3.1 INTRODUCTION

This section addresses the Specific Plan's infrastructure development plans for grading; drainage, water quality, and bank stabilization; water service/recycled water; wastewater service; dry utilities; roadway design; and parking. The section also discusses the Transportation Demand Management program of the Specific Plan. The EIR accompanying the Specific Plan also addresses this infrastructure and includes additional requirements to help ensure that the infrastructure can support the community envisioned by the Specific Plan.

The plans presented in this section are preliminary and are subject to change as detailed engineering designs are prepared, reviewed, and approved by the City as part of the final construction or grading plans. With that said, the plans presented in this section do describe the extent of the proposed infrastructure and associated improvements, and the designs intended to establish the standards by which the final infrastructure/improvement plans must conform.

3.2 GRADING PLAN

3.2.1 EXISTING CONDITIONS

The approximately 185-acre Specific Plan site is shaped irregularly and the topography is relatively flat. The Specific Plan site includes the sandy bottom of the ephemeral Santa Clara River, a small elevated terrace on the northeastern portion of the site, and a larger elevated terrace that forms the southern half of the site. These terraces drain towards the Santa Clara River. Elevations on the Specific Plan site range from a high of 1,555 feet above sea level at the northeastern portion of the site, to a low of 1,465 feet above sea level in the middle of the Santa Clara River. The Specific Plan site is comprised primarily of undeveloped land with the exception of a residential compound/equipment storage yard present on the western side of the site and the Mitchell family cemetery located on the small elevated terrace at the northeastern portion of the site. Remnants of the Mitchell family homestead also are located on the southern portion of the site, and consist primarily of building foundations and fencing associated with past ranching operations.

Conditions on the Specific Plan site have been altered substantially by historic uses of the property, including agricultural cultivation, grading, residential uses and utility installation and maintenance. A substantial amount of illicit dumping has occurred as well. There is little remaining natural vegetation, with the exception of a vegetated area on the southeastern portion of the site that includes some standing oaks and introduced grasses.

3.2.2 PROPOSED CONDITIONS

Within the Specific Plan boundary, the earthwork will consist of approximately 590,000 cubic yards of cut, up to 830,000 cubic yards of fill, and approximately 1,700,000 cubic yards of remedial grading. Up to 500,000 cubic yards of dirt will be hauled to the site, which includes the 240,000-cubic-yard difference between the Specific Plan's cut and fill as well as the additional fill needed to compensate for soil shrinkage associated with soil compaction.

Section 5.0, Design Guidelines, identifies the grading guidelines that are designed to ensure development is safe, aesthetic, and cost-effective.

Additionally, grading activities will require import of dirt from southern portions of the site to northern portions of the site for the construction of the buried bank stabilization. To facilitate this action, a temporary at-grade haul route, at a width of 35 feet, will be constructed within the Vista Canyon Road Bridge corridor and used for up to nine months.

The Specific Plan cut and fill areas are shown on **Figure 3.0-1**, **Conceptual Grading Plan**. The off-site grading necessary to implement the Specific Plan was described above in **Section 2.3.3**, above.

3.3 DRAINAGE/WATER QUALITY

The Vista Canyon Drainage and Water Quality Plan incorporates methodologies to meet or exceed the ongoing National Pollutant Discharge Elimination System (NPDES) Permit requirements. The plan includes a comprehensive series of drainage, flood control, and water quality improvements designed to allow for a system to both protect development and preserve the Santa Clara River.

3.3.1 EXISTING CONDITIONS

The Specific Plan site consists of seven minor contributing drainage areas that independently drain *via* sheet flows and natural concentrated flows to the Santa Clara River.

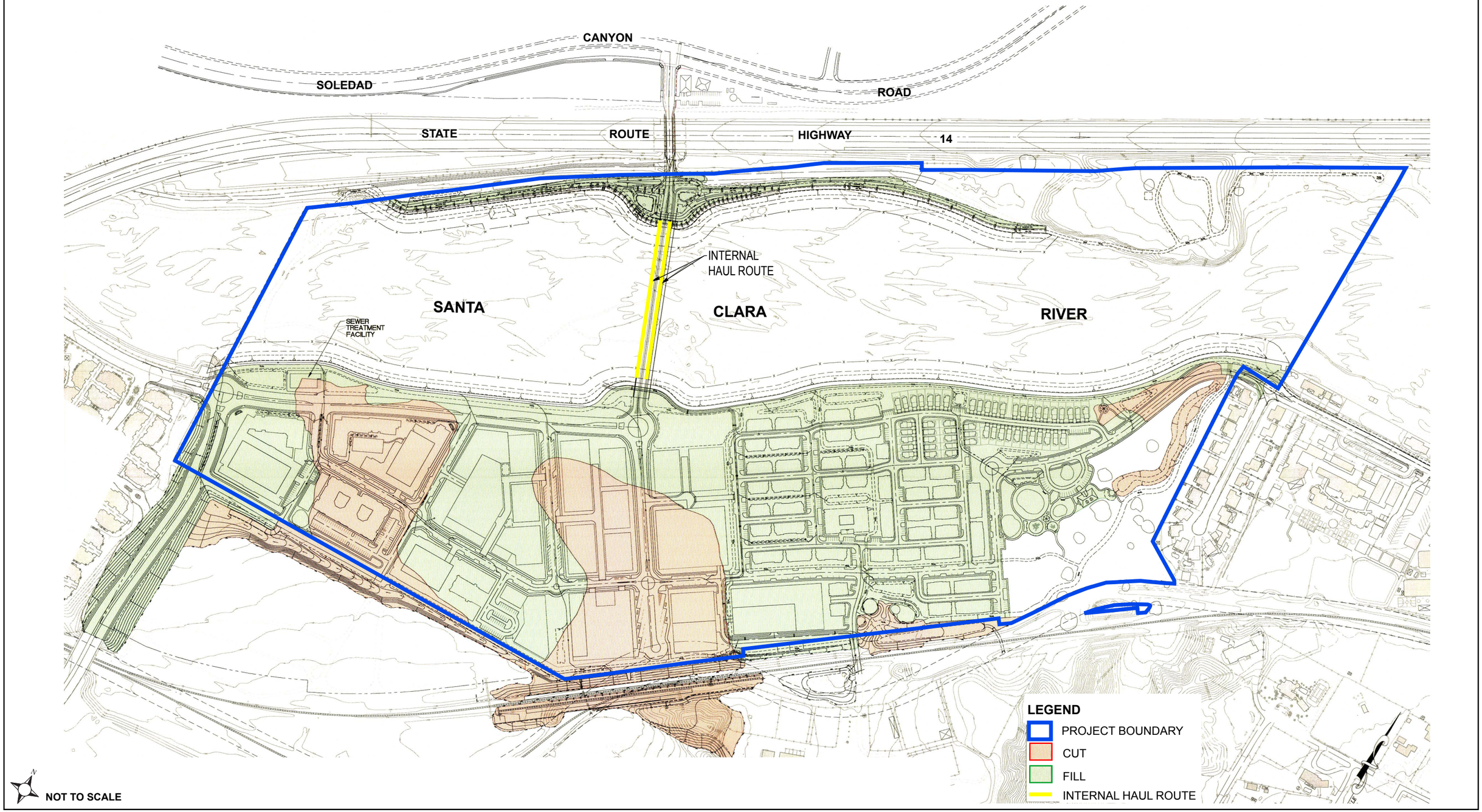

Figure 3.0-1

Conceptual Grading Plan

3.3.2 PROPOSED CONDITIONS

The Specific Plan will require construction of new drainage and water quality features to allow for a system that both protects development from erosion and potential flooding, and preserves the Santa Clara River. In addition to construction of conventional drainage improvements like storm drains, which will outlet through the north and south banks of the Santa Clara River and associated energy dissipaters (consisting of either rip-rap or other devices that reduce storm flow velocities and prevent erosion at stormwater discharge points into the River),[4] the Specific Plan envisions using sustainable drainage and water quality technologies, such as bioretention areas, planter boxes, vegetated swales, combination bioretention swales, filter strips, permeable pavement, underground infiltration, and storage and reuse systems.

