

## 4.6 HYDROLOGY AND WATER QUALITY

### 4.6.1 Introduction

This section of the EIR describes the existing Project Site conditions related to hydrology and water quality. The Proposed Project's potential impacts in these areas are discussed and mitigation measures are provided for impacts determined to be potentially significant. Information contained within this section is based in part on the *Preliminary Hydrology Report* prepared by Tait & Associates, Inc. revised October 18, 2011, *Preliminary Water Quality Management Plan (WQMP) for Home Depot Southwest Corner of Highland Avenue and Arden Avenue City of San Bernardino* prepared by Tait & Associates, Inc. revised October 18, 2011, and information contained in the City of San Bernardino 2005 General Plan Update and Specific Plans EIR. The technical reports are included as Appendix F of this DEIR.

### 4.6.2 Environmental Setting

#### Regional Hydrology

The Project Site lies within the Upper Santa Ana River Watershed; the entire Santa Ana River Watershed covers approximately 2,650 square miles including portions of San Bernardino, Riverside, and Orange Counties. The Santa Ana River is the largest stream system in southern California and is also the region's main surface water body. The watershed's headwaters are located in the San Gabriel and San Bernardino Mountains to the north and the San Gorgonio and San Jacinto Mountains to the east. The Santa Ana River flows southwesterly from its origin at the confluence with Bear Creek in the San Bernardino Mountains to the Pacific Ocean near Newport Beach.

Several tributaries to the Santa Ana River flow through the City of San Bernardino. Tributaries include among others City Creek, Warm Creek, San Timoteo Creek, and Lytle Creek. These creeks carry storm flows, precipitation, snowmelt runoff, and urban runoff to the River. Downstream of the City, contributions to the river flow include highly treated wastewater from several municipal treatment plants. The San Jacinto Fault, located at the southern end of the City also contributes to surface water by forcing groundwater to the surface; the fault is also known as the Bunker Hill Dike.

Groundwater is water below the ground surface that is stored in water bearing formations called aquifers. Groundwater basins are areas with highly permeable soils that allow for the replenishment (or recharge) of aquifers. The City of San Bernardino overlies the Bunker Hill Subbasin ("*Bunker Hill Basin*") of the Upper Santa Ana Valley Groundwater Basin. The Bunker Hill Basin receives most of its natural recharge (estimated at over 60%) from the Santa Ana River, Mill Creek to the east, and Lytle Creek. The total estimated groundwater storage capacity of the basin is nearly 6 million acre-feet (an acre-foot of water is approximately 325,850 gallons).

### Local Hydrology & Drainage

The Project Site drains toward City Creek which is tributary to the Santa Ana River Reach 5 and downstream reaches 4 and 3 (see Figure 4.6-1). Storm drains and flood control facilities within the City of San Bernardino include natural and man-made channels, storm drains, street waterways, natural drainage courses, debris basins, dams and levees. Storm drain facilities are primarily administered by the City and the County Flood Control District. The design and construction of storm drain and flood control facilities are managed by the City Public Works Department.

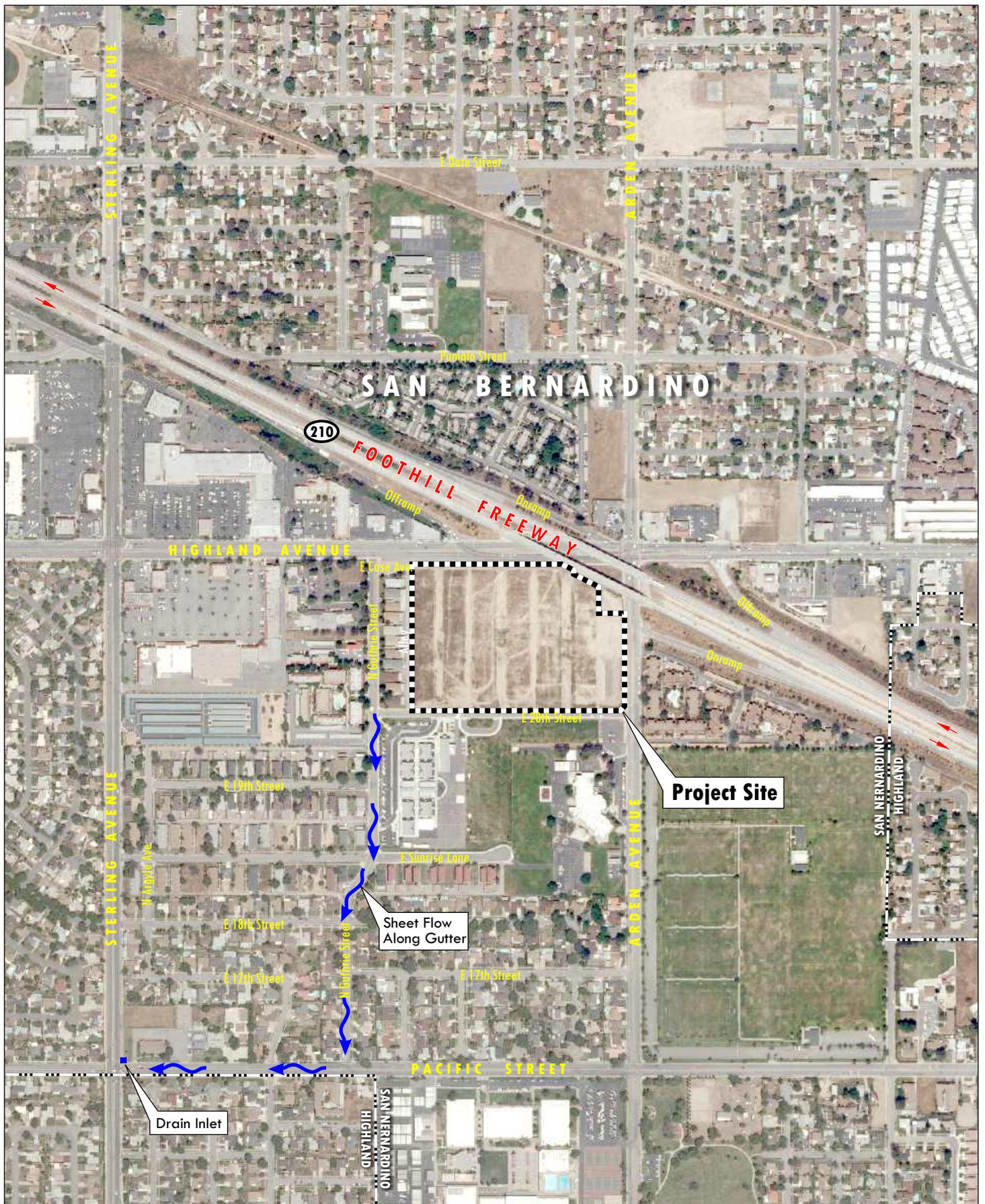
The City has established design criteria for both major and local drains within the City. Major drains are systems using 36-inch or larger pipes (or equivalent channels) and are identified on the comprehensive storm drain plans. Local drains are systems using less than 36-inch diameter conduits. Some streets in the City are specifically designed to accommodate storm flow. Flows carried within the street right-of-way may cause localized flooding during storms, possibly making some roads impassable during the storm event (*General Plan Update and Associated Specific Plans EIR, July 2005, p. 5.7-5*).

