DRAINAGE AND WATER QUALITY REPORT
EXISTING CONDITIONS ANALYSIS
IN SUPPORT OF ENVIRONMENTAL IMPACT REPORT
FOR
BARRIO LOGAN COMMUNITY PLAN UPDATE
CITY OF SAN DIEGO
SAN DIEGO COUNTY, CALIFORNIA

Job Number 16003
August 4, 2009

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ENGINEERING COMPANY

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1.0 INTRODUCTION

This report describes existing storm water drainage and storm water quality conditions within the Community of Barrio Logan in the City of San Diego, California. The Community of Barrio Logan includes approximately 1,000 acres located between downtown San Diego and the Interstate 5 freeway along San Diego Bay, in the City of San Diego. This report is in support of the Environmental Impact Report (EIR) for the Barrio Logan Community Plan Update. The Barrio Logan Community Plan Update will update land use policies in the Barrio Logan Community Plan project area in order to create a plan for future development within the community.

Drainage from three major watersheds, Switzer Creek, Chollas Creek, and Paleta Creek, is conveyed through Barrio Logan, ultimately discharging to San Diego Bay. Each of these three creeks receives storm water runoff from Barrio Logan. Additionally, storm water runoff from some areas of Barrio Logan drains directly to San Diego Bay via other existing storm drain systems not connected to any of the three creeks.

The storm water drainage analysis, Section 2.0, provides qualitative description of local (on-site) runoff patterns within Barrio Logan, and floodplain hydrology for the major creeks. The storm water quality analysis, Section 3.0, provides qualitative description of local (on-site) runoff characteristics, receiving water characteristics, and sensitivity of the receiving waters. Section 4.0 describes current regulations, policies and programs applicable to storm water drainage, floodplain management, and storm water quality in the City of San Diego that will dictate design criteria and standards for redevelopment within Barrio Logan.

2.0 EXISTING DRAINAGE CONDITIONS

Drainage from three major watersheds, Switzer Creek, Chollas Creek, and Paleta Creek, is conveyed through Barrio Logan, ultimately discharging to San Diego Bay. Each of these three creeks receives storm water runoff from Barrio Logan. Additionally, storm water runoff from some areas of Barrio Logan drains directly to San Diego Bay via other existing storm drain systems not connected to any of the three creeks. Attachment A contains an exhibit showing creeks and storm drains and an exhibit showing "drainage regions" identifying portions of Barrio Logan draining to each of the receiving waters.

Local ("On-Site") Drainage

Barrio Logan is currently fully developed and nearly 100 percent impervious. Nearly all rainfall can be expected to become runoff because there are minimal opportunities for infiltration. Typical runoff response from highly impervious areas is flashy with high peak flow rates for short durations. Storm water runoff originating in Barrio Logan is conveyed to the receiving waters in streets, gutters, cross gutters, and storm drain systems. Existing storm drain locations that are included in the SanGIS layer of "City Storm Drain Pipes," dated April 2006 are shown on the exhibit in Attachment A. There are few existing systems, with few existing storm drain inlets. Therefore, runoff will mostly be conveyed off-site in streets, gutters, and cross gutters, or will pond on-site until it can drain into an existing system or evaporate. With the exception of the area affected by the floodplain of South Las Chollas Creek, runoff from nearly all areas of Barrio Logan can be expected to drain quickly out of the community if its path is not obstructed, due to relatively steep topography sloping toward San Diego Bay. The low-lying, relatively flat area within the floodplain of South Las Chollas Creek is not well-drained.

Runoff from the northeasterly area of Barrio Logan, approximately between 16th Street and Beardsley Street, drains northwest toward the Centre City Community to the Switzer Creek storm water conveyance system. Runoff from the area near the Interstate 15 terminus at Wabash Boulevard, approximately between 31st Street and Vesta Street,

drains to Chollas Creek. Runoff from the southernmost area of Barrio Logan south of Vesta Street drains to Paleta Creek. Runoff from all other areas of Barrio Logan, approximately between Beardsley Street and 31st Street, drains directly to San Diego Bay via other existing storm drain systems not connected to any of the three creeks. Runoff from the central area of Barrio Logan that extends to San Diego Bay from Interstate 5 drains directly into San Diego Bay from Barrio Logan, and runoff from the southerly area of Barrio Logan drains across the 32nd Street Naval Station property to San Diego Bay.