The primary objectives of the Specific Plan's drainage concept and stormwater management program are as follows:

(a) Incorporate Low Impact Development (LID) practices wherever feasible;

(b) Effectively manage wet and dry weather runoff water quality by limiting increases in runoff pollutants and flows at the source through Project Design Features (PDFs) and Best Management Practices (BMPs);

(c) Avoid or minimize impacts to water quality through site design and use of sustainable drainage/water quality technologies;

(d) Maintain and enhance the Santa Clara River Corridor in a manner that allows for the passage of the Los Angeles County Capital flood flow without the permanent removal of natural river vegetation;

(e) Delineate the banks of the Santa Clara River so that they are outside of the "waters of the United States," as defined by Corps, and consistent with federal laws and regulations;

(f) Where development is proposed within the existing floodplain, the land where development is to occur will be elevated and protected in accordance with applicable laws and regulations to remove it from the floodplain;

(g) Bank stabilization will utilize state-of-the-art buried soil cement techniques, and will occur only where necessary to protect against erosion and potential flooding (*see*, **Section 3.4**, below); and

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[4] **Figure 3.0-2**, Drainage and Water Quality Plan, depicts the locations of the conventional storm drain outlets on both the north and south banks of the River and associated energy dissipaters. As shown, there will be a total of four storm drain outlets to the River, two on the north bank, and two on the south bank. Energy dissipaters (*e.g.*, rip-rap) will be used to slow the rate of runoff flow into the River to prevent erosion of the River channel.

(h) Comply fully with the National Pollutant Discharge Elimination System (NPDES) permit requirements, including the County's Standard Urban Stormwater Mitigation Plan (SUSMP) requirements.

Figure 3.0-2, **Drainage and Water Quality Plan**, illustrates the Specific Plan's drainage and water quality plan and related improvements. The plan incorporates methodologies to meet or exceed NPDES permit and SUSMP requirements. It also includes a comprehensive series of drainage, flood control, and water quality facilities designed to allow for a system to both protect development and preserve the Santa Clara River.

The Specific Plan's drainage concept is designed to provide drainage and flood protection, and maintain stormwater flows from the Specific Plan during and after buildout. As proposed, on-site surface runoff will be conveyed to a network of treatment structures, including bioretention areas, vegetated swales, and water quality basins, prior to discharge into the River. In the PAs, parking lot and roof runoff will be directed through landscaped parkways and grassy swales, or through sections of permeable pavement, to provide initial treatment prior to discharge into the drainage system. Please refer to Section 4.2, Flood, of the EIR for a detailed discussion of existing and post-development drainage conditions and related improvements on the Specific Plan site.

The Specific Plan will incorporate PDFs to address water quality and hydrologic impacts, including site design, source control, treatment control, and hydromodification control BMPs. As currently planned, stormwater runoff from all developed areas within the Specific Plan will be routed to sustainable drainage improvements, such as bioretention areas, vegetated swales, and/or infiltration treatment control BMPs. These BMPs will be designed to receive dry weather flows, small storm flows, and the initial portion of large storm flows. Please refer to Section 4.8.1, Water Quality, of the EIR for a detailed discussion of the water quality PDFs incorporated into the Specific Plan's drainage concept and water quality plan.

The Specific Plan incorporates site design features that preserve natural areas, which facilitate SUSMP requirements. For example, over 35 acres, or 20 percent, of the 185-acre project site will remain as parks, landscaping, open space (non-River related), and/or water quality treatment areas. An additional 87 acres, or 47 percent, of the 185-acre site will consist of the Santa Clara River Corridor, buried bank stabilization, and the Santa Clara River Regional Trail. In total, approximately 60 percent of the site will be open space or recreational areas.

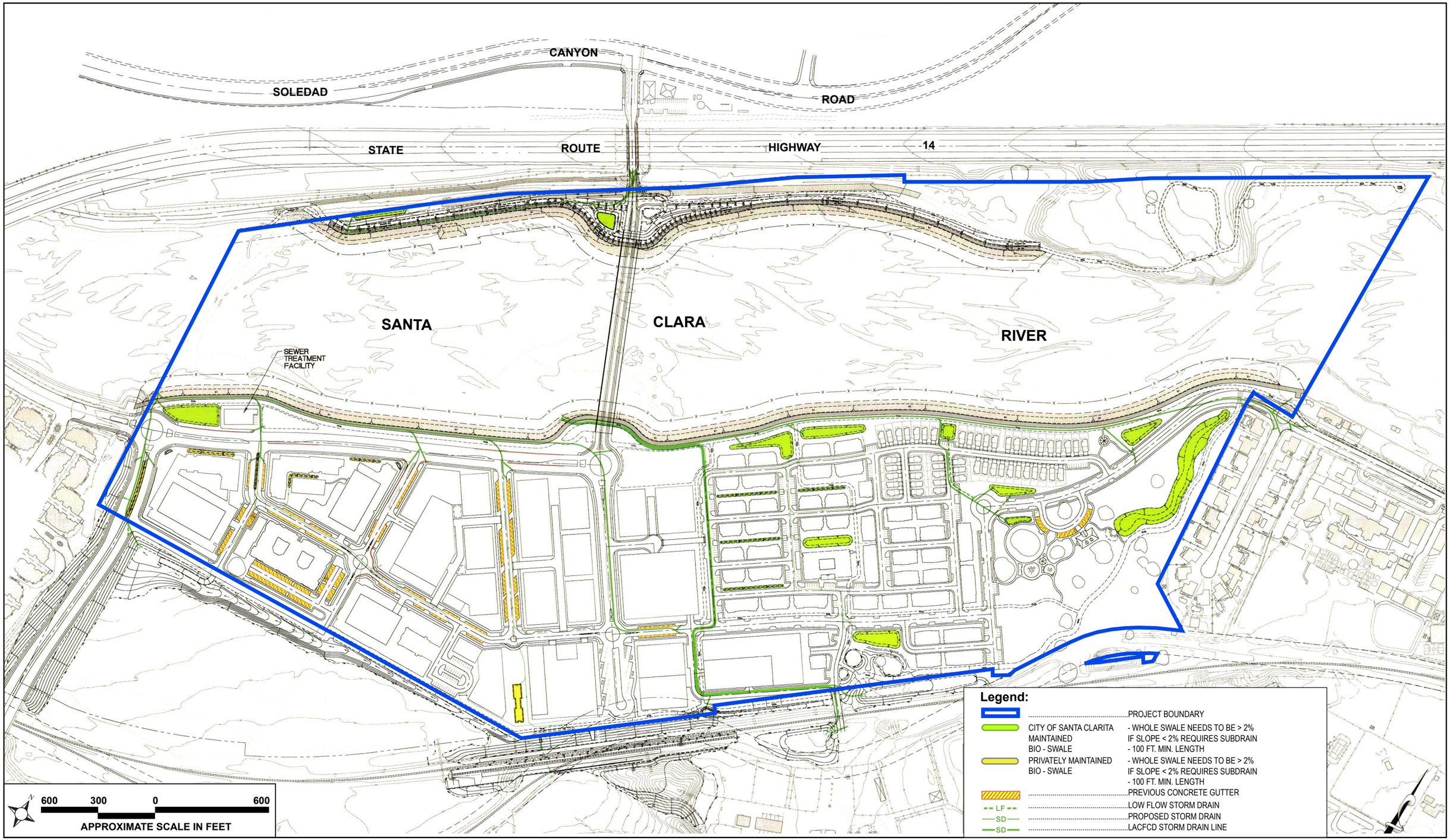


Figure 3.0-2

Drainage and Water Quality Plan

The Specific Plan also will incorporate numerous source control BMPs to address pollutants of concern. These practices are designed to minimize introduction of pollutants to the maximum extent practicable, and will include education programs, animal waste bag stations, street sweeping, and catch basin cleaning.

In addition, the Specific Plan will utilize LID practices and treatment control BMPs as part of the final drainage/water quality design for the project area. The primary goals of LID practices are to maintain a landscape functionally equivalent to pre-development hydrologic conditions, and to minimize the generation of pollutants of concern. LID principles include the following:

(a) **Minimize Impervious Area/Maximize Permeability.** Principles include preserving open space areas, reducing impervious surfaces (through reduced road width, for example), using permeable paving materials, reducing land coverage of buildings by constructing multi-story structures, and incorporating bioretention and infiltration into the Specific Plan's landscape design.

(b) **Minimize Directly Connected Impervious Areas.** Minimizing directly connected impervious areas can be achieved by directing runoff from impervious areas to vegetated areas (*e.g.*, landscaped areas, vegetated swales) or to infiltration BMPs.

(c) **Conserve Natural Areas.** Conserving and protecting native soils, vegetation, and the River Corridor helps to mimic the project site's pre-developed hydrologic conditions. This is accomplished by constructing multi-story development within portions of the Specific Plan site to conserve open areas, planting additional vegetation, using native and/or non-native/non-invasive vegetation in parking lot areas and other landscape areas, and preserving, restoring, and enhancing riparian areas and wetlands within the Santa Clara River Corridor.