The pre-development condition of the Project Site consists of multi-family residential units (73 individual lots and six streets). There are no existing storm drain improvements on the property and all storm water drainage is conveyed via overland flow to the 20<sup>th</sup> Street right-of-way located to the south. The existing drainage for Highland Avenue consists of half street flows from Guthrie Street to Arden Avenue that discharge to a ditch along Highland Avenue east of Guthrie Street. The ditch conveys storm water runoff to a 24-inch corrugated metal pipe (CMP) that crosses Guthrie to an underground City storm drain (*Preliminary Hydrology Report, October 2011, page 1*).

### Flooding

The City of San Bernardino is subject to unpredictable seasonal rainfall although most years, winter rains are minimal and the average rainfall for the City is 16 inches. Every few years when rainfall is intense and storm events are sustained, flooding does occur. As part of the National Flood Insurance Program, Flood Insurance Rate Maps are prepared to officially delineate flood insurance zones and base flood elevation lines. The Federal Emergency Management Agency periodically updates and refines these maps. The 100-year floodplain is confined to storm channels, debris basins, and between levees with a few minor exceptions. A few isolated areas within the City, including the Baseline Street and Sterling Avenue area, Mountain View Avenue and Electric Avenue area, and south of Redlands Boulevard east of Hunts Lane are identified as low areas within the 100-year floodplain. (*General Plan Update and Associated Specific Plans EIR, July 2005, pp. 5.7-5 and 5.7-6*).

The Santa Ana River Mainstem Project was designed to provide flood protection to the growing urban communities in Orange, Riverside, and San Bernardino Counties. The proposed improvements to the river system cover 75 miles beginning at the headwaters of the Santa Ana River. The project increases the levels of flood protection to more than 3.35 million people in these three counties. Facilities in the flood protection project that are upstream of the City of San



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 Feet  
 Aerial: N.A.I.P. 2009.  
**LILBURN**  
 CORPORATION

**LEGEND**

-  Home Depot Commercial Center EIR Project Site
-  City Limits
-  Surface Water Sheet Flow

4.6-3

**RECEIVING WATERS**  
 Highland Marketplace EIR  
 City of San Bernardino, California  
**FIGURE 4.6-1**

Bernardino include the Seven Oaks Dam and the Mill Creek Levee (*General Plan Update and Associated Specific Plans EIR, July 2005, p. 5.7-9*).

### Water Quality

Surface water quality in urban areas is affected by various point-source and nonpoint-source pollutants. Point-source pollutants are those emitted at a specific point (e.g. a pipe) while nonpoint-source pollutants are those typically generated by surface runoff from a diffuse area and sheet flows into surface waters. Urban runoff will flow over source areas such as streets, paved areas, or landscaped areas, but because it is ultimately conveyed in storm drainage systems that discharge to surface waters at discrete locations, it is regulated as a point source under the National Pollutant Discharge Elimination System (NPDES) Program. In developed areas, the highest pollutant concentrations in stormwater runoff are usually generated at the beginning of the wet season and during the “first flush” following a storm event. Approximately 80% of total accumulated pollutants are removed with the first ½-inch of rainfall when the impervious surface is about 70 – 90% of the total surface area (*City of San Bernardino, Palm/Industrial Distribution Center Project EIR, p 4.7-5*).