Floodplains

Each of the three major creeks draining through Barrio Logan, Switzer Creek, Chollas Creek, and Paleta Creek, has been studied and documented in the Federal Emergency Management Agency (FEMA) "Flood Insurance Study for San Diego County, California and Unincorporated Areas," (FIS). The original analyses were performed in 1979. The creeks are mapped on Flood Insurance Rate Maps (FIRMs). Paleta Creek is identified as "Las Puleta Creek." An exhibit showing FEMA Flood Zones and copies of FIRMettes, which show portions of the FIRM Panels that include the project area, are included in Attachment B. The FIRMettes are annotated with the Barrio Logan Community boundary and other pertinent information.

Barrio Logan is located in the City of San Diego, Community Number 060295 on the FIRMs, and appears on three FIRM Panels: 06073C 1884 F (Switzer Creek), 06073C 1903 F (Chollas Creek), and 06073C 1911 F (Paleta Creek).

Switzer Creek

Based on the FIS, the Switzer Creek watershed encompasses approximately 4.3 square miles, measured to Harbor Drive. Drainage from this watershed is conveyed to San Diego Bay via underground storm drain, a 10-foot diameter reinforced concrete pipe (RCP) traversing the Centre City business district. The storm drain outfall is at 10th Avenue Marine Terminal. The flow path of the Switzer Creek storm drain is not within

the community of Barrio Logan. However, a portion of the community of Barrio Logan is subject to flooding from the 100-year floodplain of Switzer Creek. This is shown on FEMA FIRM Panel Number 06073C 1884 F (see the FIRMette included in Attachment B). The Flood Zone within Barrio Logan is a Zone A. Zone A is the flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the Flood Insurance Study by approximate methods of analysis. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone. Mandatory flood insurance purchase requirements apply. Although Switzer Creek does not traverse Barrio Logan, the Flood Zone A would result from overflow from an existing open channel located within an Atchison Topeka and Santa Fe railroad yard, particularly where the open channel is collected into an underground culvert near Harbor Drive. The existing topography of the surface drains southerly along the alignment of the Atchison Topeka and Santa Fe railroad, and Switzer Creek overflow would be conveyed southerly toward Crosby Road and Water Street in Barrio Logan as shown by the Zone A.

In addition to the Zone A floodplain, a portion of the 500-year floodplain or 0.2 percent chance annual flood hazard intersects the Barrio Logan Community at 16th Street between National Avenue and Newton Avenue. Although Switzer Creek drainage is conveyed in underground storm drain outside of the community of Barrio Logan, surface drainage from Barrio Logan to Switzer Creek would be affected.

Chollas Creek

Based on the FIS, the Chollas Creek watershed encompasses approximately 26.4 square miles, measured to Main Street. Drainage from this watershed is conveyed to San Diego Bay via a system of flood control channels. The outlet of Chollas Creek is at 32nd Street Naval Station. Chollas Creek has two major systems, "Las Chollas Creek" and "South Las Chollas Creek." The two systems confluence within the community of Barrio Logan. FEMA Flood Zones within the community of Barrio Logan include Zone AE and Zone X (shaded), shown on FEMA FIRM Panel Number 06073C 1903 F (see the FIRMette

included in Attachment B). "Zone AE" is a flood insurance rate zone used for "1-percent-annual-chance floodplains" that are determined for the Flood Insurance Study (FIS) by detailed methods of analysis. AE zones are areas of inundation by the 1-percent-annual-chance flood. "Zone X (shaded)" is a flood insurance rate zone that corresponds to the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood.

Generally, the flooding associated with Las Chollas Creek in Barrio Logan is limited to the channel and a portion of the Interstate 15 terminus at Wabash Boulevard. Existing homes and buildings on the westerly side of the Las Chollas Creek channel are several feet higher than the base flood elevation. Flooding associated with South Las Chollas Creek in Barrio Logan affects a significant area southeast of Wabash Boulevard. As shown on the FIRMette in Attachment B, the Zone AE associated with South Las Chollas Creek affects the area between Interstate 5 and Main Street from the Interstate 15 terminus at Wabash Boulevard to just past Thor Street. Based on review of the SanGIS layer of City of San Diego "1999 2 foot contours," dated October 2003, ground elevations in this area are approximately 12 feet. The base flood elevation is 16 feet. Therefore, this area is subject to inundation by as much as approximately four feet.

