts should be taken in context when considered within the lower Santa Clara River. First, geomorphic

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[3] Note that temporary impacts, due to their nature, do not result in a cumulative change in the acreage of waters, but this information is provided for context.

[4] Note: Permits issued are ascribed to the year of application.

activity is concentrated into very large magnitude flood events (*i.e.*, "re-set" events). Specifically, due to the "flashy", flood event-dominated nature of the Santa Clara River watershed, geomorphologic response to human influences may not be progressive, but is more likely to be episodic, with channel morphology responding primarily to larger flood events. Further, detecting the relative effects of human impacts on natural flood events and morphological response may be difficult, since relatively infrequent large flood events appear to exert the greatest influence on morphological change in the Santa Clara River. For example, in humid watersheds, urbanization can affect channel morphology by increasing the occurrence of moderate flood events. This increase is due to the prevalence of impermeable ground surfaces in urban areas, which produce more runoff in a shorter amount of time in comparison to native land cover. In larger (*i.e.*, less frequent), flood events when natural ground surfaces are typically saturated and thus runoff rates would be very similar to impervious surfaces, the effect of the urban surfaces is substantially diminished. However, because the Santa Clara River watershed is large, and has a flood frequency dominated by large flood events, the effect of moderate magnitude events on channel morphology is likely to be less significant (Stillwater Sciences, 2005). Therefore, it is unclear whether increasing the frequency of intermediate floods from the upper watershed will have a substantial influence on the downstream channel morphology. Second, past, present and reasonably foreseeable urban expansion is currently focused in the Santa Clarita region of the upper watershed and may have less impact in the lower watershed due to the influence of incoming creeks (*e.g.*, Piru Creek, Santa Paula Creek and Sespe Creek) on the morphology and riparian vegetation of the lower river channel (Stillwater Sciences, 2005).

As documented in the Balance Hydrologics technical appendix, in 2005 approximately 4% of the Santa Clara River watershed supported urbanization with impervious surfaces, with past, present and reasonably foreseeable future development resulting in approximately 9% of the watershed supporting impervious surfaces associated with urbanization (as documented in Section 6.0 of the Final EIS/EIR (Cumulative Impacts) reasonably foreseeable development would include all planned and approved projects as designated by both Los Angeles County and the City of Santa Clarita). With Alternative 2, the Newhall Ranch RMDP would include residential and commercial development on approximately 2,850 acres and, including manufactured slopes and other modified areas, a total of approximately 4,800 acres out of 12,000 acres in the project area could be considered urbanized impervious surfaces. In consideration of the large watershed area, Alternative 2 would increase urban impervious surface area by approximately 1%, resulting in approximately 5% of the watershed being affected by development. In consideration of the relatively limited amount of urban development in this relatively large watershed as well as their analysis of the Newhall reach of the Santa Clara River, Balance Hydrologics determined that "given that channel morphology of the Santa Clara River mainstem has not adjusted significantly to much larger perturbations in flow, sediment yield and riparian vegetation growth factors, within the Newhall reach, we do not expect a significant geomorphic impact to the Santa Clara River mainstem due to the anticipated increase in "urban area" from four to nine percent." In addition, as documented by Balance Hydrologics, past studies of fluvial systems have indicated that relatively large watersheds, such as the Santa Clara River watershed, typically require higher percentages of impervious surfaces (approximately

10%, although the percentage will vary depending on the physical characteristics of the given watershed) to initiate urban-induced hydrogeomorphic change, while smaller watershed, typically less than 25 square miles in size, can begin to exhibit changes in channel morphology and riparian vegetation with impervious surfaces occupying only 2-3 percent of the watershed.

Historic changes in the geomorphology of the Santa Clara River have been driven by large flood events, and the proposed project, in conjunction with past, present, and reasonably foreseeable future projects, do not substantially alter the magnitude of such large flood events. There are no significant cumulative erosion, downstream deposition, and geomorphic function impacts in the Santa Clara River main-stem, and therefore, the originally proposed project will not result in a cumulatively considerable contribution to significant cumulative impacts under Criteria 1-3 in the Final EIS/EIR. Because most of the tributary drainages and associated watersheds within the project area are included within the site, off-site projects would not combine with Alternative 2's impacts within these tributaries; and, therefore, no cumulative effects would occur (Criteria 1-6 in the Final EIS/EIR).

Although generally the environmental documents for the identified cumulative development projects have not analyzed geomorphic effects on the same scale as the analysis for Alternative 2 (see Table 6.0-17 in the Final EIS/EIR), based on a review of available information regarding these projects, the incremental effects of Alternative 2 on the geomorphology of the Santa Clara River (Criteria 1-3, 5-6 in the Final EIS/EIR) and Newhall area tributaries (Criteria 1-6 in the Final EIS/EIR) are not significant when viewed in connection with the effects of other past, present, and foreseeable future projects. Alternative 2's contributions to impacts under Criteria 4 and 7 are reduced to less than cumulatively considerable with the proposed mitigation measures in Sections 4.2, 4.5 and 4.6 of the Final EIS/EIR.

Development on the proposed project, Entrada, and Valencia Commerce Center (VCC) project sites would comply with applicable regulatory requirements for both construction and post-development surface runoff water quality, which ensures that project-related development would not result in significant water quality impacts. These regulatory requirements include PDFs; Municipal Separate Storm Sewer System (MS4) Permit and Standard Urban Stormwater Plans (SUSMP) requirements; Construction General Permit requirements; General Dewatering Permit requirements; and benchmark Basin Plan water quality objectives, California Toxics Rule (CTR) criteria, and Total Maximum Daily Loads (TMDLs) issued by the Los Angeles RWQCB and Los Angeles County. Any future urban development occurring in the Santa Clara River watershed must also comply with these requirements. Therefore, cumulative impacts on surface water quality of receiving waters from Alternative 2 and future urban development in the Santa Clara watershed would be addressed through compliance with the applicable regulatory requirements that are intended to be protective of beneficial uses of the receiving waters. In addition, WQ-1 sets a minimum BMP approach required for the SUSMP and WQ-2 sets a minimum required approach for a Landscape and Integrated Pest Management Plan. Based on compliance with these regulatory mitigation requirements, cumulative water quality impacts related to stormwater and non-stormwater runoff would be less than significant, and the originally proposed project's

contribution would be less than cumulatively considerable. Other cumulative projects will be required to comply with federal, state, and local water quality regulations, including implementation of BMPs and PDFs to minimize and mitigate each project's potential water quality impacts. In addition, the Newhall Ranch WRP, like the existing Saugus and Valencia WRPs, is required to comply with the terms of its NPDES permit and WDRs, which would ensure that the Newhall Ranch WRP's contribution to cumulative impacts is rendered less than cumulatively considerable. Because each cumulative project will be subject to this rigorous regulatory regime, cumulative water quality impacts are considered to be less than significant, following mitigation.

Impacts would be cumulatively considerable, absent mitigation, for a majority of other biological resources, including: vegetation communities other than coastal scrub; common wildlife as a whole; most of the federally- and state-listed threatened and endangered and all California Fully Protected species; wildlife habitat linkages, corridors, and crossings; most California Species of Special Concern; many California Special Animals, Watch List species, Specially Protected Mammals, and CDFG Trust Resources; and three special-status plants. The mitigation measures required by the Newhall Ranch Specific Plan Program EIR and mitigation measures recommended by the Final EIS/EIR (Subsection 4.5.6**,** Mitigation Measures) would reduce the cumulative impacts of the proposed project to these resources to a level less than significant. To offset loss vegetation communities and habitat for species, these mitigation measures generally include the dedication and maintenance of existing natural lands in the Open Area, River Corridor Special Management Area (SMA), High Country SMA, and Salt Creek area, totaling approximately 10,000 acres. For riparian resources, these measures include replacing the functions and services of riparian communities that may be lost through construction. For both wildlife and plant species, mitigation includes measures to control for long-term indirect/secondary effects, including controls on public access to dedicated open space areas; controls on pet, stray, and feral cats and dogs; termination of grazing activities (except for the purpose of resource management); controls on invasive plant and animal species (including Argentine ants, brown-headed cowbirds, bullfrogs, African clawed frogs, and crayfish); controls on pesticides (including rodenticides); controls on hydrological alterations and water quality; and controls on nighttime lighting; fencing and signage; homeowner education about sensitive resources; and design of aboveground utilities (phone and cell towers, power lines, and utility poles) in the High Country SMA and Salt Creek area to reduce collisions and electrocutions of raptors.

It was determined that Alternative 2's contribution, in combination with past, present and reasonably foreseeable projects, to potential significant cumulative impacts at the watershed level would not be cumulatively considerable for most special-status biological resources, including southern steelhead and several special-status plants. In addition, it was determined that significant cumulative impacts to a majority of wildlife and plant species at the watershed level would not occur. Although the originally proposed project's contribution would not be cumulatively considerable in these cases, the mitigation measures described above would reduce on site impacts to these resources.

In summary, although Alternative 2 would include significant impacts to some biological resources absent mitigation, the mitigation measures required by the Newhall Ranch Specific Plan Program EIR and the recommended project specific mitigation measures proposed in Section 4.5, Biological Resources (see Subsection 4.5.6, Mitigation Measures), of the Final EIS/EIR would avoid, substantially lessen, or mitigate these impacts to below a level of significance. However, Alternative 2, in combination with other past, present and reasonably foreseeable projects within the Santa Clara River watershed, would result in significant cumulative impacts to three biological resources. Despite project-specific mitigation, Alternative 2 would result in a cumulatively considerable contribution to significant impacts on the coastal scrub community, the San Emigdio butterfly, and the San Fernando spineflower that cannot be avoided, substantially lessened, or mitigated to below a level of significance. Under all other alternatives, including Modified Alternative 3, the cumulative impacts to the San Emigdio butterfly and the San Fernando spineflower would be less than significant, with mitigation.

Although Alternative 2 and the build alternatives, including Modified Alternative 3, would include cumulative impacts to waters of the United States absent mitigation, the project-specific mitigation measures proposed in Section 4.6, Jurisdictional Waters and Streams, of the Final EIS/EIR would mitigate these impacts to a less-than-significant level. After incorporation of the project-specific mitigation measures identified in the Final EIS/EIR and the attached Final Mitigation Plan, Alternative 2 and all the build alternatives, in consideration of past, present and reasonably foreseeable actions, would not result in a cumulatively considerable contribution to any impact on jurisdictional waters, and cumulative impacts would be less than significant with the inclusion of the proposed mitigation measures.

VI. Findings

A. Evaluation of Compliance with 404(b)(1) guidelines (restrictions on discharge, 40 CFR 230.10). (A check in a block denoted by an asterisk indicates that the project does not comply with the guidelines.)

1) Alternatives Test

☐ Yes ☒ No

a) Based on the Section 404(b)(1) alternatives analysis, below, are there available, practicable alternatives having less adverse impact on the aquatic ecosystem and without other significant adverse environmental consequences that do not involve discharges into "waters of the United States" or at other locations within these waters?

Discussion: Initially a wide range of on-site and off-site alternatives was examined. Based on comments received during the scoping process, comments from resource agencies at various meetings during the planning process, and in response to comments received during the circulation of the Draft and Final

EIS/EIR, the Corps and CDFG developed and evaluated the various project alternatives to avoid and minimize impacts to aquatic resources in the project area. In addition to the originally proposed project (Alternative 2), alternatives considered for analysis in the Final EIS/EIR included the No Action/No Project alternative, Alternatives 3 through 7, and Modified Alternative 3. The No Federal Action Alternative (Total Avoidance Alternative or Alternative 8) has also been included in this analysis as well as specific project design features to avoid and minimize impacts to special aquatic sites and stream reaches in the project area, all of which are described below as well as in the applicant prepared Section 404(b)(1) Alternatives Analysis.

Subsequent to the circulation of the Final EIS/EIR for public review, the Corps conducted additional independent review of the cost information utilized in the applicant-prepared Section 404(b)(1) analysis of less environmentally damaging alternatives. During the independent review, the Corps directed the applicant to review and verify all cost calculations, which identified some minor mistakes with some of the calculations for the cost per net developable acre associated with the various alternatives, which have been corrected in this Final Section 404(b)(1) Alternatives Analysis (the majority of the mistakes resulted in a change of less than tenth of percent to the cost per net developable acre). In addition, in the Draft 404(b)(1) Alternatives Analysis a 93-acre upland development area in southwestern Potrero Canyon that is part of the originally proposed project (Alternative 2) was not included in any of the other less damaging alternatives and the removal of the 93-acre development area was not associated with increased avoidance of impacts to aquatic or upland habitat area. As a result of this 93-acre difference in development area between Alternative 2 and the other alternatives, the cost per net developable acre for the less damaging alternatives was augmented by approximately 1.4 percent when compared to Alternative 2, which has been corrected in this Final Section 404(b)(1) Alternatives Analysis (for the purposes of the Final Section 404(b)(1), the 93-acre development area was removed from the originally proposed project (referred to as Alternative 2a in the applicant's revised cost estimates) to ensure an equitable comparison with all the less damaging project alternatives). In addition, with the removal of the 93-acre development area, the cost per net developable acre for the originally proposed project increased from approximately $1,038,000 to $1,052,018 (total development area reduced from approximately 2,957 acres to 2,864.2 acres as well as a reduction in the total cost from approximately $3,069,918,000 to $3,013,189,367). Based on the above and, in consideration of the

Corps' additional independent review of the cost information, the cost per net developable acre for the various project alternatives in this Final Section 404(b)(1) Alternatives have been updated when compared to the preliminary cost estimates presented in the Draft 404(b)(1) Alternatives Analysis (due to the relatively small changes in the estimates, the above updates to the cost per net developable acre for the project alternatives did not modify any of the preliminary conclusions regarding the practicability of Alternatives 2, 3, 4, 5, 6, 7 and 8).