(d) **Select Appropriate Building Materials.** Use of appropriate building materials (*e.g.*, roof gutters and downspouts without copper or zinc) reduces the generation and discharge of pollutants of concern in runoff; and, therefore, acts as a source control BMP.

(e) **Protect Slopes and Channels.** Protecting slopes and channels reduces the potential for erosion and preserves natural sediment supply.

Further, the Specific Plan will incorporate numerous treatment control BMPs that are designed to remove pollutants once mobilized by rainfall and runoff. These treatment control BMPs include the following:

(a) **Bioretention.** Bioretention areas are vegetated (*i.e.*, landscaped) shallow depressions that provide storage, infiltration, and evapotranspiration. Bioretention areas also remove pollutants by filtering stormwater through plants adapted to the local climate and soil

moisture conditions and an engineered soil mix. Bioretention will be considered for use, wherever feasible, as part of the Specific Plan's landscaping plan.

(b) **Planter Boxes.** Planter boxes are much like bioretention, with a soil media layer, a gravel drainage layer, and vegetation. Like bioretention, planter boxes provide storage, filtration, and evapotranspiration, and remove pollutants via filtration. However, unlike many bioretention, planter boxes typically are underlain by an impervious layer and not designed to infiltrate water. This allows planter boxes to be placed in areas where infiltration is prohibited. Planter boxes may be designed without a bottom where infiltration is permissible.

(c) **Vegetated Swales.** Vegetated swales treat stormwater runoff through both vegetative treatment and infiltration. Swales treat the water quality design flow as the runoff sheet-flows through grassy vegetation on the swale surface, removing pollutants by filtering stormwater through plants adapted to the local climate and soil moisture conditions. Incidental infiltration occurs into native soil when water is present. Plants utilize soil moisture and promote the drying of the soil through transpiration, thereby promoting volume reduction.

(d) **Combination Bioretention Swales.** Combination bioretention swales have attributes of both bioretention areas and vegetated swales, as described above. Bioretention swales have all the attributes of a bioretention area, but do not include an underdrain. Runoff is stored in the pores of the amended soil and in shallow surface ponding and exfiltrates into native soil over a period of days. Bioretention swales are linear in shape, have dense vegetation that protrudes above the maximum water surface elevation, and are configured with the inlet and outlet at opposite ends to promote flow through the length of the facility.

(e) **Filter Strips.** Filter strips treat stormwater runoff through both vegetative treatment and infiltration. Runoff from impervious surfaces sheet flows in a very shallow layer through grassy vegetation, removing pollutants by filtering stormwater through plants adapted to the local climate and soil moisture conditions. Incidental infiltration occurs into native soil when water is present. Plants utilize soil moisture and promote the drying of the soil through transpiration thereby promoting volume reduction.

(f) **Permeable Pavement.** Permeable pavements contain small voids that allow water to pass through to a stone base. They come in a variety of forms; they may be a modular paving system (concrete pavers, grass-pave, or gravel-pave) or poured in place solutions (porous concrete, permeable asphalt). All permeable pavements include an aggregate reservoir to retain and infiltrate water. An overflow pipe generally is installed near the top of this aggregate layer to ensure that water does not pond on the surface of the pavement. While conventional pavement results in increased rates and volumes of

surface runoff, permeable pavements, when properly constructed and maintained, allow some of the stormwater to percolate through the pavement and enter the soil below.

(g) **Underground Infiltration Gallery.** Underground retention and infiltration galleries operate by storing and infiltrating water below roadways or other surfaces. These may consist of a thick layer of aggregate providing storage volume in pore space. Alternatively, underground retention products are available that provide storage capacity and promote infiltration, often more efficiently than aggregate reservoirs.

(i) **Infiltration Trench.** Infiltration trenches are rock-filled trenches designed specifically to store stormwater during a storm and exfiltrate it into surrounding soils over a period of days. Infiltration trenches are used in areas with high infiltration rates and limited space.

(j) **Dry Wells.** Dry wells are much like infiltration trenches but may be installed deeper in the soil profile to specifically promote infiltration into highly infiltrative soil layers.

(k) **Storage and Reuse.** Storage and reuse systems may take a variety of forms, but most typically consisting of cisterns or rain barrels connected to a roof gutter system. Roof runoff is captured and stored, thereby reducing runoff, making water available for non-potable uses such as irrigation, and reducing overall water usage.

Conceptual illustrations of the treatment control BMPs described above are shown on **Figures 3.0-3** and **3.0-4**.

The Specific Plan also will utilize a series of hydromodification control measures to prevent and control hydromodification impacts to the Santa Clara River, including: (a) avoiding, to the extent feasible, the need for mitigation of hydromodification impacts by preserving natural hydrologic conditions and protecting sensitive hydrologic features, sediment sources, and sensitive habitats within the Santa Clara River Corridor; and (b) minimizing the effects of development through low impact/site design practices, and implementation of treatment control BMPs.

In addition, the Specific Plan's development footprint will allow for natural stream channel activity. This includes maintaining set backs to allow for natural river channel movement and adjustment in response to changes in energy associated with runoff and larger storm events. The engineered structural elements that will be implemented where needed for Santa Clara River stability include energy dissipation and buried bank stabilization:

(a) **Energy Dissipation.** Energy dissipation at storm drain outfalls provides erosion protection in areas where discharges have the potential to cause localized stream erosion. Erosion protection will be provided at all storm drain outlets to the Santa Clara River.

(b) **Buried Bank Stabilization.** The Specific Plan will include buried bank stabilization along the Santa Clara River within the site. The proposed bank protection will consist of buried soil cement to provide scour and freeboard flood control protection. Soil cement is a state-of-the-art flood control technique used to protect against erosion while maintaining natural vegetation and soft banks. Soil cement will be buried below the existing banks of the Santa Clara River. Disturbed areas will then be re-vegetated with native plant species, maintaining or improving the natural habitat presently found along the River (*see*, **Section 3.4**, below).

3.4 BANK PROTECTION/STABILIZATION

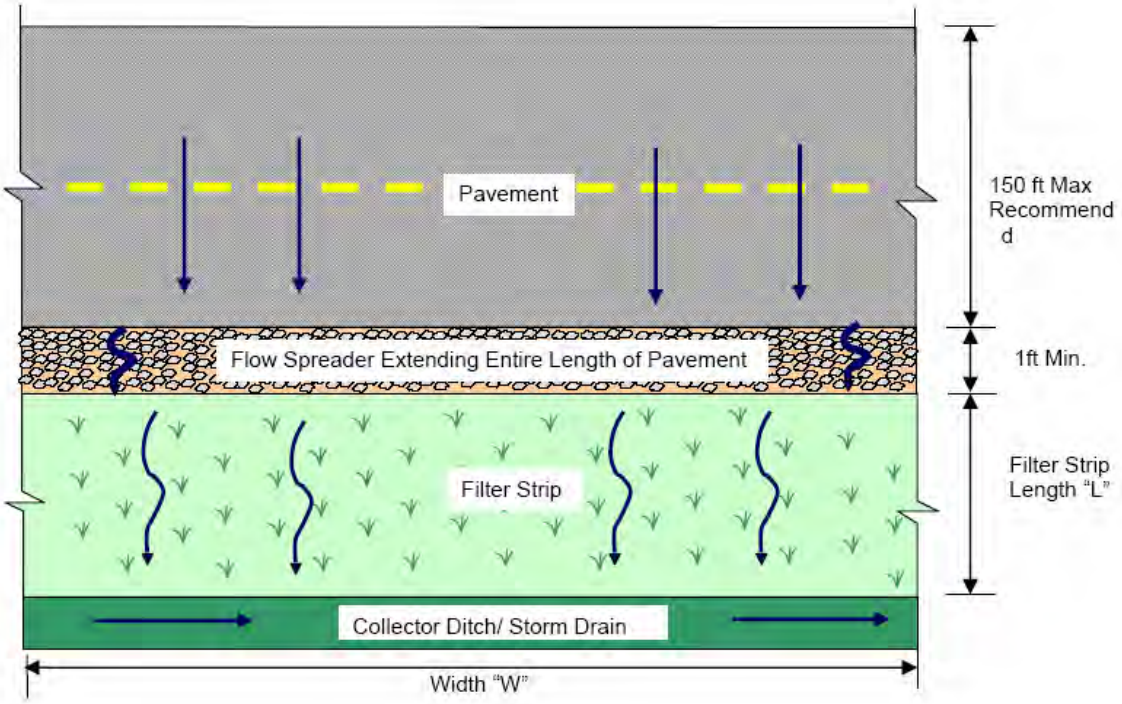
3.4.1 EXISTING CONDITIONS

The Specific Plan site is located within the Santa Clara River Hydrologic Basin and associated watershed, which is approximately 1,634 square miles in area. The portion of the Santa Clara River watershed located generally upstream or east of the Specific Plan site is approximately 191 square miles in size. (PACE, 2009.) The upstream watershed drains portions of the Angeles National Forest from the north, south, and southeast, which comprises approximately 40 percent of the watershed area at this location. The Specific Plan site, consisting of approximately 185 acres, represents 0.15 percent of the 191-square-mile upstream watershed, and 0.018 percent of the entire approximately 1,634-square-mile Santa Clara River watershed.