Water quality degradation due to high concentrations of nitrogen and total dissolved solids (TDS) is considered among the most significant regional water quality problems in the Santa Ana River Watershed. Historically, the Santa Ana River and its major tributaries likely flowed during most of the year and recharged the groundwater basins. However, the diversion of surface waters for irrigation use greatly diminished the quantity of groundwater recharge. Crops were fertilized with nitrogen-containing fertilizers which led to the elevated concentrations of nitrogen and TDS. Today, water from the Santa Ana River is used multiple times as it flows downstream toward the Pacific Ocean. Each cycle of use adds an increment of salt (or TDS) to the water quality (*City of San Bernardino, Palm/Industrial Distribution Center Project EIR, pp. 4.7-5 – 4.7-6*).

To characterize water quality conditions and establish objectives for water quality protection, the main stem of the Santa Ana River is divided into six reaches. Stormwater runoff from the City of San Bernardino primarily flows into Reach 5 which extends from the Seven Oaks dam to the San Jacinto Fault which marks the lower end of the Bunker Hill Groundwater Basin. A beneficial use is one of various ways that water can be used for the benefit of people and/or wildlife. Beneficial uses of water established by the Santa Ana Regional Water Quality Control Board in its Water Quality Control Plan (Basin Plan) for Reach 5 of the Santa Ana River are designated are shown below. Water quality objectives are established in the Basin Plan to protect the above beneficial uses.

MUN	Municipal and Domestic Supply
AGR	Agricultural Supply
GWR	Groundwater Recharge
POW	Hydropower Generation
REC1	Water Contact Recreation
REC2	Non-contact Water Recreation
WARM	Warm Freshwater Habitat

WILD Wildlife Habitat  
RARE Rare, Threatened and Endangered Species.

(Source: 1995 Water Quality Control Plan for the Santa Ana River Basin (Region 8), Updated February 2008)

Recharge to the Bunker Hill Groundwater Basin has historically been from infiltration of runoff from the surrounding mountain ranges, surface water, precipitation and storm flows, and the importation and percolation of State Water Project water. Groundwater in the Basin is predominately of a calcium-bicarbonate type, which is the type of mineral/material that predominates in the groundwater and is used to classify the groundwater basin water. TDS levels range from 150 mg/liter to 550 mg/liter; the average sampled from over 200 public water supply systems in the basin is 324 mg/liter (*City of San Bernardino, Palm/Industrial Distribution Center Project EIR, pp. 4.7-8 – 4.7-9*).

The Bunker Hill Basin contains several contamination plumes consisting of high levels of tetrachlorethylene (TCE) and perchlorethylene (PCE). Treatment systems are in place to alleviate and eventually clean-up the identified areas of contamination so that groundwater quality will meet established standards for use as drinking water. Consumer Confidence Reports are required to be prepared and distributed by all municipal water supply systems serving over 3,000 customers. Drinking water provided by the City of San Bernardino and the East Valley Water District continues to meet or exceed all federal and State-established maximum contaminant levels for domestic drinking water (*Consumer Confidence Report, East Valley Water District, 2011; Consumer Confidence Report, City of San Bernardino Water Department, 2011*).

#### **4.6.3 Applicable Policies, Plans and Regulations**

Groundwater and surface water are impacted by the quantity and quality of storm water flows received from surrounding land uses. Urban runoff and storm water runoff are terms that are often used interchangeably (California Storm Water BMP Handbook – Industrial and Commercial, 2003), and in this context include all flows discharged from urban land uses (i.e., land not in its natural, undisturbed state) into storm water conveyance systems and receiving waters: including both dry weather non-storm water sources as well as wet weather storm water runoff.

Storm water runoff naturally contains numerous constituents. Without engineering controls and Best Management Practices (BMPs), human activities in the natural environment can increase constituent concentrations to levels that impact water quality. Pollutants typically associated with stormwater from urban development include sediment, nutrients, bacteria and viruses, oil and grease, metals, organics, pesticides, gross pollutant (floatables), vectors, and miscellaneous waste (California Storm Water BMP Handbook- Industrial and Commercial 2003, Table 3.5-1).

#### Federal Clean Water Act

The Clean Water Act (CWA), as amended by the Water Quality Act of 1987, is the major legislation governing water quality. The objective of the CWA is to “restore and maintain the

chemical, physical, and biological integrity of the Nation's waters." Important applicable sections of the CWA are as follows:

- Section 301 prohibits the discharged of any pollutant by any person, except as in compliance with Sections 302, 306, 307, 318, 402, and 404 of the CWA. Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for any federal permit that proposes an activity which may result in a discharge to "waters of the United States" to obtain certification from the State that the discharge will comply with other provisions of the Act. Certification is provided by the Regional Water Quality Control Boards (RWQCBs).
- Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the United States. This permit program is administered by the RWQCBs.
- Section 404 established a permit program for the discharge of dredge or fill material into waters of the United States. This program is administered by the U.S. Army Corps of Engineers (ACOE).

#### National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities complying with FEMA regulations that limit development in floodplains. FEMA issues flood insurance rate maps for communities participating in the NFIP. These maps delineate flood hazard zones in the community. Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. It requires:

- Avoidance of incompatible floodplain development;
- Consistency with the standards and criteria of the NFIP; and
- Restoration and preservation of the natural and beneficial floodplain values.