Alternative 1: The No Action/No Project alternative would not include any new activities in the project area and, as a result, the existing agriculture and oil production would continue. The No Action/No Project Alterative would not meet any of the basic objectives of the Specific Plan and therefore, would not meet the overall project purpose.

Alternative 2: Alternative 2 is the originally proposed project and is described in detail in the above sections. Of the 660.1 acres of waters of the United States within the project area, the proposed project would permanently fill 93.3 acres, or approximately 14.1 percent of waters of the United States on site. Of the 660.1 acres of waters of the United States, approximately 276.9 acres are jurisdictional wetlands with Alternative 2 permanently filling approximately 20.5 acres of wetlands. In total, the originally proposed project would result in temporary discharges of fill material in approximately 33.3 acres of waters of the United States, including 11.2 acres of wetlands, in the Santa Clara River and its tributaries (Alternative 2 would avoid all impacts to approximately 88.6% of the total wetland area). These temporary impacts would be associated with construction zones adjacent to proposed facilities, which would be restored and revegetated following completion of construction. With the originally proposed project, approximately 533.5 acres of waters of the United States would be completely avoided (approximately 80% of the jurisdictional areas).

In order to help determine what magnitude of costs would be typical for a project of this type, the applicant commissioned a comparison of similar development projects from Developers Research, an economic consultant (see the applicant-prepared Section 404(b)(1) Alternatives Analysis). The project type is a master-planned community. These communities are found throughout California and other parts of the country. As shown in the Comparison of Master Planned Communities (Developers Research 2010 - Comparison Report), the location, size and costs of these master planned communities varies substantially. Among eight comparable master-planned projects located in the

southern California region, the cost per net developable acre ranges from a low of approximately $493,889 to a high of $928,504. The median cost per net developable acre is approximately $707,784 (unweighted). Weighted to reflect the relative size of the various projects (*i.e.*, larger projects are given more weight than smaller projects in determining the average), the average cost per acre is approximately $673,114. Compared to the estimates for the above projects, the estimated cost of Alternative 2 is $1,052,018 per net developable acre, which is one of the highest observed cost per net developable acre in southern California (in the report, one relatively small 139-acre development project in Riverside County has a cost of $1,097,298 per net developable acre).

This data reflects the fact that Alternative 2 is somewhat unique in that the size and complexity of the proposed development under Alternative 2 is at the upper end of the size and complexity mix of master-planned communities. As such there is no "standard" cost that can be identified as typical. Instead, costs for master-planned communities vary based on a wide range of factors. These include the size of the project, regulatory standards of the local land use authority (fees, building standards, and other requirements) the physical setting (the terrain affects grading and infrastructure costs), the availability of infrastructure (existing sewer, water, and roads), the kind of community being built (urban, suburban, or rural) and environmental considerations (presence of sensitive environmental features). What these California projects do have in common is a reliance on the land use and environmental standards that establish the basic elements of the given master-planned community. These, in turn, establish what costs the proposed community must bear to meet applicable state and local requirements, including satisfying needs for roads, parks and schools, water, sewer, and other utilities and design, and infrastructure requirements. As such, there are common cost elements to develop the various master-planned communities.

Given these factors and the intensive land use review that led to the Specific Plan, the Section 404(b)(1) Alternatives Analysis prepared by the applicant uses the originally proposed project as the base case for evaluating costs. To put the application of increased cost per net developable acre into perspective for the Specific Plan, a twenty percent increase in cost per net developable acre over Alternative 2 is approximately $210,404 per acre, a ten percent increase in cost per net developable acre over Alternative 2 is approximately $105,202 per acre and a five percent increase in the cost per net developable acre over

Alternative 2 is approximately $52,601 If these increased costs are applied to the 2,864 acres of proposed development in Alternative 2, the cost increases would be approximately $602,595,910, $301,298,520, and $150,649,260, respectively. The substantial cost increases associated with some alternatives also must be viewed in light of the amount of additional avoidance of waters of the United States that they provide. A substantial cost increase may be reasonable if impacts also are reduced substantially, while a large increase in cost associated with a minimal reduction in impacts may not be reasonable or practicable. Because the costs associated with Alternative 2 are already at the high end of the cost spectrum, a relatively small increase of five to ten percent in the cost per net developable acre over Alternative 2 could represent a substantial increase in cost and may not be practicable (a 5% increase would represent approximately the same cost as the highest observed cost per acre for a development in the above Comparison Report provided by the applicant).

As a component of the Corps' independent review of the cost information and analysis that is utilized to support the applicant prepared Section 404(b)(1) Alternatives Analysis, the cost information in the above study was reviewed by the Corps' Cost Engineering Section. The purpose of the technical review was to ensure the cost estimates were consistently applied to each alternative and that the estimates were consistent with standard industry estimates for infrastructure associated with development projects. Based on the Cost Engineering Section memorandum dated 1 June 2011, the majority of the cost estimates utilized in the above applicant prepared Section 404(b)(1) Alternatives Analysis are reasonable and consistent with standard industry estimates for infrastructure associated with residential development projects.

Under Alternative 2, the proposed project design would result in approximately 2,864.2 acres of total development area (of the 2,864.2 acres approximately 2,457 acres would be residential development area). The originally proposed project would meet the overall project purpose and Alternative 2 would also be practicable in light of cost, logistics and technology (total development cost of approximately $3,013,189,367, which yields an average cost of $1,052,018 per net developable acre). Based on the above information, Alternative 2 would meet the overall project purpose and is considered practicable.

Alternative 3: Under Alternative 3, the proposed project design would be modified to reduce impacts to waters of the United States. Similar to Alternative 2, this alternative calls for the

construction of two bridges across the Santa Clara River with associated bank stabilization: (1) the Commerce Center Driver Bridge (already approved by the Corps and CDFG in 1999), and (2) the Long Canyon Road Bridge. The two alternatives differ, however, in that Alternative 3 eliminates the proposed bridge at Potrero Canyon Road. Under Alternative 3, major tributary drainages would be regraded and realigned; but the channels would be wider than those proposed under Alternative 2. Under Alternative 3, the cismontane alkali marsh in lower Potrero Canyon would be avoided and preserved. This alternative would facilitate similar urban development within the Specific Plan site, including 20,433 residential units and 5.48 msf of commercial/ industrial/business park floor area. The proposed configuration of infrastructure facilities and land uses that would occur under Alternative 3 is presented graphically on Figure 8-2 of the Section 404(b)(1) Alternatives Analysis prepared by the applicant. For a complete description of Alternative 3, including infrastructure proposed and urban development facilitated, please refer to Section 3.0 of the Final EIS/EIR.

Of the 660.1 acres of waters of the United States on the project site, implementation of Alternative 3 would result in the permanent fill of 70 acres of waters of the United States (approximately 11% of the total site jurisdiction and 25 percent less acreage than Alternative 2), and would temporarily disturb an additional 37.6 acres (12.9 percent more acreage than the proposed project design). These temporary impacts would be associated with construction zones adjacent to proposed facilities, which would be restored and revegetated following completion of construction. In some instances temporary impacts would also result from restoration activities, *i.e.*, when such activities require earthwork to be conducted in jurisdictional areas (stabilization of existing incised channel banks, for example). The increase in temporary impacts to waters under this alternative is due to the implementation of modified channels (temporary impacts) in areas where the project design would feature storm drains (permanent impacts). Alternative 3 would avoid 552.4 acres of waters of the United States within the project site. Of the total 660.1 acres of waters of the United States that occur on the site, Alternative 3 would avoid all impacts to approximately 83 percent, compared to 80 percent avoidance for Alternative 2. Implementation of Alternative 3 would permanently disturb 9.2 acres of wetlands (55 percent reduction in impact acreage compared to the proposed project), and would temporarily disturb 11.2 acres of wetlands (a similar impact compared to Alternative 2). The

cismontane alkali marsh wetland in lower Potrero Canyon, which would be disturbed under Alternative 2, would be avoided and preserved under this alternative. In addition, the lower reach of the Potrero Canyon channel would also be largely avoided under this alternative, with permanent impacts being limited to soil cement drop structures. In total, Alternative 3 would avoid approximately 93 percent of all wetlands on site, a 4 percent increase in wetland avoidance compared to Alternative 2. Alternative 3 would result in approximately 2,703 acres of total development area (of the 2,703 acres approximately 2,325.7 acres would be residential development area). Alternative 3 would increase the cost of the proposed project by approximately 1.4% and would be practicable in light of cost logistics and technology (total development cost of $2,884,032,000, which yields an average development cost of $1,067,172 per net developable acre). In addition, Alternative 3 would meet the basic objectives of the Specific Plan and, therefore, would also meet the overall project purpose. Based on a detailed review of Alternative 3 and the applicant-prepared Section 404(b)(1) Alternatives Analysis, it would meet the overall project purpose and is considered practicable.

Alternative 4: Under this alternative, the proposed design would be modified to reduce impacts to waters of the United States. Two bridges across the Santa Clara River and the associated bank stabilization would be constructed, including the Commerce Center Driver Bridge (already approved by the Corps and CDFG in 1999) and the Long Canyon Road Bridge. The proposed Potrero Canyon Road Bridge, however, would not be constructed under this alternative. Major tributary drainages would be regraded and realigned under this alternative. This alternative would facilitate urban development within the project site, including approximately 20,721 residential units and 5.48 msf of commercial/industrial/business park floor area. The proposed configuration of infrastructure facilities and land uses that would occur under Alternative 4 is presented graphically on Figure 8-3 in the Section 404(b)(1) Alternatives Analysis prepared by the applicant. For a complete description of Alternative 4, including infrastructure proposed and urban development facilitated, please refer to Section 3.0 of the Final EIS/EIR.

Implementation of Alternative 4 would facilitate urban development in the project site, and would result in the placement of fill within waters of the United States. In total, this alternative would permanently fill 73.3 acres of waters of the United States (21.4 percent reduction compared to Alternative 2), and would temporarily disturb an additional 33.8 acres

(approximate 1.5 percent increase compared to Alternative 2). Temporary impacts would be associated with construction zones adjacent to proposed facilities. Waters temporarily affected by this alternative would be restored and revegetated after completion of construction in the area. In some instances temporary impacts would also result from restoration activities, *i.e.*, when such activities require earthwork to be conducted in jurisdictional areas (correction of existing incised channel banks, for example). Alternative 4 would avoid 552.9 acres of waters of the United States within the project site. Of the total 660.1 acres of waters of the United States that occur on the site, Alternative 4 would avoid approximately 83 percent, compared to only 80 percent avoidance for Alternative 2. Implementation of Alternative 4 would permanently disturb 9.4 acres of wetlands (55 percent reduction in acreage compared to Alternative 2) and would temporarily disturb 11.7 acres of wetlands (similar impact to Alternative 2). The cismontane alkali marsh wetland in lower Potrero Canyon, which would be disturbed under Alternative 2, would be avoided and preserved under this alternative. In addition, the lower reach of the Potrero Canyon channel would also be largely avoided under this alternative, with permanent impacts being limited to soil cement drop structures. In total, Alternative 4 would avoid approximately 93 percent of all wetlands on site, a 4 percent increase in avoidance compared to Alternative 2. Alternative 4 would result in approximately 2,712 acres of total development area (of the 2,712 acres approximately 2,329.6 acres would be residential development area). Alternative 4 would increase the cost of the proposed development by approximately 0.9% and would be practicable in light of cost logistics and technology (total development cost of $2,878,781,396, which yields an average development cost of $1,061,498 per net developable acre). Based on a detailed review of Alternative 4 and the applicant-prepared Section 404(b)(1) Alternatives Analysis, this alternative would meet the overall project purpose and is considered practicable.

Alternative 5: Under this alternative, the project design would be modified to reduce impacts to waters of the United States. Three bridges across the Santa Clara River and the associated bank stabilization would be constructed, including the Commerce Center Driver Bridge (already approved by the Corps and CDFG in 1999) the Potrero Canyon Bridge, and the Long Canyon Road Bridge. Major tributary drainages would be regraded and realigned under this alternative, but would result in impact reductions in the Chiquito Canyon, San Martinez Grande Canyon, and Potrero Canyon drainages compared to Alternative 2. This alternative would facilitate urban

development within the project site, including 20,196 residential units and 5.42 msf of commercial/ industrial/business park floor area. The proposed configuration of infrastructure facilities and land uses that would occur under Alternative 5 is presented graphically on Figure 8-4 in the Section 404(b)(1) Alternatives Analysis prepared by the applicant. For a complete description of Alternative 5, including infrastructure proposed and urban development facilitated, please refer to Section 3.0 of the Final EIS/EIR.