Within the Specific Plan site, the Santa Clara River is generally dry, except after periods of heavy rainfall, generally occurring during the winter months. (Dudek, 2009.) As a result, flows in the Santa Clara River, like most Southern California rivers, are highly episodic. These large episodic events are associated with occasional storm events, generally in the winter months, and have a significant effect on the existing geomorphic characteristics of the Santa Clara River mainstem.

The portion of the Santa Clara River within the Specific Plan site conveys runoff from precipitation in the upper watershed, as well as urban runoff during storms from the developed portion of the watershed. The River's active channel width within the Specific Plan site ranges from approximately 28 to 64 feet. A majority of the Santa Clara River within the site also is characterized by existing earthen banks that have been realigned over time due to storms, and a streambed that displays evidence of some aggradation and degradation. The stretch of the Santa Clara River within the site also is characterized by a wide, meandering channel that supports vegetated and un-vegetated islands of varying size, composition, and age that have developed both within and outside the bank or active channel. (Dudek, 2009.)

Plan View



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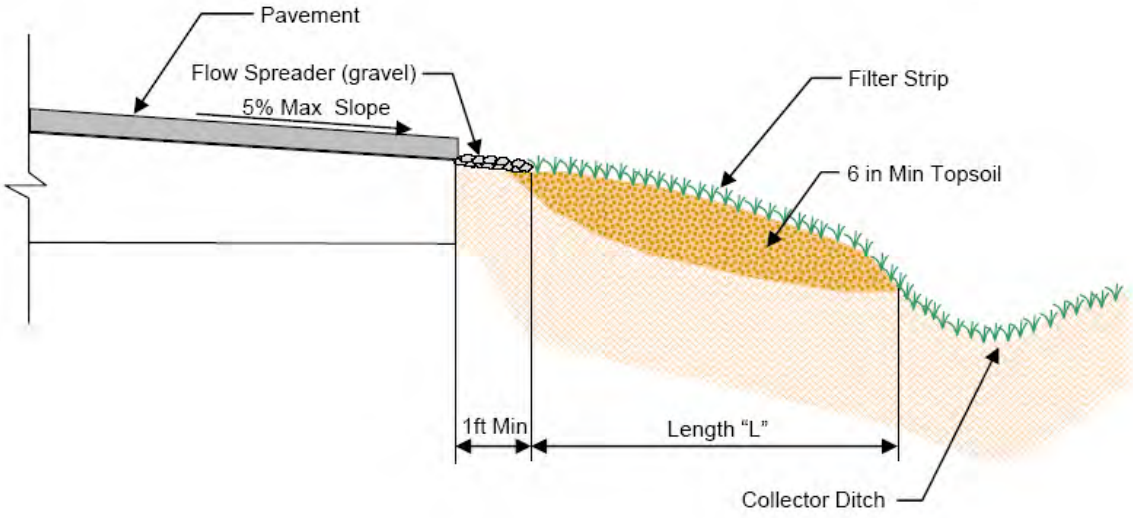

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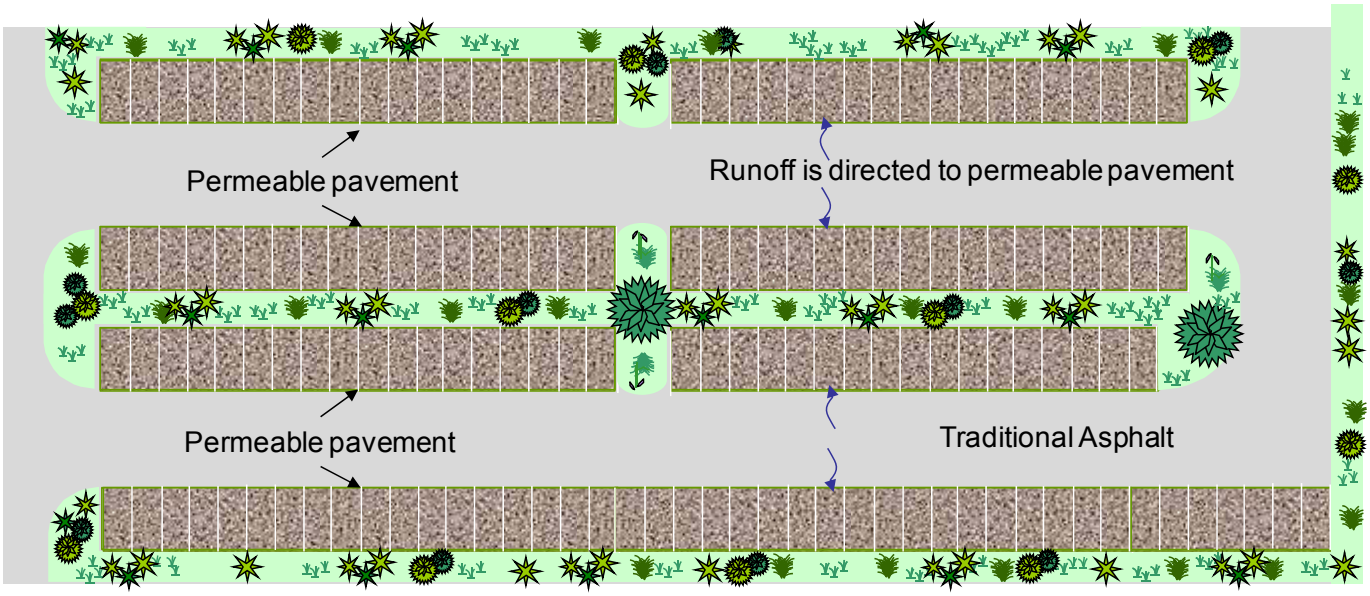
FIGURE 3.0-3 **Conceptual Illustration of Treatment Control BMPs**

Source: Geosyntec Consultants, May 2010

Plan View - Parking lot example



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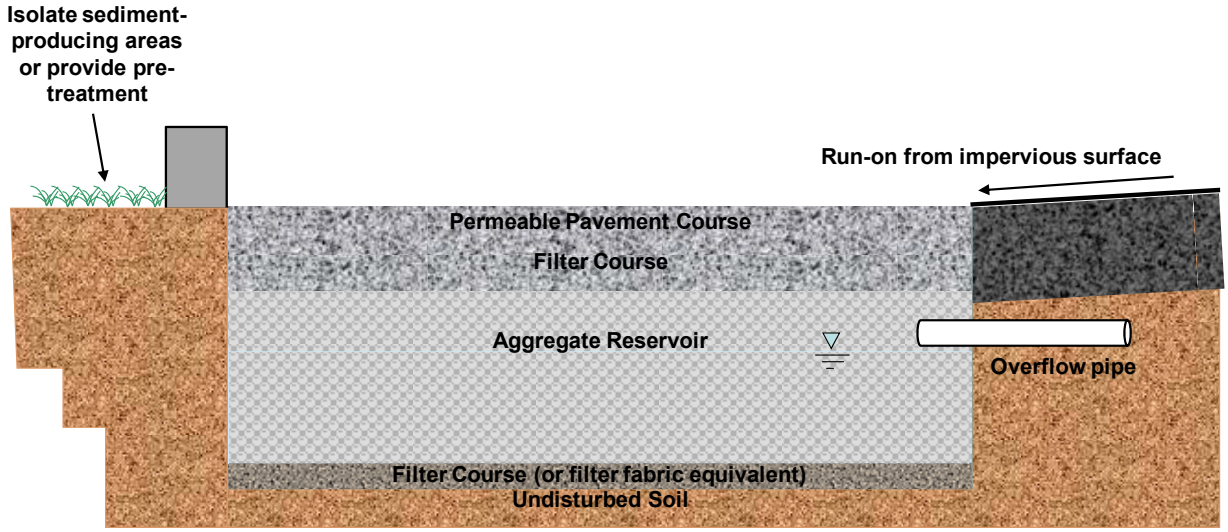

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FIGURE 3.0-4 *Conceptual Illustration of Treatment Control BMPs*

Source: Geosyntec Consultants, May 2010

Within the Specific Plan site, there are existing flood control improvements consisting of debris fencing along portions of both the north and south side of the active channel and rip-rap from the Lost Canyon Road/SR-14 undercrossing extending westerly to the Specific Plan boundary. The Specific Plan will remove these existing flood control improvements and replace them with buried bank stabilization. (See **Figure 2.0-23**, **Existing Santa Clara River Within Project and Vicinity**, for an aerial overview of the River upstream and downstream from the Specific Plan site.)