#### California Porter-Cologne Water Quality Control Act

The State of California's Porter-Cologne Water Quality Control Act (California Water Code Section 13000, et seq.) provides the basis for water quality regulation within California. The Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the State. Waste discharge requirements (WDRs) resulting from the Report of Waste Discharge are issued by the RWQCBs. In practice, these requirements are typically integrated with the NPDES permitting process.

The State Water Resources Control Board (SWRCB) carries out its water quality protection authority through the adoption of specific Water Quality Control Plans (Basin Plans). These plans establish water quality standards for particular bodies of water. California water quality standards are composed of three parts: the designation of beneficial uses of water; water quality

objectives to protect beneficial uses; and implementation programs designed to achieve and maintain compliance with the water quality objectives.

The Santa Ana RWQCB is responsible for the Basin Plan that covers the area which includes the City of San Bernardino. The RWQCB implements management plans to modify and adopt standards under the provisions set forth in Section 303(c) of the Federal CWA and California Water Code (Division 7, Section 13240). Under Section 303(d) of the 1972 CWA, the State is required to develop a list of waters with segments that do not meet water quality standards.

#### Municipal Stormwater NPDES Permit

WDRs for the discharge of urban runoff from areas of San Bernardino County and the incorporated cities of San Bernardino County that are within the Santa Ana Region are established by NPDES No. CAS 618036 (Regional Board Order No. R8-2010-0036) issued February 3, 2010. Basic requirements of the Municipal NPDES Permit for new development and significant redevelopment within the jurisdiction of these entities include:

- Each Permittee shall continue to ensure (prior to issuance of any local permits or other approvals) that project sites that disturb one acre or greater, and sites less than one acre if part of a common plan of development have obtained coverage under the Construction General Permit and have been issued a valid Waste Discharge Identification (WDID) number.
- Each Permittee shall ensure that the erosion and sediment control plans it approves include appropriate erosion and sediment control BMPs such that an effective combination of BMPs consistent with site risk is implemented through all phases of construction.
- Each Permittee shall ensure consistent with the maximum extent practicable standard, that runoff from development projects it approves does not cause nuisance to adjoining or downstream properties and stream channels.
- Each Permittee shall ensure to the MEP that urban runoff conveyance systems created resulting from development projects it approves are appropriately maintained consistent with Section XIII of Order No. R8-2010-0036 or are adequately maintained by a legally responsible party.
- Each Permittee shall ensure that appropriate control measures to reduce erosion and maintain stream geomorphology (e.g. hydrograph modification effects) are included in the design for replacement of existing culverts or construction of new culverts and/or bridge crossings.
- Each Permittee shall minimize the short and long-term adverse impacts on receiving water quality from public and private new development and significant re-development projects, as required in Section XI.D (Water Quality Management Plan), by continuing to review, approve, and verify implementation of project-specific WQMPs, emphasizing implementation of Low Impact Development (LID) principles where feasible, and addressing hydrologic conditions of concern, and long-term operation and maintenance mechanisms prior to project closure or issuance of certificates of occupancy.

- Each Permittee shall comply with the Municipal Inspection Programs guidelines in the Order and conduct regular inspections of industrial and commercial facilities and construction sites to evaluate compliance with applicable municipal ordinances, local permits, Storm Water Management Plan, and Water Quality Management Plans.

#### San Bernardino County Stormwater Program Model Water Quality Management Plan (SBC WQMP)

The County of San Bernardino completed the San Bernardino County Stormwater Program Model Water Quality Management Plan (June 9, 2005) in compliance with the Municipal NPDES Permit, with components that are designed to achieve compliance with receiving water limitations. It is expected that compliance with receiving water limitations will be achieved through an iterative process and the application of increasingly more effective BMPs.

Each Agency, which is defined as a co-permittee, such as the City of San Bernardino, is individually responsible for compliance with the Permit. Each Agency with land use planning and development authority is responsible for implementing a program in their jurisdiction that requires the development and implementation of a WQMP for all covered projects, reviewing and approving WQMPs submitted by project sponsors, and verifying that WQMPs are implemented in conjunction with covered projects. Local agencies are also required to periodically update the WQMP guidance to reflect changes in the 303(d) impaired water body list.

Implementation of the SBC WQMP will occur through the review and approval by the City of San Bernardino of a project-specific WQMP prepared by the project applicant. The primary objective of the SBC WQMP is to ensure that the land use approval and permitting process of the co-permittees will minimize the impact of urban runoff.

Under the SBC WQMP, the City of San Bernardino must use the following conditions of approval prior to the issuance of building or grading permits:

- The project developer shall submit a project WQMP that includes water quality BMPs, long-term maintenance requirements, and funding mechanisms for the long-term operation and maintenance of BMPs.
- The property owner shall record a “Covenant and Agreement” with the County-Clerk Recorder or other instrument acceptable to the co-permittee, to inform future property owners of the requirement of implement the approved project WQMP.
- If the project will cause land disturbance of one acre or more, it must comply with the statewide General Permit for Storm Water Discharges Associated with Construction Activity.