Alternative 5 would result in the placement of fill within waters of the United States. In total, this alternative would permanently fill 72.4 acres of waters of the United States (22.5 percent reduction in acreage compared to Alternative 2), and would temporarily disturb an additional 41.6 acres (24.9 percent increase compared to Alternative 2). Temporary impacts would be associated with construction zones adjacent to project facilities. Waters temporarily affected by this alternative would be restored and revegetated after completion of construction in the area. In some instances temporary impacts would also result from restoration activities, *i.e.*, when such activities require earthwork to be conducted in jurisdictional areas (correction of existing incised channel banks, for example). The increase in temporarily impacts to waters is due the implementation of modified channels (temporary impacts) in areas where the project would feature storm drains (permanent impacts). Alternative 5 would avoid all impacts to 546 acres of waters of the United States within the project site. Of the total 660.1 acres of waters of the United States that occur on the site, Alternative 5 would avoid approximately 83 percent, compared to only 80 percent avoidance for Alternative 2. Implementation of Alternative 5 would permanently disturb 14.6 acres of wetlands (28.8 percent reduction in impact acreage compared to Alternative 2), and would temporarily disturb 13.5 acres of wetlands (20.5 percent increase in impact acreage compared to Alternative 2). The cismontane alkali marsh wetland in lower Potrero Canyon, which would be disturbed under Alternative 2, would be avoided and preserved under this alternative. Alternative 5 would avoid approximately 90 percent of all wetlands on site, a one percent increase compared to the proposed project. Alternative 5 would result in approximately 2,622 acres of total development area (of the 2,622 acres approximately 2,232 acres would be residential development area). With a total of 2,622 net developable acres, Alternative 5 would result in a total development cost of $2,894,539,336. This yields an average development cost of $1,103,943 per net developable acre. Alternative 5 would increase the cost per net

developable acre by approximately 4.9% and would be marginally practicable in light of cost logistics and technology. Based on a detailed review of Alternative 5 and the applicant-prepared Section 404(b)(1) Alternatives Analysis, it would meet the overall project purpose and is considered practicable.

Alternative 6: Under this alternative, the project design would be modified to reduce impacts to waters of the United States. Two bridges across the Santa Clara River and associated bank stabilization would be constructed. The proposed Potrero Canyon Road Bridge (extended span similar to Alternative 5) and the Long Canyon Road Bridge. The previously-approved Commerce Center Drive bridge would not be constructed under this alternative. Major tributary drainages would be regraded and realigned under this alternative, but the channels would be wider than under Alternative 2, and the majority of proposed road crossings along the channels would be bridges as opposed to culverts. This alternative would facilitate urban development within the project site, including 19,787 residential units and 5.33 msf of commercial and industrial/business park floor area. The proposed configuration of infrastructure facilities and land uses that would occur under Alternative 6 is presented graphically on Figure 8-5 in the Section 404(b)(1) Alternatives Analysis prepared by the applicant. For a complete description of Alternative 6, please refer to Section 3.0 of the Final EIS/EIR.

Implementation of Alternative 6 would facilitate urban development in the project site, and would result in the placement of fill material within waters of the United States. In total, this alternative would permanently fill 60.7 acres of waters of the United States (35 percent reduction in acreage compared to Alternative 2), and would temporarily disturb an additional 33.9 acres (similar impact acreage when compared to Alternative 2). Temporary impacts would be associated with construction zones adjacent to proposed project facilities. Waters of the United States temporarily affected by Alternative 6 would be restored and revegetated after completion of construction in the area. In some instances temporary impacts would also result from restoration activities, *i.e.*, when such activities require earthwork to be conducted in jurisdictional areas (correction of existing incised channel banks, for example). Alternative 6 would avoid 565.4 acres of waters of the United States within the project site. Of the total 660.1 acres of waters of the United States that occur on the site, Alternative 6 would avoid all impacts to approximately 85 percent of the waters of the United States in the project site (5 percent increase in avoidance acreage compared to Alternative 2). Implementation of Alternative 6 would

permanently disturb 9.5 acres of wetlands (53.5 percent reduction in impact acreage compared to Alternative 2), and would temporarily disturb 12.0 acres of wetlands (7 percent increase in impact acreage when compared to Alternative 2). These impacts would result primarily from bridge construction along the Santa Clara River mainstem, but this alternative would also affect the cismontane alkali marsh wetland in middle Potrero Canyon. Elimination of the planned bridge across the river at Commerce Center Drive would reduce impacts to adjacent wetlands along the Santa Clara River under this alternative. The cismontane alkali marsh wetland in lower Potrero Canyon, which would be disturbed under Alternative 2, would be avoided and preserved under this alternative. In addition, the lower reach of the Potrero Canyon channel would also be largely avoided under this alternative, with permanent impacts being limited to soil cement drop structures. In total, Alternative 6 would avoid approximately 92 percent of all wetlands on the site, a 4 percent increase in avoidance area compared to Alternative 2.

Alternative 6 would facilitate urban development within the project site, but less than Alternative 2 (approximately a 19.3 percent reduction when compared to Alternative 2). However, because this alternative would not include the bridge across the Santa Clara River at Commerce Center Drive, a substantial portion of the development reduction would occur in the easternmost portion of the project site. The configuration of developable space under Alternative 6 would result in a substantial reduction in development in one portion of the project area and, as a result, preclude the construction of a coherent village in the eastern section of the project area. Therefore, Alternative 6 would impede construction of a development composed of interrelated villages and, for this reason Alternative 6 would fail to meet the Specific Plan basic objective with regard to villages. As a result, the Corps has made a decision that Alternative 6 would not meet the overall project purpose. Including residential, commercial and industrial development, Alternative 6 would result in approximately 2,311 acres of total development area (of the 2,311 acres approximately 1,976.4 acres would be residential development area). Alternative 6 would yield a total of 2,311 net developable acres at a total development cost of approximately $2,757,365,360, which yields a substantial increase in the average development cost of $1,193,148 per net developable acre (approximately a 13.4 percent increase compared to the proposed project). In consideration of the Developers Research Technical Report, Alternative 6 is approximately $95,850 (approximately 9%) more expensive per net developable acre than the highest documented cost for any of

the other development projects identified in the report. Based on the above comparison, Alternative 6 would require a substantial increase in cost per net developable acre when compared to Alternative 2. In consideration of the relatively high cost for the proposed project that was documented in the Developers Research Report, a 13.4 percent increase in cost per net developable acre is not considered practicable.

Alternative 7: Under this alternative, the project design would be modified to reduce impacts to waters of the United States. Only one bridge would be constructed across the Santa Clara River, including associated bank stabilization, which would be constructed for the proposed Long Canyon Road. With Alternative 7, the proposed Potrero Canyon Road Bridge and the previously approved Commerce Center Drive Bridge would not be constructed. Under this alternative, major tributary drainages would not be regraded or realigned. In addition, the Middle Canyon and Magic Mountain Canyon drainages, which are proposed for conversion to buried storm drains under Alternative 2, would be avoided and preserved. This alternative would facilitate urban development within the project site, including 16,471 residential units and 3.76 msf of commercial/industrial/business park floor area. The proposed configuration of infrastructure facilities and land uses that would occur under Alternative 7 is presented graphically on Figure 8-6 in the Section 404(b)(1) Alternatives Analysis prepared by the applicant. For a complete description of Alternative 7, including infrastructure proposed and urban development facilitated, please refer to Section 3.0 of the Final EIS/EIR.

Implementation of Alternative 7 would facilitate urban development in the project site, and would result in the placement of fill material within waters of the United States. In total, this alternative would permanently fill 13.1 acres of waters of the United States (86 percent reduction in acreage compared to Alternative 2), and would temporarily disturb 20.3 acres of waters of the United States (39 percent reduction in acreage compared to Alternative 2). Temporary impacts would be associated with construction zones adjacent to project facilities. Under this alternative, discharges of fill material in riparian habitat areas would be substantially reduced compared to Alternative 2, because Alternative 7 would avoid all mapped 100-year floodplains (Santa Clara River and some major tributaries) within the project site. Waters temporarily disturbed would be restored and revegetated after completion of construction in the area. In some instances temporary impacts would also result from restoration activities, *i.e.*, when such

activities require earthwork to be conducted in jurisdictional areas (correction of existing incised channel banks, for example). Alternative 7 would avoid all impacts to 626.7 acres of waters of the United States within the project site. Of the total 660.1 acres of waters of the United States that occur on the site, Alternative 7 would avoid approximately 95 percent (15 percent increase in acreage avoided when compared to Alternative 2). Under Alternative 7, the Potrero Canyon and Long Canyon tributaries, which would be filled and reconstructed under Alternative 2, would be avoided except for bridge impacts. Further, the Middle Canyon and Magic Mountain Canyon tributaries, which would sustain substantial impacts under all other alternatives, would be avoided under Alternative 7. This alternative would also reduce impacts to the Santa Clara River mainstem by eliminating the planned bridges at Potrero Canyon Road and Commerce Center Drive. Implementation of Alternative 7 would avoid all mapped 100-year floodplains within the project site, except where proposed facilities would intercept floodplains to meet design requirements (bridges and grade control structures). This alternative would permanently disturb 3.2 acres of wetlands (84.4 percent reduction in acreage compared to Alternative 2), and would temporarily disturb 9.0 acres of wetlands (20 percent reduction in acreage compared to Alternative 2). These impacts would occur primarily due to construction of one bridge across the Santa Clara River mainstem, at Long Canyon Road. Impacts to wetlands under this alternative would be reduced through the elimination of the two planned bridges across the Santa Clara River at Commerce Center Drive and Potrero Canyon Road, and through avoidance of nearly all wetlands in Potrero Canyon. In total, Alternative 7 would avoid approximately 96 percent of all wetlands on site, a seven percent increase in avoidance when compared to Alternative 2.

Implementation of Alternative 7 would facilitate a master-planned urban development within the project site, comprising 1,596 net developable acres of residential, commercial, and industrial uses and public facilities. Compared to Alternative 2, the development facilitated under this alternative would be reduced by approximately 44.3 percent. In addition, Alternative 7 would facilitate the development of 1,352.4 acres of residential uses, a reduction of approximately 44.0 percent when compared to the proposed project. Even after incorporating feasible increases in density, Alternative 7 would allow the construction of 16,471 dwelling units, a reduction of 21 percent compared to the Alternative 2. Because the number of dwelling units available under Alternative 7 would be reduced substantially (more than 20 percent compared to the number approved in the

Specific Plan), Alternative 7 would fail to achieve the Specific Plan basic objectives for residential uses. Alternative 7 would facilitate the development of 125.4 acres of commercial uses, a reduction of 51 percent compared to Alternative 2. With feasible increases in density, such as vertical construction, this acreage would support only 3.76 msf of commercial floor space, a substantial reduction of 32 percent when compared to Alternative 2. Because the commercial floor space available under Alternative 7 would substantially reduce (more than thirty percent) the floor space that would result from build out of the Specific Plan, Alternative 7 would fail to achieve the Specific Plan basic objectives for commercial uses. Alternative 7 would yield 1,596 net developable acres at a development cost of approximately $2,538,137,239, which yields a substantial increase in the average development cost of $1,590,311 per net developable acre (51.2 percent increase compared to Alternative 2). In consideration of the Developers Research Technical Report, Alternative 7 is approximately $493,013 (approximately 45%) more expensive per net developable acre than the highest documented cost for any of the other residential development projects identified in the report. Based on the above information, Alternative 7 would not meet the overall project purpose and is not considered practicable in light of the substantial increase in cost per net developable acre.

Alternative 8 (Total Avoidance Alternative): Under Alternative 8, impacts to waters of the United States and urban development within the project site would be substantially reduced compared to Alternative 2. Implementation of Alternative 8 would facilitate a master-planned urban development within the project site, comprising 2,144.9 net developable acres of residential, commercial, and industrial uses and public facilities. Compared to Alternative 2, the development facilitated under this alternative would be reduced by approximately 25 percent. With the above changes, at least one and possibly two of the proposed villages would be disproportionately impacted by the alternative project design. As a result, Alternative 8 would not meet aspects of the overall project purpose, including several basic objectives of the Specific Plan, related to development potential and village viability. Due to this substantial reduction in net developable acres and associated development, Alternative 8 would not meet the overall project purpose with regard to net developable acreage. Implementation of Alternative 8 would facilitate urban development in the project site, but would do so in a manner that would avoid the need to place permanent or temporary fill within waters of the United States. Fill of waters would, therefore, be reduced by 100 percent compared to Alternative 2.

All 660.1 acres of waters of the United States within the project site, including all 276.9 acres of jurisdictional wetlands, would be avoided and preserved under this alternative.

Of the 2,144.9 acres of total development area, approximately 1,831.7 acres would be residential development area. Alternative 8 would facilitate urban development within the project site, but less than Alternative 2 (approximately a 12 percent reduction in dwelling units as compared to Alternative 2). Alternative 8 would include one bridge across the Santa Clara River, but would not include bridges at Commerce Center Drive and Potrero Canyon Road. As a result, a substantial portion of the development reduction would occur in the easternmost portion of the project site. The configuration of developable space under Alternative 8 would preclude the construction of a coherent village in this location. For this reason, Alternative 8 would fail to achieve the Specific Plan basic objectives for villages. Alternative 8 would yield a total of 2,144.9 net developable acres at a total development cost of approximately $2,890,933,338, which yields a substantial increase of $1,347,817 per net developable acre (28.1 percent increase compared to Alternative 2). In consideration of the Developers Research Technical Report, Alternative 8 is approximately $250,519 (approximately 23%) more expensive per net developable acre than the highest documented cost for any of the other residential development projects identified in the report. These costs would be substantially greater than Alternative 2 and, as a result, would not be practicable for a project of this type. Based on the above information, Alternative 8 would not meet the overall project purpose and is not considered practicable in light of the substantial increase in cost per net developable acre.