3.4.2 PROPOSED CONDITIONS

The Specific Plan includes installation of buried bank stabilization along portions of the Santa Clara River within the project site to protect development from flood hazards while preserving the River as a natural resource. The buried bank stabilization will be designed and constructed to retain the Santa Clara River's significant riparian habitat, to allow the River to continue to function as a regional east-west wildlife corridor, and to provide flood protection pursuant to Federal Emergency Management Administration (FEMA) and Los Angeles County/City of Santa Clarita standards. As indicated previously, portions of the site are within the existing FEMA 100-year floodplain. Therefore, the Specific Plan triggers FEMA review in the form of the CLOMR/LOMR floodplain map revision process; FEMA issued the CLOMR approval in November 2009 (see EIR **Appendix 4.2** [letter from FEMA, dated November 13, 2009].) The proposed Specific Plan's buried bank stabilization extends along both sides of the Santa Clara River within the Specific Plan site.

The soil cement bank protection on the north bank of the Santa Clara River is located south of SR-14. The alignment begins at the westerly edge of the Mitchell Hill Open Space area. Mitchell Hill is an exposed bedrock formation that is approximately 40 feet above the elevation of the River and, based upon its geologic formation, does not require river bank erosion protection. The north bank extends approximately 3,000 linear feet from Mitchell Hill downstream and terminates near the project site's northwest boundary, adjacent to SR-14. The bank protection is designed to protect the north bank against potential erosion and flooding, and also is necessary to protect the Vista Canyon Road Bridge north abutment from erosion and flooding. Portions of the north bank stabilization will replace existing rip-rap flood control improvements, generally located west of the existing Lost Canyon Road/SR 14 undercrossing.

The soil cement bank protection on the south bank of the Santa Clara River is located between the easterly site boundary near existing La Veda Avenue and the westerly site boundary near the existing Colony Townhomes. The south bank is approximately 4,500 linear feet with the horizontal alignment extending from approximately 1,400 feet downstream of Sand Canyon Bridge to 1,100 feet upstream of the SR-14 Bridge. The bank protection is designed to protect the Specific Plan site and the southerly abutment of the Vista Canyon Road Bridge from potential erosion and flooding.

The bank protection on the north and south banks also will result in the removal of debris fencing along both sides of the active channel on portions of the project site. The bank stabilization will consist of an 8-foot-wide soil cement section with varied height (top and toe as required by the City/County) and a maximum 1.5:1 slope. Once installed, the soil cement will be backfilled (buried) with native soils on a 3:1 or flatter slope. The excavation required to construct the bank protection will be backfilled and returned to existing grade, except as overlaid by the 3:1 or flatter fill slope. The final slope will be revegetated with native species and temporarily irrigated until the vegetation is established.

Four storm drains, two through the north bank and two through the south bank, also are proposed to outlet via reinforced concrete pipe. To reduce storm flow velocities and prevent erosion at stormwater discharge points into the Santa Clara River, energy dissipaters consisting of either rip-rap or other reinforced concrete impact-type energy dissipaters will be constructed at storm drain outlets into the River.

The advantages of buried soil cement over other types of bank stabilization include the following:

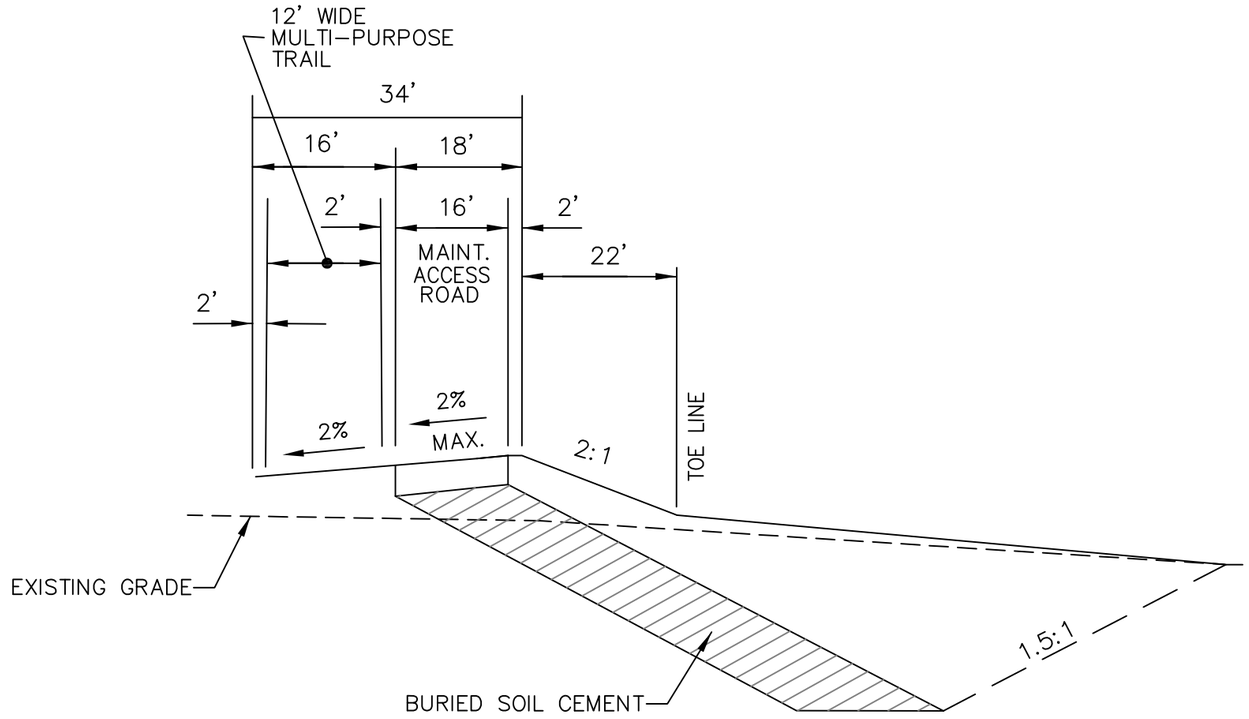
(a) Allows for natural revegetation of areas above the buried soil cement;

(b) Uses on-site native soils, which reduce hauling requirements and associated impacts;

(c) Requires a smaller structural footprint, which reduces the potential for disturbance of adjacent areas; and

(d) The thickness of the soil revetment requires little or no maintenance and inspection.

Figure 3.0-5 provides a cross section of the conceptual design of the buried soil cement/bank stabilization, and its relationship to a typical trail section. **Figure 3.0-6** depicts the soil excavation and backfill process associated with installation of buried soil cement/bank stabilization. The original channel elevation will be restored after construction, and riverbed habitat areas will be revegetated with native plant species. The buried soil cement will not be visible, and the land above it will be used as upland habitat, just as it was used before buried bank installation. **Figure 3.0-7**, shows photographs of an area after completion of soil cement/buried bank stabilization and the restored revegetation area. This figure also depicts the relationship between the Santa Clara River, buried bank stabilization, and a trail area. The representative photographs used in this figure are taken from previously constructed projects located in the Valencia community, in which buried bank stabilization was successfully used.