City of San Bernardino General Plan**Citywide Goals and Policies****Goal 2.2 Promote development that integrates with and minimizes impacts on surrounding land uses.**

## Policies:

2.2.1 Ensure compatibility between land uses and quality design through adherence to the standards and regulations in the Development Code and policies and guidelines in the Community Design Element. (LU-1)

2.2.2 Require new uses to provide mitigation or buffers between existing uses where potential adverse impacts could occur, including, as appropriate, decorative walls, landscape setbacks, restricted vehicular access, enclosure of parking structures to prevent sound transmission, and control of lighting and ambient illumination. (LU-1)

**Goal 2.4 Enhance the quality of life and economic vitality in San Bernardino by strategic infill of new development and revitalization of existing development.**

## Policies:

2.4.1 Quality infill development shall be accorded a high priority in the commitment of City resources and available funding.

2.4.2 Continue to provide special incentives and improvement programs to revitalize deteriorated housing stock, residential neighborhoods, major business corridors, and employment centers. (LU-3 and LU-4)

2.4.3 Where necessary to stimulate the desired mix and intensity of development, land use flexibility and customized site development standards shall be achieved through various master-planned devices such as specific plans, planned development zoning, and creative site planning. (LU-1)

2.4.4 Protect large parcels that front onto freeways and commercial corridors from subdivision into smaller parcels.

**Goal 9.4 Provide appropriate storm drain and flood control facilities where necessary.**

## Policies:

9.4.2 Upgrade and expand storm drain and flood control facilities to eliminate deficiencies and protect existing and new development.

- 9.4.4 Require that adequate storm drain and flood control facilities be in place prior to the issuance of certificates of occupancy. Where construction of master planned facilities is not feasible, the Mayor and Common Council may permit the construction of interim facilities sufficient to protect present and short-term future needs. (LU-1)
- 9.4.8 Minimize the amount of impervious surfaces in conjunction with new development. (LU-1)
- 9.4.10 Ensure compliance with the Federal Clean Water Act requirements for National Pollutant Discharge Elimination System (NPDES) permits, including requiring the development of Water Quality Management Plans, Erosion and Sediment Control Plans, and Storm Water Pollution Prevention Plans for all qualifying public and private development and significant redevelopment in the City.
- 9.4.11 Implement an urban runoff reduction program consistent with regional and federal requirements, which includes requiring and encouraging the following examples of Best Management Practices (BMPs) in all developments:
- Increase permeable areas, install filtration controls (including grass lined swales and gravel beds), and divert flow to these permeable areas to allow more percolation to runoff into the ground;
  - Replanting and hydroseeding of native vegetation to reduce slope erosion, filter runoff, and provide habitat;
  - Use natural drainage, detention ponds, or infiltration pits to collect and filter runoff;
  - Prevent rainfall from entering material and waste storage areas and pollution-laden surfaces; and
  - Require new development and significant redevelopment to utilize site preparation, grading, and other BMPs that provide erosion and sediment control to prevent construction-related contaminants from leaving the site and polluting waterways.

**Goal 10.4 Minimize the threat of surface and subsurface water contamination and promote restoration of healthful groundwater resources.**

Policies:

- 10.4.2 Protect surface water and groundwater from contamination.

**Goal 10.5 Reduce urban run-off from new and existing development.**

## Policies:

- 10.5.1 Ensure compliance with the Federal Clean Water Act requirements for National Pollutant Discharge Elimination System (NPDES) permits, including developing and requiring the development of Water Quality Management Plans for all new development and significant redevelopment in the City (LU-1).
- 10.5.2 Continue to implement an urban runoff reduction program consistent with regional and federal requirements, which includes requiring and encouraging the following:
- Increase permeable areas to allow more percolation of runoff into the ground;
  - Use natural drainage, detention ponds or infiltration pits collect runoff;
  - Divert and catch runoff using swales, berms, green strip filters, gravel beds and French drains;
  - Install rain gutters and orient them towards permeable surfaces;
  - Construct property grades to divert flow to permeable areas;
  - Use subsurface areas for storm runoff either for reuse or to enable release of runoff at predetermined times or rates to minimize peak discharge into storm drains;
  - Use porous materials, whenever possible, for construction of driveways, walkways and parking lots; and
  - Divert runoff away from material and waste storage areas and pollution-laden surfaces such as parking lots. (LU-1)
- 10.5.4 Require new development and significant redevelopment to utilize site preparation, grading and foundation designs that provide erosion control to prevent sedimentation and contamination of waterways (LU-1).
- 10.5.5 Ensure compliance with the requirements for Storm Water Pollution Prevention Plans or Water Quality Management Plans for all new development or construction activities.

**Goal 10.6 Protect the lives and properties of residents and visitors of the City from flood hazards.**

## Policies:

- 10.6.5 Prohibit land use development and/or the construction of any structure intended for human occupancy within the 100-year flood plain as mapped by the Federal

Emergency Management Agency (FEMA) unless adequate mitigation is provided against flood hazards.

**Goal 13.2 Manage and protect the quality of the City's surface waters and groundwater basins.**

Policies:

13.2.2 Require that development not degrade surface or groundwater, especially in watersheds, or areas with high groundwater tables or highly permeable soils.

13.2.7 Require that new development incorporate improvements to channel storm runoff to public storm drainage systems and prevent discharge of pollutants into the groundwater basins and waterways.