Modified Alternative 3 (Draft LEDPA that was identified in the Final EIS/EIR): Based on their review of the various alternatives to determine compliance with state regulations, the CDFG suggested that the Corps consider three modifications to Alternative 3 to facilitate compliance with section 1600 of the Fish and Game Code and the California Endangered Species Act (CESA), which would avoid other potential significant adverse effects under the Section 404(b)(1) Guidelines: (1) expanding the proposed spineflower preserves; (2) further avoiding and minimizing impacts to riparian resources along the Santa Clara River; and (3) modifying tributary designs to incorporate additional riparian mitigation areas. CDFG also recommended changes to the Commerce Center Bridge design and road alignment that would reduce indirect/secondary impacts to the Middle Canyon Spring complex. In addition, CDFG confirmed

that eliminating the Potrero Canyon Road bridge over the Santa Clara River under this alternative is consistent with reducing riparian habitat and wildlife impacts in the vicinity of lower Potrero Canyon and the Santa Clara River. Furthermore the practicability of additional avoidance of aquatic resources in the project area that exhibit relatively high physical and biological functions and services was also evaluated. Under this alternative, the proposed 20,885 residential units would be reduced by approximately 1,073 units to 19,812 units, and the approved 5.55 msf of commercial uses would be reduced by 140,000 square feet. In general, the overall design for this alternative is very similar to Alternative 3 described in the Final EIS/EIR, however, there would be increased avoidance along the Santa Clara River, reduced impacts to the Middle Canyon Spring complex, augmented spineflower preserve acreage and larger riparian corridors within the five major tributaries under this alternative.

Under Modified Alternative 3, two of the three bridges crossing the Santa Clara River and the associated bank stabilization would be constructed (Commerce Center Drive Bridge and the Long Canyon Road Bridge). However, the Potrero Canyon Road Bridge would not be constructed, further reducing impacts to jurisdictional waters and wetlands in the Santa Clara River and lower Potrero Canyon. In addition, the lower reach of the Potrero Canyon channel would also be largely avoided under this alternative, with permanent impacts being limited to soil cement drop structures. Two major tributary drainages (Long and Potrero canyons) would be regraded and realigned under this alternative; however, the channels would be wider than those of Alternative 2. In the three other major tributary drainages (Lion, San Martinez Grande, and Chiquito canyons), this alternative incorporates additional areas of preserved jurisdiction with limited channel grading to expand the drainage and adjacent riparian areas and realign their banks to accommodate adjoining infrastructure and development area. This alternative also includes additional spineflower preserve acreage in the Potrero, San Martinez Grande, Grapevine Mesa, and Airport Mesa preserves, however, the SCP and the related CESA incidental take permit decision is primarily within the jurisdiction of CDFG. Modified Alternative 3 would increase the acreage within the preserves from 167 acres to 227 acres. In addition, the acreage of occupied spineflower habitat protected would increase from 13.88 acres under Alternative 2 to 15.4 acres, while the area of impacted occupied habitat would be decreased from 6.36 acres to 4.85 acres.

The Final EIS/EIR evaluated a range of alternatives to the proposed project, including Alternative 3 (Elimination of Planned Potrero Bridge and Additional Spineflower Preserves), which considered the development of 21,433 dwelling units and 5.48 msf of commercial square feet on the project site. With these development characteristics, Alternative 3 is similar to the overall development characteristics of Modified Alternative 3. Modified Alternative 3 would provide 621 fewer residential units than Alternative 3 and result in a 0.07 msf reduction in commercial square footage. Under this alternative, the floodplain area for the 100-year return event would be increased by approximately 12.8 acres, resulting in a 100-year floodplain area of approximately 1,297 acres within the Santa Clara River (1,408 acres of existing 100-year floodplain in the Santa Clara River). This increase would constitute a one percent reduction in impact compared to Alternative 2. Even with this reduction, impacts under Modified Alternative 3 on surface water hydrology and flood control would be substantially similar to those of Alternative 2. Modified Alternative 3 would preserve 131,769 lf of on-site drainages, which is 54 percent of the total 242,049 lf of jurisdictional drainages on the project site. In total, Modified Alternative 3 would modify 54,001 feet of on-site tributaries; convert 56,291 lf of tributary channel to buried storm drain; install 69,913 lf of bank stabilization; and provide three bridges and 13 culvert tributary road crossings and would result in substantially similar impacts to Alternative 3. Impacts to water quality resulting from development with implementation of Modified Alternative 3 would be generally similar to the impacts identified for Alternative 2 and Alternative 3, and would be reduced to a less-than-significant level with implementation of identified project design features, regulatory requirements, and mitigation measures. In general, the direct and indirect impacts associated with Modified Alternative 3 would be substantially similar to Alternative 3, but slightly reduced. For detailed information concerning the direct and indirect impacts of the modified version of Alternative 3, please reference Section 5.0 of the Final EIS/EIR and the Section 404(b)(1) Alternatives Analysis prepared by the applicant.

Implementation of Modified Alternative 3 would result in the placement of fill material within waters of the United States. In total, this alternative would permanently fill approximately 66.3 acres of waters of the United States (29 percent reduction in acreage compared to Alternative 2), and would temporarily disturb 32.2 acres (3 percent decrease in acreage compared to Alternative 2). This alternative would avoid 561.5 acres of waters of the United States within the project site. Of the total

660.1 acres of waters of the United States that occur on the site, this alternative would avoid approximately 85 percent, compared to 80 percent avoidance for Alternative 2. Implementation of Modified Alternative 3 would permanently disturb 7.7 acres of wetlands (62 percent reduction in impact acreage compared to Alternative 2), and would temporarily disturb 11.4 acres of wetlands (2 percent decrease in impact acreage compared to Alternative 2). Under Modified Alternative 3, there would be 4.5 acres of permanent impact and 14.6 acres of temporary impact to waters of the United States in the main stem of the Santa Clara River. In all the tributaries in the project area, this alternative would result in 61.8 acres of permanent impact and 17.6 acres of temporary impact in waters of the United States. In addition, a 19-acre wetland mitigation area would be implemented in lower Potrero Canyon, contiguous with the lower mesic meadow (cismontane alkali marsh) wetland preservation area. In total, Modified Alternative 3 would avoid approximately 93 percent of all wetlands on site, a 4 percent increase in wetland avoidance compared to Alternative 2. Including residential, commercial and industrial development, the modified version of Alternative 3 would result in approximately 2,587.0 acres of total development area (of the 2,587.0 acres approximately 2,221.2 acres would be residential development area). Total development costs for the Modified Alternative 3 would be approximately $2,823,455,840, compared to $3,013,189,137 for Alternative 2, resulting in a cost per net developable acre increase of 3.7 percent ($1,091,402) when compared to Alternative 2. Based on a detailed review of Modified Alternative 3 and in consideration of information in the applicant-prepared Section 404(b)(1) Alternatives Analysis, it would meet the overall project purpose and is considered practicable.

Sub-Alternatives: As part of the required Section 404(b)(1) alternatives analysis, the Corps also evaluated the practicability of avoiding specific resource areas and reaches of tributaries in the project area. Specifically, additional analysis of potential avoidance and minimization of impacts to waters of the United States including wetlands was analyzed in the Santa Clara River for a proposed utility corridor, Chiquito Canyon, Long Canyon, San Martinez Grande, Middle Canyon and Potrero Canyon. As part of this supplemental alternatives analysis, the Corps considered the practicability of avoiding all discharges of fill material in waters of the United States in the above tributaries as well as less damaging alternative designs that would further reduce permanent and temporary impacts to waters of the United States. In considering the above alternative designs that

avoid specific resource areas or reaches of tributaries in the project area, there were multiple combinations that would result in similar reductions in developable area and increases in cost per net developable acre. To identify the least environmentally damaging practicable alternative, the Corps considered several factors for each alternative design, including requested avoidance by the resource agencies, the acreage of avoided waters of the United States, amount of wetlands avoided, and the level of functions and services in the avoided area. Using the above criteria, avoidance and minimization of impacts to waters of the United States in Potrero Canyon was identified as the highest priority, with San Martinez Grande as a second priority. Other sub-alternatives that would further avoid and minimize impacts to waters of the United States were then considered for Long Canyon, Chiquito Canyon, Middle Canyon and the Utility Corridor, respectively.

In Potrero Canyon, Modified Alternative 3 would result in permanent impacts to 21.8 acres and temporary impacts to 2.9 acres of waters of the United States, including approximately 4.5 acres of wetlands. Less damaging alternative designs would include avoiding approximately 7.7 acres of waters of the United States including 3.5 acres of wetlands in the middle reach of Potrero Canyon, limiting discharges in jurisdictional areas to only those required for drop structures (approximately 1.61 acres permanent and 0.53 acre of temporary impact to waters of the United States) and avoiding all discharges of fill material in waters of the United States in Potrero Canyon. To avoid impacts to approximately 7.7 acres of waters of the United States, including 3.5 acres of wetlands, in the middle reach of Potrero Canyon, development area would be reduced by approximately 124.7 acres when compared to a total of approximately 893 acres under Alternative 2 and would result in an increase of approximately $289,664 per net developable acre (substantial geotechnical costs associated with stabilizing development areas adjacent to the middle reach of Potrero Canyon). With discharges of fill material in jurisdictional areas limited to only drop structures, development area would be reduced by approximately 184.1 acres when compared to a total of approximately 893 acres under Alternative 2, with an increase in cost of approximately $421,776 per net developable acre. For complete avoidance of all waters of the United States in Potrero Canyon, development area would be reduced by approximately 184.1 acres resulting in a total of approximately 709 acres of development area, with an increase in cost of approximately $444,743 per net developable acre. In consideration of the Developers Research Technical Report, these alternative designs

that utilize substantial geotechnical measures to avoid impacts to waters in Potrero Canyon would be approximately 14% more expensive when compared to Alternative 2 and 9% more expensive per net developable acre than the highest documented cost for any of the other residential development projects identified in the report. In light of the relatively large reduction in the net developable acreage combined with the substantial increase in cost per net developable acre, the above alternative designs are not considered practicable. Therefore, they were eliminated from further consideration.

Based on comments on the Final EIS/EIR, modified versions of the above sub-alternatives for Potrero Canyon were developed and evaluated, including a geotechnical mitigation option referred to as the "temporary surcharge" method. This method would result in the placement of fill on the unstable soils in development areas for a specified time period, and then the fill would be removed once the soil has been compacted (*i.e.*, the weight of the soils compacts the underlying unstable soils). This sub-alternative would replace the existing designated development in the middle reach of Potrero Canyon with open space (golf course), and, would reduce costs compared to original sub-alternative because portions of the newly designated golf course area would not require the geotechnical mitigation. This sub-alternative would also increase development compared to the original sub-alternative because residential development would replace an area for the golf course use, located primarily on the east end of Potrero Canyon. Compared to the Draft LEDPA, this new sub-alternative would reduce permanent impacts to waters of the United States by approximately 7.4 acres, including 2.9 acres of special aquatic sites, and it would avoid the cismontane alkali marsh (CAM) in the middle reach of Potrero Canyon. With these alternative designs total net developable area in Potrero Canyon would be reduced by 177.8 acres, resulting in a total of approximately 716 acres of development area with a cost per net developable acre of approximately $1,165,242. Although these alternatives would reduce impacts to aquatic resources, in consideration of the Developers Research Technical Report, these alternative designs would be approximately 11% more expensive than Alternative 2 and 6% more expensive per net developable acre than the highest documented cost for any of the other residential development projects identified in the report. In light of the relatively large reduction in the net developable acreage combined with the substantial increase in cost per net developable acre, the above alternative designs are not considered practicable. Therefore, they were eliminated from

further consideration.

During coordination with USEPA subsequent to the release of the Final EIS/EIR, an additional sub-alternative was developed to avoid impacts to approximately 7.4 acres of waters of the United States, including 3.5 acres of wetlands, in the middle reach of Potrero Canyon by relocating the majority of the manufactured open area (golf course) to upland areas immediately adjacent to the existing wetland areas. With this alternative design, the amount of required geotechnical stabilization would be substantially reduced, eliminating many of the costs associated with the above sub-alternatives in Potrero Canyon. With this sub-alternative, development area would be reduced by approximately 124.6 acres when compared to Alternative 2 (10.8% reduction in the Potrero study area) and would result in an increase of approximately $54,970 per net developable acre (additional increase in cost of approximately $38 million when added to Modified Alternative 3). When the comparison is limited to the proposed development area in Potrero Canyon, the cost per net developable acre would increase by approximately $95,387 or 9.23% when compared to Alternative 2; however, in the context of the entire project area, the cost per net developable acre would increase by approximately 5.4% when compared to Alternative 2 (approximately $1,108,000 per net developable acre). Implementation of this alternative in combination with Modified Alternative 3 would result in permanent impacts to 59.8 acres of waters of the United States, including 5.2 acres of wetlands (additional avoidance of 7.4 acres of permanent impact to waters of the United States). The 5.4 percent increase in cost per net developable acre is considered practicable in light of the high cost of Alternative 2 and information from the Technical Report completed by Developers Research and would meet the overall project purpose. However, based on a detailed analysis of the sub-alternatives, the Corps has identified another practicable sub-alternative for Potrero Canyon that would result in additional avoidance and minimization of impacts to waters of the United States and, as a result, this sub-alternative does not represent the LEDPA.