SECTION A-A *
TYPICAL SECTION-BANK STABILIZATION

NOT TO SCALE

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* SEE THE VTTM FOR ACTUAL CROSS-SECTION LOCATION

Figure 3.0-5

Cross-Section of Conceptual Design of Buried Bank Stabilization Relative to Typical Trail Section

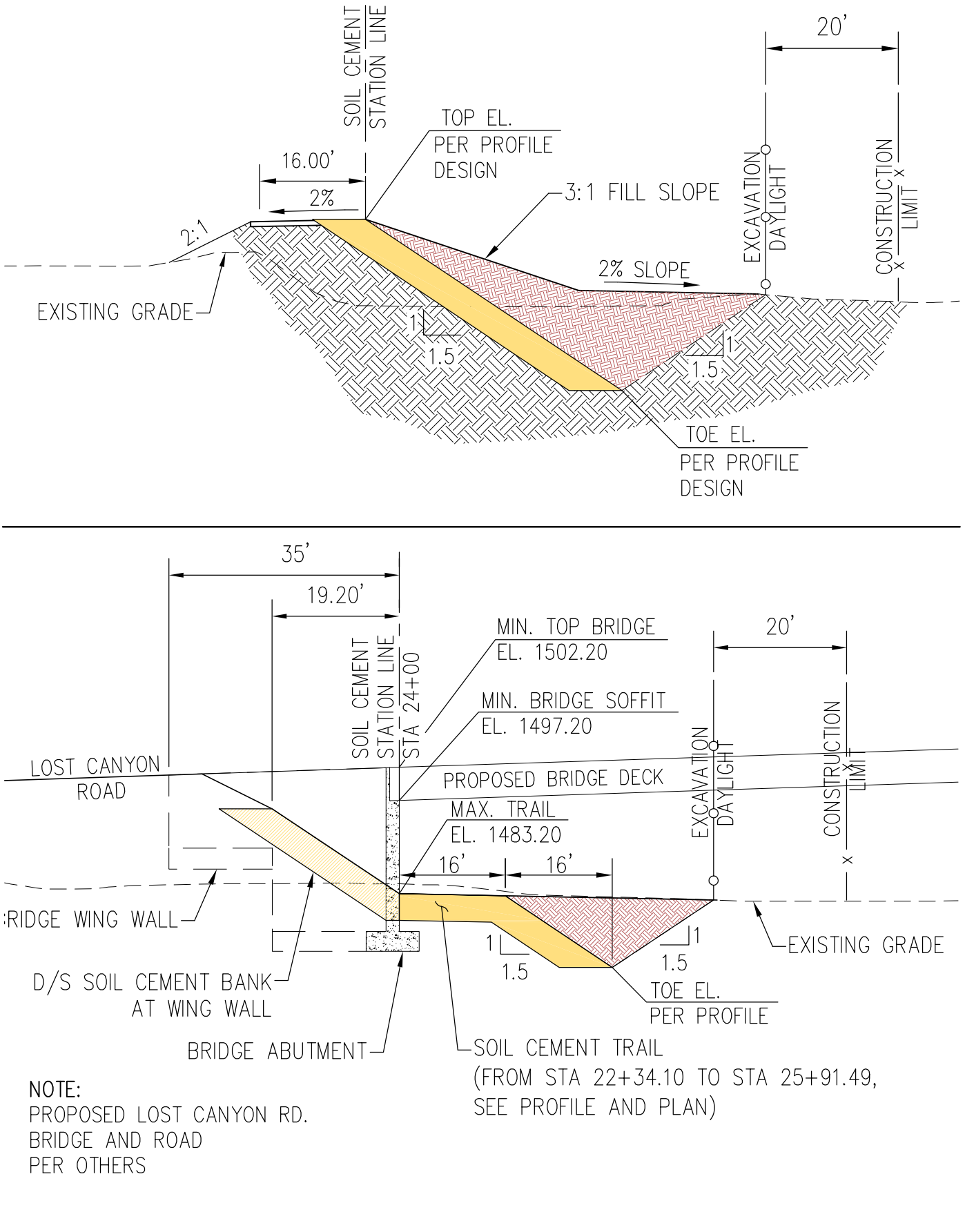

Figure 3.0-6

Soil Excavation and Backfill Process

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 1-5 : Bank Stabilization at Creekside
Photo 6 : Bank Stabilization at Bridgeport
(These photos depict Buried Bank stabilization)

Figure 3.0-7

Photographs of Buried Bank Stabilization

The majority of the bank protection will be located outside of or adjacent to the existing riparian corridor in areas that typically will experience storm flow velocities much less than the main River channel velocities (*e.g.*, typically velocities of 2-8 feet per second (fps) occur along the banks while velocities greater than 15 fps in the main channel occur adjacent to these locations during a 100-year storm event). (PACE Memorandum, May 2007.) Lower, non-erosive velocities in the areas along buried bank stabilization indicate that it is unlikely that all or part of the buried bank stabilization will become exposed. (PACE Memorandum, May 2007.)

3.5 WATER SERVICE/RECYCLED WATER

3.5.1 EXISTING CONDITIONS

The Specific Plan site currently is mostly undeveloped; as such, most of the site is not served by water or recycled water facilities. There are two existing water supply wells within the site in the Santa Clara River Corridor. These water supply wells are owned and operated by the Santa Clarita Valley Water Division of Castaic Lake Water Agency (CLWA). As indicated previously, one of the wells would be removed during Specific Plan implementation.

3.5.2 PROPOSED CONDITIONS

Based on detailed water demand estimates prepared for the project, the Specific Plan will generate a total water demand of 333.7 acre-feet per year (afy), 201.6 afy of potable water demand, and 132.1 afy of non-potable demand. Potable water demand (201.6 afy) will be met by the Santa Clarita Water Division (SCWD), the retail water supplier of CLWA, through a combination of State Water Project (SWP) water delivered through CLWA and local groundwater from wells located primarily in the Alluvial aquifer. The Alluvial aquifer and the Saugus Formation comprise the two-aquifer system known as the Santa Clara River Valley Groundwater Basin, East Subbasin (Basin), located in the Santa Clarita Valley. The amount delivered from each source varies year-to-year due to hydrologic and other conditions. Non-potable water demand (132.1 afy) will be met through use of recycled water from the Vista Canyon WRP, located adjacent to the western boundary of the Specific Plan, directly north of Lost Canyon Road.

Figure 3.0-8 depicts the on-site potable and non-potable water system and associated infrastructure to serve the Specific Plan. As shown on **Figure 3.0-8**, the potable water delivery system consists of a network of varying sized water mainlines that generally follow major roadways. A network of smaller lines would be located within the planned roadway network would distribute the water for connection to laterals located on individual lots. Potable water storage will come from the existing SCWD infrastructure system.

The Specific Plan's WRP will be sized to treat approximately 395,411 gallons per day (gpd), and will be owned and operated by the City of Santa Clarita. As such, it will be considered a "municipal wastewater treatment plant" or publicly owned treatment work (POTW). The

Specific Plan site is not currently within the boundary of the Santa Clarita Valley Sanitation District, but is within the SCWD service boundaries. The project applicant or designee will construct the WRP in conjunction with the Specific Plan, and provide a turnkey facility to City. The City will likely contract for operation of the WRP, and all costs associated with the ongoing maintenance of the plant will be paid for by future residents and property owners within the property through the formation of an assessment district.

3.6 WASTEWATER SERVICE

3.6.1 EXISTING CONDITIONS

The Specific Plan site is mostly undeveloped, and will require wastewater infrastructure to serve the site. Because the Specific Plan site is surrounded by existing development, the provision of wastewater services to the site will not require considerable extension of distribution infrastructure.

3.6.2 PROPOSED CONDITIONS

The Vista Canyon WRP will treat the wastewater generated by both the project and a portion of the existing flows from a City of Santa Clarita sewer line crossing the project site. All solids from the WRP will be sent to the Santa Clarita Valley Sanitation District's existing Valencia WRP for processing and disposal. Recycled water from the WRP will be delivered to CLWA as the wholesale water agency for the Santa Clarita Valley to offset existing water demands. This water will be distributed by CLWA through its reclaimed water distribution system both within and outside of the project boundary. Initially, some of the water may be directed to the percolation pond, or infiltration basin, adjacent to the WRP until the CLWA recycled system is operational.

3.7 DRY UTILITIES

3.7.1 EXISTING CONDITIONS

The Specific Plan site currently is mostly undeveloped, and will require electric, natural gas, and telecommunication infrastructure to serve the project. Because the Specific Plan site is surrounded by existing development, the provision of electricity, natural gas, and telecommunication services to the site will not require considerable extension of distribution infrastructure.