**4.6.4 Project Impact Analysis and Mitigation Measures**

**4.6.4.1 Thresholds of Significance**

The Initial Study Checklist for the Proposed Project was completed and circulated with a Notice of Preparation to identify potential environmental impacts that could occur as a result of the Proposed Project. The Checklist identifies the primary thresholds of significance relating to CEQA issues. The Proposed Project would have a significant effect on Hydrology and Water Quality if it would:

- Violate any water quality standards or waste discharge requirements.
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, such as from areas of material storage, vehicle or equipment maintenance (including washing or detailing), waste handling, hazardous materials handling or storage, delivery areas, loading docks, or other outdoor areas.
- Otherwise substantially degrade water quality.

- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map (Panel No. 8684F).
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows.
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.
- Inundation by seiche, tsunami, or mudflow.

#### **4.6.4.2 Issues Identified to Have No Impact**

The Initial Study Checklist for the Proposed Project that was circulated with a Notice of Preparation (NOP) identified the following threshold areas where no impacts would occur as a result of the Proposed Project. No additional information was received during the NOP review period to change the conclusions of the Initial Study.

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

According to City's General Plan Figure S-2, the Project Site is not located within the Seven Oaks Dam inundation area. Therefore, flood inundation of the Project Site is not expected to result from the failure of the Seven Oaks Dam. No impacts would result from the Proposed Project and no further analysis is warranted.

**Expose people or structures to inundation by seiche, tsunami, or mudflow.**

There are no oceans, lakes or reservoirs near the Project Site. The nearest large bodies of water are Big Bear Lake, located 17 miles to the northeast and upstream of the Seven Oaks Dam, and the Pacific Ocean, located 57 miles to the west. The Project Site would be protected from mudflows caused by major storm events eroding the foothills of the San Bernardino Mountains, by flood control channels and debris basins located west of Victoria Avenue and north of Marshall Blvd. Impacts to the Project Site from seiche, tsunami, or mudflow would not occur.

#### **4.6.4.3 Issues Determined to Have a Less Than Significant Impact**

The Initial Study Checklist for the Proposed Project that was circulated with a Notice of Preparation (NOP) identified the following threshold areas where impacts associated with the Proposed Project would occur but be less than significant based on the information known at the time. No additional information was received during the NOP review period to change the conclusions of the Initial Study.

**Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells**

**would drop to a level which would not support existing land uses or planned uses for which permits have been granted.**

The Project Site is within the service area of the East Valley Water District (EVWD) for domestic water service. The EVWD's main source of water for its customers is the Bunker Hill Groundwater Basin. Other local sources of water supply include surface water from the Santa Ana River and its tributaries. During dry years, when local water supplies are not sufficient to meet demands, EVWD has the option of obtaining supplemental water from the State Water Project through the San Bernardino Valley Municipal Water District. Water from the State Water Project is imported from the Sacramento Delta area of Northern California and either delivered directly to the EVWD's water treatment plant or recharged into the Bunker Hill Groundwater Basin. There are no groundwater recharge facilities located on or near the Project Site.

The Project Site was previously developed in the 1970's with multi-family residential units; demolition of the structures and relocation of residents started in 2007, and was completed in or around 2010. The streets and certain utilities that served the residential neighborhood are still present on the Project Site and will be replaced to serve the Proposed Project. The proposed project would not deplete groundwater supplies nor would it interfere with recharge since it is not within an area designated as a recharge basin or spreading ground.

The Project includes the construction of parking lots and impervious surfaces. The Proposed Project design includes underground retention basins to collect storm water from parking areas and treatment of runoff from building roofs before being discharged to the street. No significant impact to groundwater resources is anticipated.

**Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in either flooding or substantial erosion or siltation on- or off-site.**

The Project Site ranges in elevation from about 1,205 feet amsl in the southwest corner of the site to about 1,247 feet amsl in the northeast corner of the site. Grading will occur on-site to meet the finished building pad elevations as designed. Site grading can result in erosion and siltation both on- and off-site during construction.

As part of the NPDES permit program, a storm water management plan which incorporates drainage design features to mitigate for storm related impacts will be prepared and approved by the City. The NPDES permit process requires developers or contractors to reduce, to the extent practical, the discharge of pollutants into water bodies by using Best Management Practices (BMP's). Compliance with NPDES permitting process requires storm water quality management to be considered during a project's planning phase and be implemented during construction. A SWPPP would be prepared to identify structural and nonstructural controls using BMP's to avoid storm water effluence.

The Proposed Project's drainage system consists of storm water runoff that will flow to several catch basins located throughout the site and to 20<sup>th</sup> Street via parkway drains. It is anticipated that three underground retention basins with drainage systems that include classified injector wells will be located in the main parking lot area to collect storm water flow from certain areas on-site totaling 7.5 acres. The storm water runoff from other paved areas and rooftops (totaling 9.9 acres) will be treated with biofilters prior to being discharged to 20<sup>th</sup> Street. Improvements related to Highland Avenue widening will generate additional drainage that will be discharged to the City's existing 24-inch collection system.

Implementation of Mitigation Measures GS-1 and GS-4 would further reduce the level of impact from erosion. The Proposed Project would not alter the course of any surface waters that it is tributary to (City Creek, Santa Ana River). Less than significant impact to existing drainage patterns resulting from an increase in runoff or substantial erosion or siltation would occur.

**Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map (Panel No. 7963H).**

According to the City's General Plan, Figure S-1, and Flood Insurance Rate Map (FIRM) Panel 7963H, the southern portion of the Project Site occurs within the Zone X which is described as: "areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood". The Proposed Project however does not include any housing or other inhabitable structures within the flood hazard area and therefore less than significant impacts would occur and no impacts related to the placement of housing would occur.