As a result of coordination with USEPA, another sub-alternative was developed to avoid both the 7.4 acres of waters of the United States, including 3.5 acres of wetlands, in the middle reach of Potrero Canyon as well as 11.9 acres of waters of the United States in the upper reach of Potrero Canyon (total additional avoidance of approximately 19 acres of waters of the United States, including 3.5 acres of wetlands). As a result, the

only permanent impacts to waters of the United States in Potrero Canyon would be associated with road crossings and grade stabilizers. With this alternative design, the majority of the manufactured open area would be relocated to a narrow band of upland area immediately adjacent to the existing wetland and riparian corridor areas in the middle and upper reaches of Potrero Canyon. With this sub-alternative, development area would be reduced by a total of approximately 294 acres when compared to approximately 893 acres under Alternative 2 and would result in an increase of approximately $60,079 per net developable acre and a total cost of approximately $1,111,800 per net developable acre. With the additional avoidance of approximately 19 acres in Potrero Canyon, in the context of the entire project the cost per net developable acre would increase by approximately 5.7% when compared to Alternative 2. With the relatively limited reduction in the total developable acreage combined with the increase in cost per net developable acre and, in light of the relatively high cost of Alternative 2 and information from the Technical Report completed by Developers Research, the above alternative design for Potrero Canyon is considered practicable and would meet the overall project purpose.

In San Martinez Grande, Modified Alternative 3 would result in 0.2 acre of permanent impact and 1.6 acres of temporary impact to waters of the United States. Alternative designs that would further reduce impacts are limited by the relatively small area of remaining permanent impact (0.2 acre), but alternatives that would only include discharges of fill material for drop structures and a no fill alternative that would completely avoid discharges of fill material in waters of the United States in San Martinez Grande were analyzed. Under the alternative designs, development area in San Martinez Grande would be reduced by 6.1 acres (a 10.6% reduction). The above reduction in impacts to waters of the United States is very small and, as a result, would represent an inconsequential reduction that would have a lack of significant or easily identifiable difference in impact to the aquatic environment in the Santa Clara River. With the reduction in development area in San Martinez Grande combined with the proposed changes, the two designs would increase the cost per net developable acre by approximately $275,225 (24.2%) and $269,957 (23.7%). In light of the relatively small reduction in the development area, the above alternative designs would meet the overall project purpose, but would not be practicable due to the substantial increase in the cost per net developable acre (over a 23% increase), combined with the above additional increase in cost associated with the avoidance of

approximately 19 acres of waters of the United States in Potrero Canyon. Therefore, these sub-alternative designs were eliminated from further consideration.

During coordination with the Regional Water Quality Control Board subsequent to release of the Final EIS/EIR, an additional sub-alternative was developed to avoid temporary impacts to approximately 0.5 acres of waters of the United States in the middle reach of San Martinez Grande Canyon. With this alternative design, a small development area would be relocated allowing proposed bank stabilization to be constructed entirely in upland areas and reducing temporary impacts to aquatic resources. With this sub-alternative, development area would be identical to the Modified Alternative 3 and would result in a total of $1,005,000 of additional costs when compared to Modified Alternative 3. With the additional avoidance of temporary impacts to 0.5 acre in San Martinez Grande combined with the additional avoidance of approximately 19 acres of waters of the United States in Potrero Canyon, in the context of the entire project the cost per net developable acre would slightly exceed 5.7% when compared to Alternative 2. The approximate 5.7 percent increase in cost per net developable acre is considered practicable in light of the information from the Technical Report completed by Developers Research and would meet the overall project purpose.

In Long Canyon, alternative designs that would limit discharges of fill material to drop structures or avoid all discharges of fill material in waters of the United States would result in the avoidance of 3.85 and 5.24 acres of permanent impacts to jurisdictional areas. In the context of the entire project area, the above alternative designs for Long Canyon combined with the Modified Alternative 3 would reduce impacts to waters of the United States to approximately 61 acres with the no fill alternative and 62.7 acres with a design that only included drop structures. To implement the alternative designs in Long Canyon, the available development area would be reduced by approximately 60.2 acres (approximately a 17% decrease in the Long Canyon area) and the cost per net developable acre would increase substantially by $199,455 and $186,505, respectively (approximately an 18.8% increase in cost when compared to development in Long Canyon under Alternative 2). With the substantial reduction in development area in the Long Canyon area, the above alternative designs do not meet the basic objectives of the Specific Plan that are included in the overall project purpose and, when combined with the substantial increase in cost per net developable acre, these alternatives are

not considered practicable in light of the substantial increase in cost (the increased cost of avoiding Potrero and San Martinez Grande combined with the additional cost of Modified Alternative 3 would be more expensive per net developable acre than the highest documented cost for any of the other residential development projects identified in the Developers Research Technical Report). Therefore, these sub-alternatives were eliminated from further consideration.

In Chiquito Canyon, bank stabilization and road crossings as part of Modified Alternative 3 would result in approximately 4.4 acres of permanent and 3.6 acres of temporary impacts to waters of the United States. A less damaging alternative design that would reduce discharges of fill material in jurisdictional areas would result in permanent impacts to 3.71 acres and temporary impacts to 3.56 acres of waters of the United States (permanent impacts would be reduced by approximately 0.69 acres at an increased cost of approximately $7,000,000). Although the $7,000,000 would be a relatively small increase in the overall project cost, this increase could represent a substantial amount when compared to the marginal area of increased avoidance (0.69-acre, which represents less than a 1% reduction in impact when compared to Alternative 2). The above reduction in impacts to waters of the United States is very small and, as a result, would represent an inconsequential reduction that would have a lack of significant or easily identifiable difference in impact to the aquatic environment in the Chiquito Canyon and the Santa Clara River. The above alternative design would meet the overall project purpose, but would provide avoidance of impacts to the aquatic ecosystem that are essentially identical to the proposed project. Alternative designs in Chiquito Canyon that would only include drop structures or eliminate all discharges of fill material in waters of the United states would result in increased avoidance of permanent impacts in Chiquito Canyon (4.2 and 4.4 acres of waters of the United States). With these two alternative designs, development area would be reduced by approximately 10.4 acres. However, both of these alternatives would result in substantial increases in the cost per net developable acre when compared to Alternative 2 (increases of $159,351 and $155,266 in the Chiquito Canyon development area, or an increase of approximately 14.8%). Both of the above alternative designs for Chiquito Canyon would meet the overall project purpose, but would not be practicable in light of the substantial increase in the cost per net developable acre when compared to Alternative 2 (the increased cost of avoiding Potrero and San Martinez Grande combined with the additional cost of Modified Alternative 3 would be more expensive per net

developable acre than the highest documented cost for any of the other residential development projects identified in the Developers Research Technical Report). Therefore, these sub-alternatives were eliminated from further consideration.

In Middle Canyon, alternative designs that would increase avoidance of permanent impacts to jurisdictional areas would include limiting fill activities to grade stabilizers (permanent impacts would be reduced to approximately 1.6 acres of waters of the United States) and a no fill alternative that would eliminate impacts to 5.2 acres of waters of the United States. In the context of the entire project area, the above alternative designs for Middle Canyon combined with Modified Alternative 3 would reduce impacts to waters of the United States to approximately 61.1 acres with the no fill alternative and 64.7 acres with a design that only included drop structures. These two design alternatives would decrease development area by 61.5 acres when compared to the proposed project (20.4% reduction in the Middle Canyon area). When compared to the proposed project, the two less damaging designs would increase the cost per net developable acre by approximately $601,474 (54.3%) and $591,407 (53.4%). In light of the relatively large reduction in the development area in Middle Canyon (20.4%), the above alternative designs would not meet the overall project purpose and would not be practicable with the substantial increase in the cost per net developable acre (over 50% when compared to the proposed development in Middle Canyon under Alternative 2 and the increased cost of avoiding Potrero and San Martinez Grande combined with the additional cost of Modified Alternative 3 would be substantially more expensive per net developable acre than the highest documented cost for any of the other residential development projects identified in the Developers Research Technical Report). Therefore, they were eliminated from further consideration.

The proposed utility corridor in the Santa Clara River with bank stabilization would permanently impact approximately 1.7 acres and temporarily impact 4.8 acres of jurisdictional wetlands. The less damaging alternative design with a vertical retaining wall would result in approximately 1.0 acre of permanent impact and 4.0 acres of temporary impact to jurisdictional wetlands in the Santa Clara River (the retaining wall would increase cost by approximately $2,323,000 to avoid 0.7 acre of permanent impact and 0.8 acre of temporary impact to jurisdictional wetlands). Opportunities for additional avoidance in the utility corridor are limited by several logistical constraints. The utility corridor has a required minimum width of 100 feet, based on local regulatory

requirements that are intended to protect health and safety and to ensure adequate access for future maintenance and repair of the utilities. An additional 35 feet in width is required for the adjacent light rail right of way reservation. The location and configuration of the utility corridor is also constrained by the location of SR-126 and the Caltrans right of way. The utility corridor also cannot be located within or north of the current or future Caltrans right of way. Because of the above logistical constraints regarding the corridor width and location, the only option for additional avoidance of impacts to adjacent wetlands in the Santa Clara River is to install a vertical retaining wall approximately 40 feet high (toe to top) for bank protection, which would reduce the width of the utility corridor impacts by approximately 25 feet on the north side of the Santa Clara River. However, the construction of the 40-foot-high retaining wall would require an L-shaped footing to provide stability, which would still be insufficient to withstand some predicted high velocity peak flows in the Santa Clara River. In addition, the tie back required to provide additional vertical stability would result in substantial logistical issues because access for maintenance and repair work would be severely inhibited by the combined presence of the utility corridor and the required vertical stabilizers (tie backs). The sub-alternative would avoid permanent impacts to an additional 0.7 acre of jurisdictional wetlands with an additional cost of $2,323,000 when compared to Alternative 2. When compared to Alternative 2, this less damaging design would reduce impacts to waters of the United States by less than 1% and would reduce impacts to jurisdictional wetlands by approximately 3%. The above reduction in impacts to waters of the United States is very small and, as a result, would represent a relatively inconsequential reduction that would have a lack of significant or easily identifiable difference in impact to the aquatic environment in the Santa Clara River. The alternative design for the utility corridor would meet the overall project purpose and would result in a relatively small increase in the cost per net developable acre and in the overall cost for the proposed project (less than a 0.1% increase in cost when compared to Alternative 2). The Corps has determined that this less damaging alternative design is infeasible in light of the above technical and logistical issues associated with future maintenance activities, the potential lack of vertical stability during large storm events and the other logistical constraints associated with the required vertical stabilizers (tie backs) encroaching into the utility corridor. Based on the above information, the alternative design for the utility corridor would not be feasible or practicable in light of the documented technical

and logistical concerns with the proposed vertical retaining wall design. Therefore, this sub-alternative was eliminated from further consideration.

Conclusion: Based on the above analysis, Alternatives 2, 3, 4, 5 and Modified Alternative 3, along with the two identified sub-alternatives in Potrero Canyon and San Martinez Grande, were considered practicable, and are therefore considered below to determine which combination is the LEDPA.

Alternative 2: Under Alternative 2, of the 660.1 acres of waters of the United States within the project area, the proposed project would permanently fill 93.3 acres, or approximately 14.1 percent of waters of the United States on site. Of the 660.1 acres of waters of the United States, approximately 276.9 acres are jurisdictional wetlands, with the proposed project permanently filling approximately 20.5 acres of wetlands. In total, the proposed project would result in temporary discharges of fill material in approximately 33.3 acres of waters of the United States, including 11.2 acres of wetlands, in the Santa Clara River and its tributaries (avoidance of all impacts to approximately 89% of the total wetland area). With the originally proposed project, approximately 533.5 acres of waters of the United States would be completely avoided (approximately 80% of the jurisdictional areas) and approximately 566.8 acres of waters of the United States would not be affected by permanent discharges of fill material (approximately 86% of the jurisdictional areas). Based on a detailed analysis of the project alternatives, the Corps has identified other practicable alternatives that would result in additional avoidance and minimization of impacts to waters of the United States and, as a result, Alternative 2 does not represent the LEDPA.

Alternative 3: Of the 660.1 acres of waters of the United States on the project site, implementation of Alternative 3 would result in the permanent fill of 70 acres of waters of the United States (approximately 11% of the total site jurisdiction and 25 percent less acreage than Alternative 2), and would temporarily disturb an additional 37.6 acres (12.9 percent more acreage than the proposed project design). Including residential, commercial and industrial development, Alternative 3 would result in approximately 2,703 acres of total development area (of the 2,703 acres approximately 2,325.7 acres would be residential development area). Alternative 3 has reduced permanent impacts to waters of the United States when compared to Alternatives 4 and 5. However, Alternative 3 could result in other potentially significant adverse impacts to spineflower individuals and habitat. In addition, based on a detailed analysis

of the project alternatives, the Corps has identified other practicable alternatives that would result in additional avoidance and minimization of impacts to waters of the United States and, therefore, Alternative 3 does not represent the LEDPA.