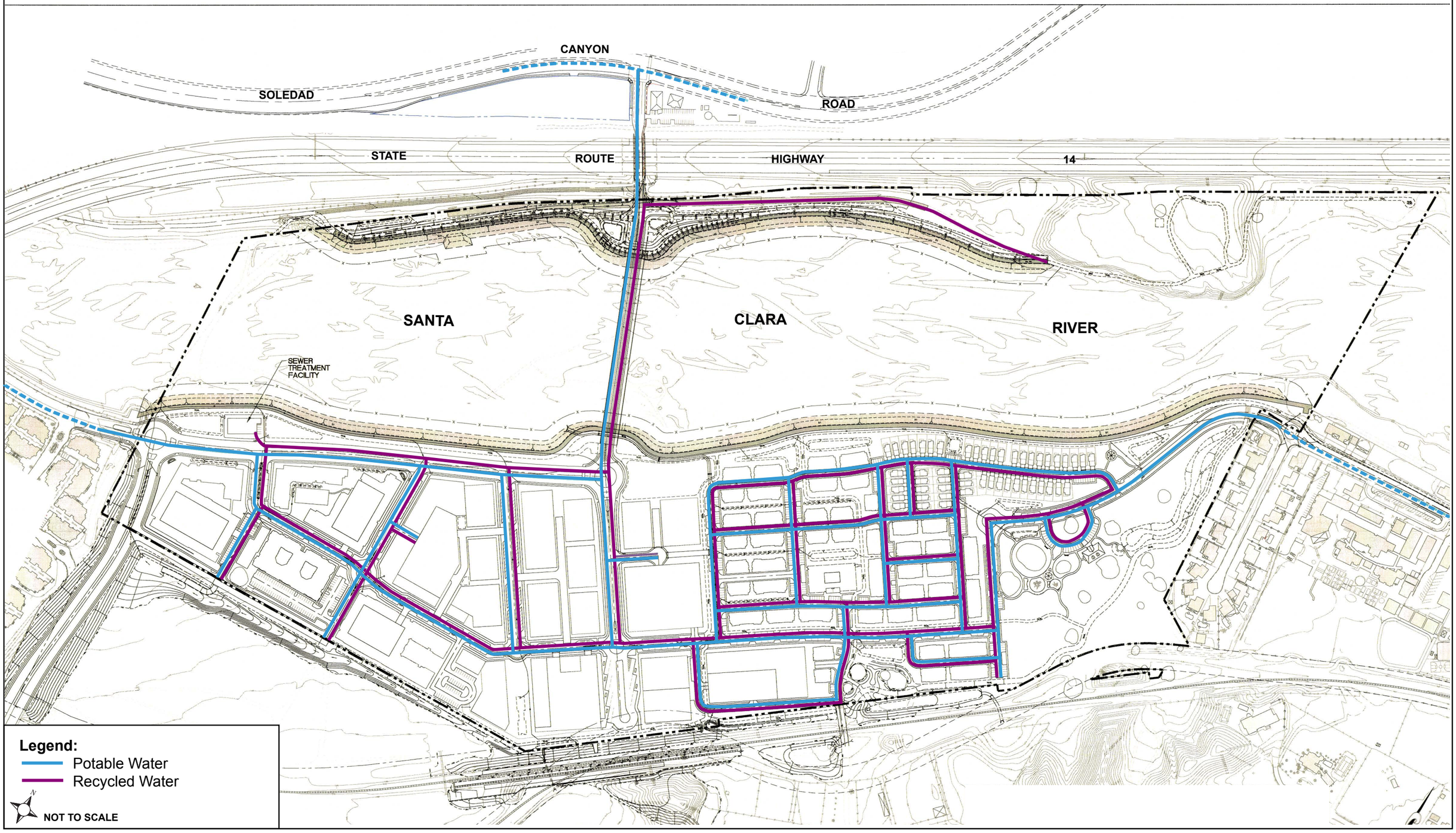

Figure 3.0-8

Conceptual On-Site Potable and Non-Potable Water Systems

3.7.2 PROPOSED CONDITIONS

As discussed in further detail below, electric, natural gas, and telecommunication infrastructure will be installed to serve the Specific Plan. These "dry" utilities will be located within underground conduits in the public or private street corridors/rights-of-way in general conformance with the phasing of the Specific Plan. Consultation with all appropriate utilities to determine the extent of the "dry" utilities needed to serve the site will be required prior to and during the final infrastructure/improvement plan stages.

With respect to electricity, the Specific Plan site is located within the Southern California Edison service area. Primary service will come from Soledad Canyon Road via the existing power lines that presently cross the River and the site. This existing line will be extended to serve the Specific Plan's initial development phases. Upon its construction, power lines will be placed within the Vista Canyon Road Bridge. Additionally, service lines exist within Lost Canyon Road to the southwest and Lost Canyon Road at La Veda Avenue to the east, both of which will likely be extended into the site.

Phone service will be provided by AT&T. Primary service will come from Soledad Canyon Road via the existing line that crosses the River and the site, which will be placed in the Vista Canyon Road Bridge upon its construction. Telephone lines will be constructed underground throughout the site within phases as development commences. Existing service lines are also located within Lost Canyon Road in the southwest corner of the site and Lost Canyon Road near La Veda Avenue. These localized lines may also be extended to the site and utilized for the early phases of the project.

The Specific Plan site is within the Time Warner cable service area. Existing service lines are located in Soledad Canyon Road to the north, Jakes Way to the west, and Lost Canyon Road to the east. A main line feeder from Soledad Canyon Road will be placed in the Vista Canyon Road Bridge. Existing service lines are also located within Lost Canyon Road in the southwest corner of the site and Lost Canyon Road near La Veda Avenue. These localized lines may be utilized for the early phases of the project.

As to natural gas, the Specific Plan site is within the Southern California Gas Company service area. Existing service lines are located in Soledad Canyon Road to the north, Lost Canyon Road to the southwest, and Lost Canyon Road near La Veda Avenue to the east. Gas service to the site will be extended from one of these existing sources. A gas line will also be placed into the Vista Canyon Road Bridge.

3.8 ROADWAY DESIGN

3.8.1 EXISTING CONDITIONS

This section presents the existing condition of the roadways, transit, bicycle, and pedestrian circulation within the Specific Plan site and the surrounding study area.

First, this section describes the freeway, arterials, and local streets that will provide access to the Specific Plan site.

Freeways. SR-14 (Antelope Valley Freeway) is a north-south freeway that extends from I-5 in northern Los Angeles County through Santa Clarita and into the Antelope Valley. It provides regional access to and from the Specific Plan's northern boundary.

Major Highways. Five "Major Highways," which are six or more lane arterials designed for high mobility and limited vehicular access to driveways and cross streets, are within the Specific Plan's study area. Soledad Canyon Road, a four to six-lane major highway, parallels SR-14 in the eastern area of the Santa Clarita Valley. It also provides regional access to and from the Specific Plan's northern boundary. Lost Canyon Road (Via Princessa to Jakes Way), a four-lane divided major highway, provides access to and from the Specific Plan's southwestern boundary. Sand Canyon Road (Soledad Canyon Road to Lost Canyon Road), a north-south major highway with up to two travel lanes in each direction, provides access to and from the Specific Plan's eastern boundary. Via Princessa (Lost Canyon Road to current western terminus of property), a four-to six-lane major highway, provides access to and from the Specific Plan's western boundary. Sierra Highway, generally a north-south major highway that parallels SR-14 from Palmdale/Lancaster southerly to I-5, provides secondary regional access through Soledad Canyon Road to the Specific Plan's northern boundary.

Secondary Highways. Five "Secondary Highways," which are arterials planned for an ultimate of four lanes and designed for high mobility and limited vehicular access to driveways and cross streets, are within the Specific Plan's study area. Sand Canyon Road (Soledad Canyon Road to Sierra Highway), a two-lane north-south arterial roadway, provides northeasterly access to the Specific Plan site. Canyon Park Boulevard, which begins at Lost Canyon Road and extends under SR-14 to Sierra Highway, is a four-lane divided arterial that provides regional access to the Specific Plan's southwestern boundary. Lost Canyon Road (west of Sand Canyon Road), a two-lane undivided roadway, currently terminates just west of La Veda Avenue, providing direct access to the Specific Plan's easterly boundary. Placerita Canyon Road (Sierra Highway to Sand Canyon Road), a four-lane divided arterial from Sierra Highway to just east of SR-14, where it becomes a two-lane undivided road, provides regional access through Sand Canyon Road to the Specific Plan's southeasterly boundary. Via Princessa (Lost Canyon Road to Golden Valley Road), a four-lane arterial, provides access through Lost Canyon Road to the Specific Plan's western boundary.

Limited Secondary Highways. Two "Limited Secondary Highways," which are two-lane streets with more limited mobility and greater access to adjacent land uses, are within the Specific Plan's study area. Jakes Way, which extends easterly from Canyon Park Boulevard under SR-14 to access the existing Colony Townhomes, provides access to the Specific Plan's southwestern boundary. Sand Canyon Road (Lost Canyon Road to Placerita Canyon Road), a two-lane, north-south undivided highway, provides access to the Specific Plan's eastern boundary.

Second, this section describes the existing public transportation services in the Specific Plan's study area. Transit in the vicinity of the Specific Plan area consists primarily of the Metrolink commuter rail line and the City's bus service.