**4.6.4.4 Issues Determined to Have Potentially Significant Impacts**

The Initial Study Checklist for the Proposed Project that was circulated with a Notice of Preparation (NOP) identified the following thresholds areas where impacts associated with the Proposed Project could potentially be significant thereby warranting additional analysis in the Draft EIR. For each issue, the potential impact is provided in a numbered impact statement, followed by analysis, and mitigation measures if the impact is determined to remain significant after the analysis.

**Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, such as from areas of material storage, vehicle or equipment maintenance (including washing or detailing), waste handling, hazardous materials handling or storage, delivery areas, loading docks, or other outdoor areas.**

**Otherwise substantially degrade water quality.**

**Impact HWQ-1:**

**The Proposed Project results in the redevelopment of a previous residential development site with commercial uses that have the potential to violate water quality standards or waste discharge requirements.**

The potential and expected pollutants of concern associated with the type of development proposed (e.g. commercial development, parking lots, and restaurants) would occur from:

- Trash & debris
- Oil & grease
- Oxygen-demanding substances
- Heavy metals
- Organic compounds
- Nutrients
- Pesticides
- Sediments

The proximate receiving water body for the Project Site is City Creek, which is tributary to the Santa Ana River Reach 5. City Creek is not listed as an impaired water body listed on the State's 303(d) list<sup>1</sup> for any of the potential or expected pollutants that would be associated with the Proposed Project. It is unlikely that the pollutants generated by the Proposed Project would impair City Creek (WQMP, pp. A-4 – A-5).

The Santa Ana River Reach 4 is impaired by pathogens with a non-point source and Reach 3 is impaired by pathogens with a dairy source, and copper (during wet season only) with an unknown source. As City Creek is located upstream of these reaches and does not contain impairments, it is unlikely that the subject site will further impairment in these reaches of the river (WQMP, pp. A-4 – A-6).

The Proposed Project includes both on and off-site drainage improvements. Runoff from the parking lot will be discharged into retention basins with classified injector wells that will infiltrate storm water into deep soils. Infiltration is highly effective for removal of bacteria and virus and therefore the Proposed Project would have less than significant impact in the degradation of water quality in the Santa Ana River or City Creek.

Compliance with the NPDES permit issued by the Santa Ana RWQCB will insure the Proposed Project will not create or contribute runoff water that would violate any water quality standards or waste discharge requirements. Therefore, potential impacts would be less than significant.

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<sup>1</sup> Under Section 303(d) of the Clean Water Act, state governments, territories and authorized tribes are required to develop a list of water quality limited segments. These waters on the list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The Clean Water Act requires that these jurisdictions establish priority rankings for water on the lists and develop action plans, called Total Maximum Daily Loads (TMDL) to improve water quality.

A Storm Water Pollution Prevention Plan (SWPPP) will be developed for the Project Site, as part of the construction package. The SWPPP will describe and dictate management practices to prevent contaminants from entering storm water discharge and prevent unauthorized non-storm water discharges during project construction. Accordingly, storm water discharges to any surface or groundwater shall not cause or contribute to exceeding any applicable water quality objectives or standards contained in the Statewide Water Quality Control Plan, the California Toxics Rule, or the Santa Ana RWQCB's Basin Plan. Approval of the SWPPP by the RWQCB will result in implementation of BMPs that will control pollutants in stormwater discharges from the Project Site.

BMPs are required to address erosion and sediment control, wind erosion control, source controls, and waste management. The Applicant is required to ensure that the SWPPP requirements are implemented at the Project Site and that water quality standards are maintained. Best management practices are required to be modified, as necessary, so that an adequate combination of erosion controls is implemented for disturbed and undisturbed areas. Examples of best management practices include: use of silt fence or fiber rolls to prevent the migration of sediment off-site, application of water to disturbed areas during working or windy conditions to prevent dust and erosion, and use of drip pans for mobile fueling. In addition, the SWPPP outlines a regular BMP maintenance and monitoring schedule.

The project specific WQMP provides water quality protection measures that will be implemented following construction and during operation of all proposed uses at the Project Site. The Preliminary WQMP for the Proposed Project was prepared in August 2011 and revised October 18, 2011, and includes, but is not limited to the following BMPs:

- An on-site detention system with drywells is proposed beneath the parking area to utilize the soil's natural permeability to infiltrate the collected storm water.
- Roof drains for the proposed home improvement building will be conveyed to tree boxes for treatment prior to being conveyed to the on-site storm drain system that is being discharged to 20<sup>th</sup> Street via parkway drains. Filterra and Kristar tree boxed inlets will be utilized.
- Where feasible, sidewalks and patios drain into adjacent landscaping.
- Driveways drain to curbs/gutters which collect the storm water runoff prior to it entering the subsurface retention system and drywells located to the north of the home improvement and major store buildings.
- Property owner shall prepare a Spill Contingency Plan for any hazardous materials spills to ensure hazardous materials do not come into contact with stormwater flows.
- Car repairs on the property shall be prohibited.
- Use of pesticides and fertilizers for landscaping shall be applied only by trainer personnel and at the minimum rate recommended by the manufacturer. Biodegradable fertilizer shall be used whenever possible.
- Leafblowers shall direct debris toward accessible collection areas for pickup and not directed into the street or storm drains.