Alternative 4: Implementation of Alternative 4 would facilitate urban development in the project site, and would result in the placement of fill within waters of the United States. In total, this alternative would permanently fill 73.3 acres of waters of the United States (21.4 percent reduction compared to the proposed project), and would temporarily disturb an additional 33.8 acres (approximate 1.5 percent increase compared to Alternative 2). Including residential, commercial and industrial development, Alternative 4 would result in approximately 2,712 acres of total development area (of the 2,712 acres approximately 2,329.6 acres would be residential development area). Based on a detailed analysis of the project alternatives, the Corps has identified other practicable alternatives that would result in additional avoidance and minimization of impacts to waters of the United States and, therefore, Alternative 4 does not represent the LEDPA.

Alternative 5: Alternative 5 would result in the placement of fill within waters of the United States. In total, this alternative would permanently fill 72.4 acres of waters of the United States (22.5 percent reduction in acreage compared to the proposed project), and would temporarily disturb an additional 41.6 acres (24.9 percent increase compared to the proposed project). Including residential, commercial and industrial development, Alternative 5 would result in approximately 2,622 acres of total development area (of the 2,622 acres approximately 2,232 acres would be residential development area). Based on a detailed analysis of the project alternatives, the Corps has identified other practicable alternatives that would result in additional avoidance and minimization of impacts to waters of the United States and, therefore, Alternative 5 does not represent the LEDPA.

Modified Alternative 3: In light of the relatively moderate reduction in the net developable acreage combined with the 2.0% increase in cost per net developable acre resulting in a total increase in cost per net developable acre of slightly over 5.7 percent, the above sub-alternatives in Potrero and San Martinez Grande, when combined with Modified Alternative 3, would meet the overall project purpose and would be practicable in light of cost. To determine if further avoidance and minimization of impacts to waters of the United States would be practicable in light of cost, the Corps utilized the above Technical Report by Developers Research to establish the cost typical of similar development projects in southern California. The

increased cost of slightly over 5.7% associated with the Modified Alternative 3, including increased avoidance and minimization of impacts in Potrero and San Martinez Grande, would result in a cost per net developable acre of approximately $1,112,097 (an increase of approximately $60,079 per net developable acre when compared to Alternative 2). With an overall increase in cost of slightly over 5.7 percent, the Modified Alternative 3, including the avoidance of approximately 19 acres of waters of the United States in Potrero and San Martinez Grande, would represent the most expensive development project when compared to all the other development projects in the above Technical Report by Developers Research. As stated in the Preamble to the 404(b)(1) Guidelines at 45 FR 85343, "under the 404(b)(1) Guidelines if an alternative is unreasonably expensive to the applicant the alternative is not considered to be practicable." For the purposes of this analysis, once an alternative exceeds a cost of $1,097,298 per net developable (highest documented cost for any development project in the above Developer Research Technical Report), it is clearly approaching the threshold where an alternative would be considered unreasonably expensive to the applicant.

Cost estimates in the Developer Research report provided an average cost per net developable acre for similar development projects as approximately $673,114, with a median cost of approximately $707,784. Considering all the development projects in the report, the cost per net developable acre ranges from a low of $493,889 to a high of $928,504 (with one relatively small 139-acre development project in Riverside County exhibiting a cost of $1,097,298 per net developable acre). In considering practicability, the Corps did not utilize the estimated average or the median cost for development, but instead considered numerous alternatives that exceeded the average and median cost per net developable acre by over $400,000. Based on the above information, the cost per net developable acre for Modified Alternative 3, combined with the additional avoidance of permanent impacts to approximately 19 acres of waters of the United States in Potrero and San Martinez Grande, would exceed the average and median cost per net developable acre by approximately $431,253 and $396,583, respectively. In addition, Modified Alternative 3 combined with the additional avoidance in Potrero and San Martinez Grande would exceed the cost per net developable acre for the most expensive project in the Developers Research Technical Report by approximately $14,799. Based on the above information, Modified Alternative 3 would meet the overall project purpose and would be practicable in light of cost, logistics and technology. Because the Modified

Alternative 3 combined with the above additional avoidance represents the most expensive development project in terms of cost per net developable acre, the Corps determined that further avoidance and minimization of impacts to waters of the United States, including wetlands, would be unreasonably expensive to the applicant and, therefore, would not be practicable in light of cost.

Implementation of Modified Alternative 3 would permanently fill approximately 47.9 acres of waters of the United States (approximately a 48 percent reduction in acreage compared to Alternative 2), and would temporarily disturb 35.3 acres (2 percent increase in acreage compared to Alternative 2). Implementation of Modified Alternative 3 would permanently disturb 5.1 acres of wetlands (approximately an 80 percent reduction in impact acreage compared to Alternative 2), and would temporarily disturb 11.8 acres of wetlands (2 percent decrease in impact acreage compared to Alternative 2). The Modified Alternative 3 would reduce total developable acreage by 10.3 percent compared to Alternative 2. Specifically, the residential development acreage is reduced by approximately 10 percent, and its corresponding unit count is reduced by 5 percent (1,073 units). Commercial acreage is reduced by 14 percent (35.6 acres), but commercial square footage is reduced by only 3 percent (140,000 square feet). Acreage for public facilities acreage is reduced by 4 percent (6 acres), while open space acreage increases by approximately 300 acres compared to Alternative 2. There are no disproportionate impacts that threaten the viability of any of the proposed villages. Therefore, Modified Alternative 3 would allow for development of the site consistent with the basic objectives of the Specific Plan. Including residential, commercial and industrial development, Modified Alternative 3 would result in approximately 2,570 acres of total development area (of the 2,570.0 acres approximately 2,181 acres would be residential development area). Total development costs for Modified Alternative 3 would be $2,857,977,754, compared to $3,013,189,367 for Alternative 2, resulting in a cost per net developable acre increase of slightly over 5.7 percent ($1,112,097) when compared to Alternative 2. In addition, Modified Alternative 3 would include additional spineflower preserve areas including a total of seven preserves consisting of approximately 199 acres, further reducing impacts to this sensitive plant species. As a result, this alternative would not result in other significant adverse impacts to spineflower individuals or habitat and, therefore the Corps has made a determination that the Modified Alternative 3 combined with the above additional avoidance and minimization of permanent

impacts to approximately 19 acres of waters of the United States in Potrero and 0.5 acre of temporary impacts in San Martinez Grande is the LEDPA. With the above substantial avoidance and minimization measures, the LEDPA would permanently impact 47.9 acres, including 5.1 acres of wetlands, resulting in avoidance of permanent impacts to approximately 92% of waters of the United States, including 98% percent of wetlands, in the project area. Because Modified Alternative 3 represents the currently proposed project by the applicant, there no available, practicable alternatives having less adverse impact on the aquatic ecosystem and without other significant adverse environmental consequences that do not involve discharges into "waters of the United States" or at other locations within these waters.

b) Based on II B, if the project is in a special aquatic site and is not water-dependent, has the applicant clearly demonstrated that there are no practicable alternative sites available?

☒ Yes ☐ No

Discussion: The Draft and Final EIS/EIR for the originally proposed project initially identified 23 alternative sites within the region that were considered potentially available. These sites were evaluated using initial screening criteria to determine whether they might have the potential to accommodate the proposed development project. Twenty of the sites were eliminated from further analysis at this stage, for one or more of the following reasons directly related to the overall project purpose and the basic objectives of the Specific Plan. The site was too small to accommodate the development proposed; site is not in the vicinity of Santa Clarita; and the site is in an isolated location that cannot be connected efficiently with existing infrastructure; Site is entitled for development and is actively being planned for development by the current owner or is already under construction. Based on the initial screening, the Draft and Final EIS/EIR identified three off-site alternative sites that have the potential to meet most or all of the basic objectives for the Specific Plan, and carried them forward for further analysis: Temescal Ranch (Alternative Site A), the Newhall-Ventura Property (Alternative Site B), and Hathaway Ranch (Alternative Site C).

The Temescal Ranch site is approximately 7,580 acres in size and is located approximately two miles northwest of the project site in unincorporated Ventura County, northeast of the community of Piru. Lake Piru, formed within the Piru Creek watershed by the San Felicia Dam at the southern end of the Lake, extends through the northern third of the Temescal Ranch site. Lake Piru serves Ventura County and provides

water conservation, flood control, seawater intrusion abatement, groundwater recharge, irrigation, and municipal and industrial water supplies. The Piru recreational area, which provides lake access, is located on the western side of the lake, while the Santa Felicia Dam extends across the southern edge of the lake. Compared to the proposed project site, the Temescal Ranch site is more distant from existing job centers and transit corridors. In addition, Temescal Ranch is not served directly by SR-126 or any other major state highway, and is much farther away from I-5, one of the state's major north-south freeway corridors (Figure 7-1 in the Final EIS/EIR). Consequently, the amount of transportation infrastructure needed to reach Temescal Ranch would be substantially greater than that needed for the proposed project site. Travel distances between Temescal Ranch and the surrounding employment centers found in the Santa Clarita Valley would also be greater than at the proposed project site. Temescal Ranch is also further from existing sewer, water, and other existing utilities than the proposed project site, and would require that such utilities be extended substantially to serve development in accordance with the overall project purpose.

Costs associated with developing the Temescal Ranch site were not evaluated in detail. On-site development costs associated with the Temescal Ranch site are assumed to be comparable to those for the proposed project area, although fixed costs may be spread across a somewhat smaller development area under this alternative as compared to the proposed project. Off-site costs for the extension of infrastructure would be greater than for the project area because the Temescal Ranch site is located further from existing development and infrastructure. Due to the increased off-site costs, development of the site is considered to be substantially higher when comparing to Alternative 2. Development of Temescal Ranch would have the potential to reduce impacts to the aquatic ecosystem when compared to the development at the proposed project site, assuming that key aquatic resources such as Lake Piru and Piru Creek were largely avoided. Lake Piru encompasses the majority of the jurisdictional area within Temescal Ranch, approximately 995 acres. The largest stream within Temescal Ranch is Piru Creek, which is fed perennially by releases from Santa Felicia Dam at the downstream end of Lake Piru. The on-site jurisdictional area of Piru Creek is approximately 250 acres. In addition to Piru Creek and Lake Piru, Temescal Ranch contains approximately 11.7 miles of intermittent and ephemeral tributary drainages to these waters, constituting an

additional 47 acres of jurisdiction. However, avoidance of both Piru Creek and Lake would limit the ability of the site to provide sufficient development area to fulfill the overall project purpose. Additional development could occur if a portion of Lake Piru were filled, but this is not considered a practicable alternative given the existing aquatic resources as well as the importance of this facility for water supply, flood control, recreation and other purposes.

Development of the Temescal Ranch site consistent with the overall project purpose has the potential to reduce impacts to the aquatic ecosystem compared to Alternative 2, assuming that Lake Piru and Piru Creek were largely avoided. Under this assumption, however, the site would not allow enough development to achieve the overall project purpose. In addition, large-scale development of the site would not be logistically feasible because it would be inconsistent with applicable Ventura County policies and ordinances regarding conversion of land from agricultural and open space uses, and because the site has no readily available source of potable water. Even if these obstacles could be overcome, the site would have substantially higher costs when compared to the originally proposed project, result in greater environmental impacts to non-aquatic resources such as traffic and air quality due to its more remote location, the need to extend infrastructure to the site, and the site's proximity to the Sespe Wilderness and Sespe Condor Sanctuary.

Based on a review of the Temescal Ranch alternative, the following basic objectives of the Specific Plan would not be achieved if the originally proposed project were to be developed on the Temescal Ranch site: Avoid leapfrog development and accommodate projected regional growth in a location that is adjacent to existing and planned infrastructure, urban services, transportation corridors, and major employment centers; and arrange land uses to reduce vehicle miles traveled and energy consumption. Based on the above information, the Temescal Ranch site would not meet the overall project purpose, would result in other significant adverse impacts and would substantially increase the costs associated with Alternative 2. As a result, the Temescal Ranch site was eliminated from further consideration.

The Newhall-Ventura property is an approximately 15,000-acre site located in unincorporated Ventura County adjacent to the western boundary of the proposed project site. The property is generally bounded by SR-126 on the north, the Santa Susana Mountains on the south, Los Angeles County on the east, and

extends approximately two miles west of the community of Piru. The northwest portion of the Newhall-Ventura property encompasses a portion of the Santa Clara River floodplain and extends north of SR-126. Like the proposed project site, the topography of the Newhall-Ventura property is highly variable, with elevations ranging from approximately 630 feet AMSL in the Santa Clara River valley to approximately 3,000 AMSL in the Santa Susana Mountains. Historic uses of the site include cattle grazing, agriculture and oil production. The site is heavily developed with agricultural uses (row crops, citrus, *etc.*) and also maintains a number of rural-type residences and structures. Vehicular access is available to this site from SR-126. The site is within both the UWCD and Castaic Lake Water Agency (CLWA) service areas; however, no wastewater lines serve the site.

Costs associated with developing the Newhall-Ventura property were not evaluated in detail. On-site costs associated with developing the Newhall-Ventura alternative site are assumed to be comparable to costs for Alternative 2. Off-site costs for extension of infrastructure would be greater than for the proposed project area because the Newhall Ventura site is located further from existing development and infrastructure. Due to the increased off-site costs, the cost of developing the site is considered to be substantially higher than for the proposed project area.