Metrolink is a commuter rail service that operates in Southern California. The major hub is Union Station in downtown Los Angeles. Metrolink provides service between Lancaster and Union Station on the Antelope Valley Line, with three stops in the Santa Clarita area, including the existing Via Princessa station. The Via Princessa Metrolink station provides commuter rail access to the eastern and northeastern portions of Santa Clarita and adjacent areas of unincorporated Los Angeles County. The Santa Clarita and Newhall stations serve the western, southern, and northern areas of the City. Based on survey data, 80 percent of Metrolink riders reside in residential locations north and east of the Via Princessa Station. (Fehr & Peers, May 2009.) In addition, the data shows that, among the surveyed riders, downtown Los Angeles and its environs (54 percent) were the most common destinations, followed by Burbank (35 percent) and Glendale (8 percent).

Santa Clarita Transit provides fixed route transit service throughout the City and in adjacent unincorporated areas. The system encompasses eight local-serving routes as well as four "Station Link" routes that serve the Santa Clarita Metrolink station. Currently, no bus stops exist within 0.25 mile of the Specific Plan site. The closest existing stop (Route 6) is at the Soledad Canyon Road/Lost Canyon Road intersection. Routes 1, 2, and 5 stop at the Sierra Highway/Soledad Canyon Road intersection.

Finally, this section describes the existing bicycle and pedestrian system within the City, which is part of the City's non-motorized transportation schematic and continues to play a key role in future development.

Currently, there are three different classifications for bicycle facilities: (a) Class I Bike Path, which is an exclusive, two-way path for bicycles that is completely separated from a street or highway; (b) Class II Bike Lane, which is a signed and striped one-way lane on streets or highways, typically at the edge of the pavement, with the lane demarcated for bicyclists within the roadway right-of-way; and (c) Class III Bike Route, in which the bicyclist shares the right-of-way with vehicles (the lane may be signed, but is not exclusively striped for use by bicyclists).

The Santa Clara River Regional Trail includes a bike path (Class I) that begins at the northern boundary of the Specific Plan site and parallels the Santa Clara River westerly to and beyond

Whites Canyon Road. Class I paths also are provided along segments of Soledad Canyon Road, Golden Valley Road, and Sand Canyon Road. Class II bicycle lanes are present on Soledad Canyon Road west of Sand Canyon Road.

Santa Clarita's existing pedestrian network is comprised of sidewalks, paseos, and multi-use trails. Within the immediate Specific Plan vicinity, pedestrian facilities are limited to sidewalks on portions of streets and cross walks at intersections.

Based on a literature review, the following conclusions have been drawn that are relevant to the Specific Plan:

(a) Current Metrolink rail service frequencies will support moderate levels of ridership during peak periods, and lower levels during off-peak periods;

(b) The Specific Plan's Metrolink Station will attract ridership not only from the project site, but also from adjacent residential areas located on Jakes Way and Lost Canyon Road, which are within a 0.5-mile walk of the proposed station;

(c) The provision of a Bus Transfer Station within the Specific Plan will tend to increase rail ridership at the proposed station and decrease external vehicle trips;

(d) Metrolink will provide a time-competitive alternative to the automobile for peak hour (directional) travel between the Specific Plan site and destinations in Burbank, Glendale, and Los Angeles (Union Station);

(e) Higher levels of transit usage are expected over the long term as the Specific Plan is built out; and

(f) Even if rail or bus service was not an integral part of the Specific Plan, the Specific Plan's density, diversity of land uses, and site design, which accommodates non-automobile travel modes, will result in reductions in vehicle trips when compared to the "standard trip rates" used for the Santa Clarita Valley. (Fehr & Peers, May 2010.)

3.8.2 PROPOSED CONDITIONS

3.8.2.1 Objectives

The Specific Plan's Mobility Plan, which is contained in **Section 2.4** of the Specific Plan, identifies the transportation/circulation network to serve the Specific Plan. The Mobility Plan incorporates vehicular and non-vehicular modes of transportation in a system of roads, bike lanes, trails, and pedestrian pathways. It also illustrates the extension of transit and bicycle/pedestrian facilities to and from the Specific Plan site. The purpose of this section is to

identify the Specific Plan's roadway design objectives. The three interrelated roadway design objectives are as follows:

(a) To provide an efficient roadway and pedestrian network connecting the Specific Plan with surrounding uses and the City's existing trails network;

(b) To calm vehicle speeds, which creates a safe environment for pedestrians, bicycles, automobiles, service and delivery vehicles; and

(c) To facilitate and encourage transit use as an alternative to automobiles by providing land and partnering with the City and Metrolink on rail and transit facilities to be located along the Specific Plan's southern boundary in PA-2.

The Specific Plan's roadway/circulation design meets these objectives by:

(a) Proposing streets designed to establish a safe and efficient vehicle, bicycle, and pedestrian network, while at the same time creating a high-quality environment consistent with the proposed residential and mixed use architectural themes throughout the Specific Plan;

(b) Establishing a circulation system designed to ensure pedestrian and bicycle safety over maximum vehicle traffic speeds;

(c) Providing pedestrian, bicycle, and vehicle linkages to existing major transportation corridors (*e.g.*, SR-14, I-5), shopping destinations, and rail/transit within the City; and

(d) Encouraging the use of public transportation by providing a multi-modal transit hub, which will add to the range of rail/transit services available in this portion of the City.

3.8.2.2 Local and Regional Vehicular Circulation Design

The Specific Plan's vehicle circulation network includes a hierarchy of streets ranging from secondary highways to private neighborhood streets and drives. SR-14 and I-5 provide regional access to the Specific Plan site and beyond. Internally, circulation is established through the use of Lost Canyon Road as the central thoroughfare in PA-1 and PA-2, connecting to Vista Canyon Road at a centrally located roundabout. These streets intersect with other neighborhood streets and the "Main Street" thoroughfare (Vista Square), which, like the rest of the Specific Plan, is designed as a pedestrian-oriented environment by creating multiple points of access to and from residential areas.

In PA-3, Lost Canyon Road is down-sized and interconnected with the residential neighborhood streets. PA-3 also includes a loop trail system, which links the area to the other Planning Areas within the Specific Plan site. This inter-connected roadway design and network permits the dispersion of vehicle trips among the various internal streets, which allows the streets to be narrower while still meeting the City's traffic flow and emergency vehicle requirements.

3.9 TRANSPORTATION DEMAND MANAGEMENT

3.9.1 EXISTING CONDITIONS

Currently, there is no vehicular, bicycle, or pedestrian access to and from the Specific Plan site due to its largely undeveloped condition.

3.9.2 PROPOSED CONDITIONS

The Specific Plan is designed to promote the use of alternative local and regional modes of transportation in lieu of automobile use. Increasing the use of alternative forms of transportation helps to meet local and regional transportation planning objectives (such as improving traffic flow and minimizing vehicle trips), environmental objectives (such as improving air quality and minimizing GHG emissions), and social objectives (such as improving quality of life). The goals of the Specific Plan's Transportation Demand Management (TDM) program are to: (a) reduce the number of vehicles trips generated by future uses within the Specific Plan and its vicinity; (b) increase awareness and participation in the TDM program by encouraging development within the Specific Plan to implement TDM concepts; and (c) increase transit ridership and the use of alternative transportation modes within the Specific Plan and the City as a whole.

TDM Program Components. The Specific Plan's City/Metrolink transit hub within the Specific Plan site is envisioned as a place to conveniently access transit (rail/bus) in eastern Santa Clarita. Local and regional transportation alternatives will be provided within the transit center, and result in the extension of rail and bus service to and from the Specific Plan and its vicinity. Other components planned as part of the Specific Plan's final TDM Program would include, but not be limited to:

(a) **Introductory Transportation Information Packet.** These packets will be provided to all residents, owners, and employees within the Specific Plan, and outline rail and bus routes, schedules, and available carpool/vanpool/shuttle services.

(b) **Park-n-Ride.** Park-n-Ride parking will be provided within the transit hub in PA-2. There will be up to 750 designated park-n-ride spaces provided at Specific Plan buildout.

(c) **Coordination.** The Specific Plan applicant is committed to the following TDM implementation strategies:

(i) Work closely with the City, Metrolink, and others to develop a successful and thriving transit center and associated facilities and services;

(ii) Work closely with the transit providers in the City and County to assure that the routes, transit stop locations, information signage, and related facilities will meet the needs of the people who live, work, and shop within the Specific Plan and surrounding vicinity; and

(iii) Utilize similar standards of urban design and architectural quality for the transit center, stops, signage, shelters, and similar structures.