- Sidewalks, parking lots, driveways, etc. shall be swept and not hosed off into storm drains or onto adjacent properties.
- The Owner must ensure that the on-site drain inlets, grates, and drainpipes are periodically visually inspected, and cleaned prior to the raining season.
- The on-site irrigation system will include rain-triggered shutoff devices, flow reducers or shutoff valves triggered by pressure drop, timing and application methods of irrigation water to minimize the amount of excess water flowing into the storm water drainage system.
- Trash management and litter control procedures aimed at reducing storm water contamination from pollutants of concern will be implemented by owner.
- The owner of the parcel containing the gasoline station will be responsible for developing the property in accordance with the latest BMP design guidance and will be responsible for a Spill Contingency Plan in accordance with Section 6.95 of the California Health and Safety Code.
- Loading docks shall be kept in a clean and orderly condition through a regular program of sweeping and litter control and immediate cleanup of spills and broken container.
- Owners of parcels containing restaurant uses will ensure compliance with requirements for food establishments including sanitary sewer connections for wash waters containing kitchen and food wastes.
- Treatment Control BMPs implemented for the project include:
  - Bioretention (FILTERRA)
  - Drain Inlet Filtration (KRISTAR)
  - Downspout Filer (KRISTAR)
  - Infiltration Basins with Cry Wells (CUDOS & MaxWell by Torrent)

The above-mentioned BMPs and all BMPs included in the WQMP will be maintained by means of recorded community CC&Rs. Owner will establish requirements for 1) ownership/maintenance of and/or maintenance easement for community common areas and 2) implementation of community pollution prevention on BMPs, including community awareness programs.

As indicated, no Pollutants of Concern exist for City Creek however Pollutants of Concern are indicated in the Santa Ana River Reaches 4 and 3 downstream of Reach 5. Since the proposed site discharges into City Creek which is not impaired for bacteria/virus or nutrients, it is unlikely that the Proposed Project will further impair Reach 4 or Reach 3 of the river. Further, the site design incorporates a subsurface detention system and drywells to serve as primary treatment for approximately half of the site. The subsurface detention system does not contain a system overflow to the municipal system. Infiltration basins (drywells) also have the capability to highly treat for bacteria/virus and nutrients; therefore the site is expected to have minimal effect on the downstream tributaries. The remaining portion of the site will be treated with biofilters.

Project-specific impacts related to the impairment of water quality would be less than significant upon the City's approval of the Proposed Project's SWPPP and WQMP, and the City's compliance with Regional Board Order No. R8-2010-0036 as a co-permittee responsible for conducting regular inspections of industrial and commercial facilities and construction sites to evaluate compliance with applicable municipal ordinances, local permits, Storm Water Management Plan, and WQMPs.

### **Impact HWQ-2:**

#### **The Proposed Project would place structures within a 100-year flood hazard area that could impede or redirect flood flows.**

According to Flood Insurance Rate Map (FIRM) Panel 7963H, small areas along the eastern and southern boundaries of the Project Site occur within the Zone X which is described as areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than one foot or with drainage areas less than one square mile; and areas protected by levees from 1% annual chance flood. According to the City's General Plan, Figure S-1, small areas along the eastern and southern boundaries of the Project Site occur within the 500- Year Flood Zone.

The Preliminary Hydrology Report for the Proposed Project (*Tait & Associates, Inc., August 9, 2011*) includes results from hydrologic calculations run for the 2-year, 10-year, 25-year, and 100-year events. The peak volume for the pre-development condition for the 100-year storm event was calculated to be 5.48 acre-feet while the post development was calculated at 8.51 acre-feet. The County of San Bernardino basin guidelines state that post-development peak flow rates should be less than 90% of the pre-development peak flow rates for all storm events. Based on these criteria, a basin with a volume of 3.33 acre-feet is required for the Proposed Project. The project plans include 7.5 acres of the Project Site to be detained on-site and the total underground retention basins will have an approximate volume of 3.64 acre feet.

Underground retention basins with drainage systems that include classified injector wells will be utilized to mitigate the Proposed Project's impacts on downstream properties. The second area that will be conveyed to 20<sup>th</sup> Street will imitate the pre-development pattern by having subareas discharge to the street via parkway drains at different locations along 20<sup>th</sup> Street. This area will consist of 9.9 acres and will have a volume of 4.87 acre-feet which is less than the 90% pre-development peak flow for the 100-year storm event.

Proposed Project improvements include the widening of Highland Avenue at the north boundary of the Project Site, by approximately 12 feet creating an additional drainage area of 0.24 acres. This area will drain to the existing 24-inch CMP that crosses Guthrie Street. The pre-development flow is 4.42 cubic feet per second (cfs) and the post-development peak flow is 5.17 cfs. The remaining capacity of the existing 24-inch CMP is 50%. The Proposed Project includes the reconstruction of the inlet to the existing pipe to accommodate the proposed street improvements.

**Mitigation Measures HWQ-1:**

*Prior to issuance of grading permits, the project proponent shall submit detailed drawings that would show the floor elevations of all proposed building and the designed storm water control measures as described, to the Public Works Department for review and approval. The drawings shall demonstrate that the proposed elevations would be adequate to prevent any flooding of the structures in a 100-year flood event.*

**Level of Significance After Mitigation:**

Impacts would be less than significant with implementation of Mitigation Measure HWQ-1.