The Santa Clara River runs through the Newhall-Ventura property, just as it does through the project site. In addition, several intermittent drainages drain to the Santa Clara River throughout the site. Because the Newhall-Ventura property and the proposed project site contain similar reaches of the Santa Clara River and tributary drainages, both sites, if developed to meet the overall project purpose, would yield comparable impacts to geomorphic and hydrologic functions in the Santa Clara River. The Newhall-Ventura property is located immediately adjacent to the west of the proposed project site and has similar aquatic features, habitat and topography. The Newhall-Ventura property contains approximately 946 acres of the Santa Clara River and 53.8 miles of intermittent and ephemeral drainages that ultimately convey flows to the Santa Clara River, for a total of approximately 990 acres of jurisdictional waters. It is assumed, based on its proximity to the project location, that the Newhall-Ventura property contains palustrine fringe wetlands along the edges of the Santa Clara River. Depressional wetlands also may occur on site, but are likely limited in extent due to relatively steep

topography and arid climate conditions.

At approximately 15,000 acres, the Newhall-Ventura site is larger than the proposed project site. Therefore, even though the quantity and quality of jurisdictional streams and wetlands on these two sites are similar, development on the Newhall-Ventura property could be designed to affect a smaller percentage of jurisdictional streams and wetlands. As a result, the Newhall-Ventura property site could potentially be developed with fewer direct impacts to jurisdictional streams and wetlands as compared to the proposed project site. The Newhall-Ventura site has the potential to reduce impacts to the aquatic ecosystem compared to Alternative 2. However, development of the site would conflict with the overall project purpose elements of avoiding leapfrog development and reducing vehicle miles traveled (two basic objectives of the Specific Plan). In addition, development of the site consistent with the overall project purpose is not logistically feasible because it would be inconsistent with applicable Ventura County policies and ordinances and, therefore, is extremely unlikely to be approved and, even if these obstacles could be overcome, the site would have significantly higher cost due to off-site infrastructure costs. Finally, development of the site could have greater adverse effects than the proposed project in the form of traffic, air quality, and noise impacts due to its greater distance from existing urban centers. Based on the above information, the Newhall-Ventura site would not meet the overall project purpose, would result in a substantial increase in cost when compared to Alternative 2 and would result in other significant adverse effects. As a result, the Newhall-Ventura site was eliminated from further consideration.

The Hathaway Ranch site is approximately 6,195 acres in size, and is located approximately five miles north of the proposed project site in unincorporated Los Angeles County, generally between the Ventura County line to the west, I-5 to the east, Hasley Canyon to the south, and the Angeles National Forest to the north. Topography on the Hathaway Ranch site is highly variable, with elevations ranging from approximately 1,100 feet AMSL to more than 2,500 AMSL; very little flat land exists on this site. According to a slope analysis performed by Hunsaker and Associates (Hunsaker Technical Memorandum), both the project site and Hathaway Ranch have hilly terrain, the chief difference between them is that Hathaway Ranch has a higher percentage of land within the 25-50 percent slope range, while the proposed project site has a higher percentage of land in the

0-25 percent slope range and the >50 percent slope range.[5] Historic uses of the Hathaway site include cattle grazing, oil and natural gas operations, and mineral resource mining. As Hathaway Ranch is undeveloped, no vehicular access is available via improved roadways, and no water or wastewater lines serve the site.

The *on-site* infrastructure necessary to serve the Hathaway Ranch site, including highways, drainage, sewer, water, and utility distribution systems, would be generally similar to that required to serve the proposed project site, as both properties would support developments of similar size. The chief difference between the two properties relates to *off-site* infrastructure. Due to its remote location, Hathaway Ranch would require a significant amount of new off-site infrastructure improvements, the cost of which, in terms of additional environmental impact and additional financial burden, could be prohibitive. Costs described in this analysis cover off-site improvements only, and are in addition to the on-site development costs (which are assumed to be similar to the project site development costs). As such, the off-site costs represent costs unique to development of the Hathaway Ranch site (*i.e.*, costs that would not be incurred if Alternative 2 were developed on the project site). Unit prices for the cost items are based upon the originally proposed project cost estimates to maintain consistency. Costs for major improvements such as the freeway interchanges are also based upon Newhall Ranch Specific Plan improvements and are approximations only. The per-unit cost to acquire rights-of way is assumed to be similar for both sites, and does not account for any improvements on the properties to be acquired. Additional fees required for litigation and/or condemnation proceedings have not been included in this estimate. Acquisition of property outside of the road right-of-way (for slopes and grading) can be reduced by constructing retaining walls.

Finally, as mentioned above, development of Hathaway Ranch, if consistent with the overall project purpose, would require off-site mitigation for habitat loss and open space, which is an additional cost of development. To determine this cost, this analysis assumes that the Applicant would have to acquire approximately 2,000 acres of open space for mitigation

[5] Hunsaker Technical Memorandum, dated February 9, 2010, at p.1. A copy of the Hunsaker Technical Memorandum, including exhibits, is attached as Appendix 7.0 to this report.

purposes. Based on this assumption, the cost of acquiring off-site mitigation land was estimated to be $99,180,000. (Hunsaker Technical Memorandum, at p. 8.) When the additional development costs of the Hathaway Ranch site are totaled, they come to $591,269,184 (plus an additional $99,180,000 for off-site mitigation land). Again, these are costs over and above those the applicant would expect to incur if it implemented Alternative 2 on the proposed site.

The Hathaway Ranch site is located in the mountains on the north side of the Santa Clara River Valley and does not contain any major rivers or impoundments. The site contains a total of approximately 25.5 linear miles of intermittent and ephemeral drainages on site, encompassing a total jurisdictional area of approximately 101 acres. Although available information was not sufficient to allow the mapping of wetlands on Hathaway Ranch, it is unlikely that palustrine wetlands exist on the site due to the lack of perennial water sources. Although depressional wetlands may occur on site, these are likely limited in extent due to the relatively steep topography and lack of perennial and intermittent streams. The Hathaway Ranch alternative site has the potential to substantially reduce impacts to the aquatic ecosystem. However, the site is not currently zoned for urban development, and amending the General Plan to allow high density development of the site would not be consistent with local and regional planning efforts and is not considered feasible. The site also would not meet several Specific Plan basic objectives, including avoiding leapfrog development, locating housing proximate to transit corridors and employment centers, and reducing vehicle miles traveled. In addition, because the site is located farther from existing utility and transportation infrastructure, it would require extension of infrastructure that would substantially increase the project cost. Moreover, the improvements to infrastructure would increase adverse environmental impacts to upland resources. Finally, it may not be practicable to obtain sufficient water supply to serve Alternative 2 if constructed on the Hathaway Ranch site. Based on the above information, the Hathaway Ranch site would not meet the overall project purpose, would result in a substantial increase in cost when compared to Alternative 2 and would result in other significant adverse effects. Therefore, the site is not a practicable alternative and was eliminated from further consideration.

Based on the above analysis of on-site and off-site alternatives, the Corps has determined that the presumption that there is a less damaging alternative that would not discharge fill in a

special aquatic site has been rebutted. Modified Alternative 3, with the inclusion of additional avoidance and minimization measures in Potrero Canyon and San Martinez Grande, would substantially reduce permanent impacts to special aquatic sites (approximately a 78% reduction when compared to Alternative 2), but would not eliminate all impacts to jurisdictional wetlands. However, with Modified Alternative 3, approximately 270 acres of wetlands would be avoided and preserved in the project area.

2) Special restrictions. Will the project:

☐ Yes ☒ No **a)** violate state water quality standards?

☐ Yes ☒ No **b)** violate toxic effluent standards (under Section 307 of the Act)

☐ Yes ☒ No **c)** jeopardize endangered or threatened species or their critical habitat?

☐ Yes ☒ No **d)** violate standards set by the Department of Commerce to protect marine sanctuaries?

☒ Yes ☐ No **e)** evaluation of the information in II C and D above indicates that the proposed discharge material meets testing exclusions criteria for the following reason(s)

(X) based on the above information, the material is not a carrier of contaminants

( ) the levels of contamination are substantially similar at the extraction and disposal sites and the discharge is not likely to result in degradation of the disposal site and pollutants will not be transported to less contaminated areas

( ) acceptable constraints are available and will be implemented to reduce contamination to acceptable levels within the disposal site and prevent contaminants from being transported beyond the boundaries of the disposal site.

3) Other restrictions. Will the discharge contribute to significant degradation of "waters of the U.S." through adverse impacts to:

☐ Yes ☒ No **a)** human health or welfare, through pollution of municipal water supplies, fish, shellfish, wildlife and special aquatic sites?

☐ Yes ☒ No **b)** life states of aquatic life and other wildlife?

☐ Yes ☒ No **c)** diversity, productivity and stability of the aquatic ecosystem, such as the loss of fish or wildlife habitat, or loss of the capacity of wetland to assimilate nutrients, purify water or reduce wave energy

☐ Yes ☒ No **d)** recreational, aesthetic and economic values?

☒ Yes ☐ No **4) Actions to minimize potential adverse impacts (mitigation).** Will all appropriate and practicable steps (40 CFR 23.70-77) be taken to minimize the potential adverse impacts of the discharge on the aquatic ecosystem?

Discussion: In order to avoid and minimize the potential adverse direct and indirect/secondary impacts of the discharge of fill material on the aquatic ecosystem during the proposed construction activities in waters of the United States, several measures have been incorporated into Modified Alternative 3 (LEDPA), including: substantial avoidance and minimization of direct and indirect/secondary impacts to waters of the United States (approximately 92% waters of the United States in the project area would not be affected by permanent impacts), substantial biological mitigation measures, implementation of construction and water quality BMPs, and development of a comprehensive SWPPP.

The LEDPA would permanently impact 47.9 acres, including 5.1 acres of wetlands, and temporarily impact 35.3 acres of waters of the United States, including 11.8 acres of jurisdictional wetlands. With the implementation of the LEDPA, of the 660.1 acres of waters of the United States in the project area, 88 percent of waters of the United States would be completely avoided and approximately 92% of the waters of the United States would not be permanently affected by discharges of fill material. To avoid and minimize direct and indirect/secondary impacts, approximately 8,500 acres of riparian and upland habitat would be avoided in the project area, reducing direct and indirect impacts to drainage patterns, erosion/accretion, water quality, special aquatic sites, aquatic habitat, wildlife habitat, endangered species and aesthetics. Sensitive resource areas that would be avoided with the LEDPA include the Middle Canyon spring, the entire Salt Creek watershed, two cismontane alkali marsh wetland areas in lower and middle Potrero Canyon and 98 percent of the jurisdictional wetlands in the Santa Clara River.

To minimize direct and indirect/secondary impacts, the majority of the proposed bank stabilization would be constructed outside the lateral limits of waters of the United States, and fill of waters would be limited to temporary impacts during construction activities. By locating bank stabilization outside the active floodplain, hydrologic impacts of bank stabilization would be reduced under the LEDPA. In the main stem of the Santa Clara River, 19,158 linear feet would be constructed on the north bank with 7,693 linear feet (lf) of bank stabilization on the south bank. Along the tributary drainages, the proposed buried bank stabilization would be installed in post-development channels to limit lateral channel migration and protect adjacent land uses. The construction methods would be identical to those employed along the river main-stem, but in some cases the stabilization would be constructed within waters of the United States. The LEDPA would preserve approximately 155,074 lf of on-site drainages, which is 64 percent of the total 242,049 lf of jurisdictional drainages on the project site, reducing impacts when compared to Alternative 2. In total, the LEDPA would modify 39,792 lf of on-site tributaries, convert 47,195 lf of tributary channel to buried storm drain and install 67,537 lf of bank stabilization (30,068 lf on the west bank and 37,469 lf on the east bank). The LEDPA would avoid and minimize impacts to aquatic resources from bank stabilization by featuring wider channels, with bank stabilization set back laterally from the active floodplain, allowing relatively natural channel morphology to develop in the drainages. The new drainages included in the LEDPA would be designed to incorporate buried bank protection and grade stabilization, and would have sufficient hydrologic capacity to pass the Los Angeles County Capital Flood without the need for clearing native vegetation from the channels, allowing moderate to high physical and biological functions to persist in and downstream of the project area.

To avoid and minimize direct and indirect/secondary impacts to water quality during the proposed construction activities, the LEDPA would include preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP itself would include erosion and sediment control BMPs to reduce or eliminate the discharge of sediment and other potential construction-related pollutants. The SWPPP must also contain a Construction Site Monitoring Program that identifies monitoring and sampling requirements during construction. Preliminary analysis indicates that the LEDPA would most likely be categorized as a Risk Level 2. BMPs and monitoring required by the Construction General Permit would be incorporated into the project design to comply with the Risk Level 2 requirements, as described in Attachment D of the Construction

General Permit. If final design analysis indicates that the LEDPA would fall under Risk Level 3, the additional Level 3 permit requirements would be implemented as necessary.

Pursuant to NPDES requirements, Best Management Practices (BMPs) would be implemented at the project site under the LEDPA to avoid and minimize direct and indirect/secondary impacts to water quality. These BMPs include the following water quality control facilities: (1) water quality basins; (2) debris basins, located just upstream of the interface between developed and undeveloped areas, primarily to trap debris coming from the upper watersheds; (3) detention basins, which are typically sized to capture the predicted runoff volume and retain the water volume for a period of time (usually 24 to 48 hours); (4) catch basin inserts or screens/filters installed in existing or new storm drains to capture pollutants in the stormwater runoff; (5) bioretention, such as vegetated grassy swales, that provide water quality benefits and convey storm water runoff; and (6) solids separator units or in-line structures that reduce or manipulate runoff velocities such that particulate matter falls out of suspension and settles in a collection chamber. With the implementation of the above measures, impacts to water quality would be substantially reduced, avoiding and minimizing direct and indirect/secondary impacts to water quality in the project area.

To further minimize less than significant direct and indirect/secondary impacts to water quality, the Low Impact Development (LID) project design for the LEDPA has been modified. LID project design features will be selected and sized to retain the volume of stormwater produced from a 0.75 inch storm event to reduce the percentage of Effective Impervious Area (EIA) to five percent or less of the total project area within the Newhall Ranch Specific Plan. Runoff from all EIA will be treated with effective treatment control measures that are selected to address pollutants of concern and are sized to capture and treat 80 percent of the average annual runoff. Compliance with the LID Performance Standard will be evaluated by the RWQCB for each phase of the project (Villages) within the RMDP as part of the Tier 2 evaluation process. Each Tier 2 project must demonstrate that the LID Performance Standard is achieved cumulatively considering the retention volume provided by the current project phase and all previous project phases within the RMDP area.

The current LID Performance Standard will be implemented for institutional, commercial, multi-family residential, recreation and park land use parcels using retention or biofiltration BMPs on-site to the extent feasible. Based on an assessment of feasibility, one of three BMP strategies would be applied. In areas where infiltration is feasible for all of the runoff produced from the 0.75 inch design storm

volume, bioretention (without an underdrain), permeable pavement, infiltration galleries, infiltration basins or trenches, or an equivalent infiltration BMP would be utilized. In areas where infiltration is allowable but low infiltration rates or deep fills are present, bioretention facilities (with an underdrain) would be used to retain a portion of the runoff from the design storm, then the remaining runoff would be biofiltered. In areas where infiltration is not technically feasible due to geotechnical hazards, high groundwater table or other factors identified as part of the Tier 2 evaluation process, biofiltration BMPs would be used to biofilter the runoff produced from the design storm in developed areas.

In addition, runoff from roofs, patios and walkways in single family residential parcels would be disconnected over landscape areas designed to retain the volume from the 0.75 inch storm event. Runoff from the remaining parcels that does not infiltrate would flow through the storm drain system to the regional/sub-regional infiltration/biofiltration facilities. Runoff from roadways would be retained or biofiltered in retention or biofiltration BMPs sized to capture the design storm volume or flow, as stipulated by USEPA's "Managing Wet Weather with Green Infrastructure: Green Streets.". Furthermore, no more than five percent of the total project area would be treated using conventional treatment methods that address the pollutants of concern, including the use of media filters to capture and treat 80% of the average annual runoff volume from the allowable EIA. Regional and sub-regional infiltration/ biofiltration facilities would also be implemented. These facilities would be designed to incorporate a biofilter in the bottom of the facility, which will allow for infiltration if feasible, with detention storage above the biofilter. These facilities would infiltrate or biofilter the design storm volume that has not been retained or biofiltered on the parcels in the area tributary to the facility and would provide extended detention treatment for the additional runoff volume required to provide 80% capture and treatment of the average annual runoff volume as stipulated in the Newhall Ranch Specific Plan Sub-Regional Stormwater Mitigation Plan treatment performance standard and the Newhall Ranch Specific Plan LID Performance Standard. The above LID performance standards would be revised if more stringent standards are adopted in a renewed Municipal Separate Storm Sewer System permit for Los Angeles County.

To compensate for unavoidable permanent impacts to 47.9 acres, including 5.1 acres of wetlands, and temporary impacts to 35.3 acres of waters of the United States, including 11.8 acres of wetlands, the LEDPA would implement a variety of on-site compensatory mitigation measures. As a standard measure to minimize impacts to waters of the United States, the 35.3 acres of temporary impact areas

would be restored to pre-project contours and revegetated as stipulated in Corps and CDFG approved mitigation and monitoring plans. As part of the required monitoring for the restored temporary impact areas, the applicant would be required to utilize the Hybrid Assessment of Riparian Condition (HARC) methodology to calculate HARC-AW units to document adequate restoration of the physical and biological functions in the temporary impact areas. To compensate for permanent impacts to waters of the United States, large areas in the Santa Clara River floodplain that are currently agricultural areas would restored to active floodplain, resulting in both an increase in the acreage of waters of the United States as well as augmented physical and biological functions. Establishment and restoration activities in the main-stem of Salt Creek watershed would also result in a net increase in the acreage of waters of the United States as well as augmented functions and services. Lastly, major tributaries that would be filled as part of the LEDPA would be replaced by created channels that would be designed to be wide enough to accommodate riparian vegetation and would require minimal maintenance activities, providing additional compensation for permanent impacts to waters of the United States.

Because the LEDPA would involve various construction phases in waters of the United States over a 20 year period, the compensatory mitigation would also be implemented in phases. To avoid and minimize temporal losses, prior to any permanent impacts in waters of the United States, the applicant would initiate establishment and restoration activities in Potrero Canyon and Santa Clara River (Mayo Crossing area). The proposed compensatory mitigation areas would include a combination of rehabilitation and establishment in and adjacent to existing streams and wetland areas as well as establishment in recreated channels. In this initial phase, approximately 19 acres of compensatory mitigation would be implemented in lower Potrero Canyon contiguous with the lower mesic meadow, 19.7 acres of enhancement in the upper Salt Creek watershed and 15.9 acres in the Santa Clara River (Mayo Crossing), for a total of 54.9 acres of available mitigation area prior to permanent impacts in waters of the United States. Concurrent with construction activities in waters of the United States associated with the various phases of the proposed development, additional compensatory mitigation capacity would be available including approximately 9.8 acres in Chiquito Canyon, 6.8 acres in San Martinez Grande, 5.24 acres in Long Canyon, 14 acres in Potrero Canyon, 18.5 acres in Salt Creek and 2.7 acres of river bed expansion areas in the Santa Clara River (conversion of agricultural fields), ensuring no net loss of physical and biological functions in the project area. Based on the above information, the total available compensatory mitigation for waters of the United States in the project area would be approximately 114.04

acres, including 35.2 acres of wetlands (the 114.04 acres only includes waters of the United States, but excludes riparian habitat and other buffer areas that would be associated with CDFG mitigation requirements and approximately 18.16 acres of excess mitigation in Long Canyon that could be available as stipulated in the Final Mitigation Plan dated August 2011). The above compensatory mitigation areas would be distributed between rehabilitation and establishment in natural stream channels and wetlands (approximately 108.8 acres) and recreated stream channels (approximately 5.24 acres).

With the proposed compensatory mitigation schedule, 54.9 acres of compensatory mitigation would be required prior to any permanent impacts to waters of the United States. With the construction of the first proposed village (Landmark Village), there would be approximately 4 acres of permanent impact to waters of the United States and 2.7 acres of additional mitigation area. As a result, with the completion of the first phase a total of approximately 57.6 acres of compensatory mitigation would be initiated with only 4 acres of permanent impact to jurisdictional areas. With the second proposed village (Mission Village), there would be approximately 19.9 acres of additional permanent impact to waters of the United States and 20.6 acres of additional mitigation area. As a result, with the completion of the second phase a total of approximately 78.2 acres of compensatory mitigation would be initiated with 23.9 acres of permanent impact to jurisdictional areas. With the construction of the third proposed phase (WRP/Utility), there would be approximately 2.6 acres of additional permanent impact to waters of the United States. As a result, with the completion of the third phase a total of approximately 78.2 acres of compensatory mitigation would be initiated with only 26.5 acres of permanent impact to jurisdictional areas. With the construction of the fourth phase (third village area - Homestead Village South), there would be approximately 7.4 acres of permanent impact to waters of the United States and 5.24 acres of additional compensatory mitigation. As a result, with the completion of the fourth phase a total of approximately 83.44 acres of compensatory mitigation would be initiated with only 33.9 acres of permanent impact to jurisdictional areas. With the construction of the fifth phase (fourth village area - Homestead Village North), there would be approximately 12.0 acres of permanent impact to waters of the United States and 16.6 acres of additional compensatory mitigation. As a result, with the completion of the fifth phase a total of approximately 100.04 acres of compensatory mitigation would be initiated with 45.9 acres of permanent impact to jurisdictional areas. The final phase of the proposed project would be Potrero Village, which would result in 2 acres of impact to waters of the United States with 14 acres of additional compensatory mitigation. With the completion of the final

phase of the proposed project a total of approximately 114.04 acres of compensatory mitigation would be initiated with 47.9 acres of permanent impact to jurisdictional areas. For additional information regarding the proposed compensatory mitigation program, please reference the attached Final Mitigation Plan.

Overall, the LEDPA would include substantial avoidance and minimization of impacts to waters of the United States, including wetlands, with approximately 88 percent of the jurisdictional areas being completely avoided and avoiding permanent impacts to approximately 92 percent of the waters of the United States in the project area. Implementation of the LEDPA would permanently disturb 5.1 acres of wetlands (80 percent reduction in impact acreage compared to the proposed project), and would temporarily disturb an additional 11.8 acres (5 percent decrease in impact acreage compared to the proposed project). The LEDPA would avoid permanent impacts to approximately 98 percent of the jurisdictional wetlands in the project area. To avoid and minimize construction impacts to water quality, the LEDPA would include numerous best management practices as well as substantial LID project design features to facilitate on-site infiltration and treatment of runoff to avoid and minimize downstream water quality impacts associated with the proposed residential development. As a standard measure to minimize impacts to waters of the United States, the 35.3 acres of temporary impact areas would be restored to pre-project contours and revegetated as stipulated in Corps and CDFG approved mitigation and monitoring plans. As part of the required monitoring for the restored temporary impact areas, the applicant would be required to utilize the Hybrid Assessment of Riparian Condition (HARC) methodology to calculate HARC-AW units to document adequate replacement of the functions and services in the temporary impact areas. In addition, the HARC methodology would also be utilized to evaluate the compensatory mitigation areas to ensure no net loss of physical and biological functions and services.

To avoid and minimize impacts to waters of the United States, Modified Alternative 3 would avoid permanent impacts to approximately 612 acres of waters of the United States (approximately 92% avoidance of the waters of the United States in the project area). Avoidance areas would include the entire Salt Creek watershed, two wetland areas and the upper reach of Potrero Canyon and approximately 99% of the waters of the United States in the Santa Clara River, resulting in the avoidance and preservation of the majority of the aquatic resources that exhibit the highest physical and biological functions in the project area. Modified Alternative 3 would include substantial avoidance and minimization measures to reduce direct and indirect/secondary impacts to riparian/aquatic habitat,

including revised designs for culverts and grade control structures located in Potrero Canyon. The proposed minimization measures would also include restoring temporary impact areas to pre-project contours and revegetating the areas with native species. All restored waters of the United States would be monitored for at least five years as described in the Final Mitigation Plan.

To further minimize and mitigate for less than significant impacts to floodplain areas, a restrictive covenant for floodplain protection would be recorded on approximately 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent floodplain area in the Santa Clara River immediately downstream of the project area. To compensate for the permanent impact to 47.9 acres of waters of the United States, including 5.1 acres of wetlands, that supports aquatic and riparian habitat, Modified Alternative 3 would rehabilitate, enhance and establish approximately 114.04 acres of waters of the United States, including 35.2 acres of wetlands in the project area, as described in the attached Final Mitigation Plan. The compensatory mitigation program would be conducted on-site, with the majority of the sites being located in and adjacent to the 612 acres of preserved jurisdictional features in the project area and would include financial assurances for the proposed compensatory mitigation sites. Appropriate legal restrictions would be placed on both the preservation and compensatory mitigation sites to ensure long-term protection and maintenance for these aquatic/riparian resources as well as no net loss of functions and services. Furthermore, to maintain existing functions and services in the preserved and compensatory mitigation jurisdictional features and adjacent upland areas shown on Figure 12 of the Newhall Ranch Project Description dated 11 August 2011, no new drilling, mining, exploring and operating, storing in, and removing of oil, minerals, natural gas and other hydrocarbons would occur through the surface of the above areas or the upper 500 feet of the subsurface and no new or additional surface entry associated with the above activities would occur at the surface. In addition, suitable erosion control best management practices (BMPs) would be installed between any existing oil wells and waters of the United States and the BMPs would be required to be maintained in good working condition until the existing wells were abandoned and remediated. With the inclusion of the above mitigation measures, the proposed project (LEDPA) would result in less than significant impacts to the aquatic ecosystem. In consideration of the substantial avoidance and minimization of impacts to waters of the United States, in combination with the proposed compensatory mitigation plan, implementation of Modified Alternative 3 would result in no net loss of waters of the United States or aquatic resource functions and services in the project area.

VII. References

See reference sections in the Final EIS/EIR, the applicant-prepared Section 404(b)(1) Alternatives Analysis and the revised project description dated 11 August 2011.