Paleta Creek

Based on the FIS, the Las Puleta Creek (Paleta Creek) watershed encompasses approximately 2.8 square miles, measured to San Diego and Arizona Eastern Railroad. Drainage from this watershed is conveyed to San Diego Bay via open channels downstream of the community of Barrio Logan. The outlet of Paleta Creek is at 32nd Street Naval Station. Within the community of Barrio Logan, Paleta Creek is contained in an underground culvert. There is no FEMA Flood Zone associated with Paleta Creek within the community of Barrio Logan, as shown on FEMA FIRM Panel Number 06073C 1911 F (see the FIRMette included in Attachment B). The limit of the study of Paleta Creek is east of Interstate 5. Based on review of the SanGIS layer of City of San Diego "1999 2 foot contours," dated October 2003, ground elevations in Barrio Logan in

the vicinity of Paleta Creek are approximately 16 feet or higher. The BFE east of Interstate 5 is 11 feet. Therefore, Barrio Logan would not be subject to inundation from Paleta Creek.

3.0 EXISTING WATER QUALITY CONDITIONS

Local ("On-Site") Storm Water Quality

Barrio Logan is currently fully developed and nearly 100 percent impervious. Land uses include a mixture of residential, commercial business, light and heavy industrial uses, governmental agencies, and major maritime industries. Typical pollutants that can be expected from these land uses include sediment, nutrients, heavy metals, organic compounds, trash and debris, oxygen demanding substances, oil and grease, bacteria and viruses, and pesticides. Because storm water runoff originating in Barrio Logan is conveyed to the receiving waters in streets, gutters, cross gutters, and storm drain systems with little to no opportunity for infiltration, all of the pollutants in runoff originating in Barrio Logan can be expected to be conveyed to the receiving waters. The only exception would be storm water runoff from industrial sites that have implemented best management practices required by the Industrial Storm Water General Permit or individual waste discharge requirements (WDRs) issued by the California Regional Water Quality Control Board San Diego Region (SDRWQCB), or from redevelopment projects constructed within approximately the last five years, since the City of San Diego adopted their Storm Water Standards Manual dated May 30, 2003, requiring certain development projects classified as "Priority Projects" to include permanent post-construction BMPs in the project. The majority of existing development in Barrio Logan was established prior to adoption of storm water regulations requiring protection and treatment of storm water runoff. Therefore there are few existing BMPs for protection of storm water runoff quality.

An example of an industrial discharger that has implemented BMPs is the National Steel and Shipbuilding Company (NASSCO), which has implemented a storm water diversion system designed to capture and contain all storm water runoff from industrial areas to eliminate the discharge of industrial storm water into San Diego Bay. The storm water is ultimately discharged to the San Diego Metropolitan Sanitary Sewer System.

Receiving Waters

The specific receiving waters receiving storm water runoff from Barrio Logan are Switzer Creek, Chollas Creek, Paleta Creek, and San Diego Bay. Attachment A contains an exhibit showing creeks and storm drains and an exhibit showing "drainage regions" identifying portions of Barrio Logan draining to each of the receiving waters. According to the "Water Quality Control Plan for the San Diego Basin (9)" (1994 and amendments) (herein "Basin Plan"), the project is located in the following hydrologic basin planning areas:

- **908.22**: Pueblo San Diego Hydrologic Unit (908), San Diego Mesa Hydrologic Area (.2), Chollas Hydrologic Subarea (.22). Switzer Creek and Chollas Creek are in this hydrologic basin planning area.
- **908.31**: Pueblo San Diego Hydrologic Unit (908), National City Hydrologic Area (.3), El Toyan Hydrologic Subarea (.31). Paleta Creek is in this hydrologic basin planning area.

Beneficial Uses of Receiving Waters

Beneficial uses are the uses of water necessary for the survival or well being of humans, plants and wildlife. These uses of water serve to promote the tangible and intangible economic, social, and environmental goals of humankind. Water quality objectives and beneficial uses can be found in the Basin Plan.

Based on the Basin Plan, the following beneficial uses have been identified for Chollas Creek and South Chollas Valley in Hydrologic Unit Basin Number 908.22 and for "unnamed intermittent streams" in Hydrologic Unit Basin Number 908.31: Non-contact Water Recreation (REC-2), Warm Freshwater Habitat (WARM), and Wildlife Habitat (WILD) are existing beneficial uses, and Contact Water Recreation (REC-1) is a potential beneficial use. These inland surface waters are excepted from the Municipal and Domestic Supply (MUN) beneficial use.

Based on the Basin Plan, the following beneficial uses have been identified for San Diego Bay: Industrial Service Supply (IND), Navigation (NAV), Contact Water Recreation (REC-1), Non-contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Preservation of Biological Habitats of Special Significance (BIOL), Estuarine Habitat (EST), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Marine Habitat (MAR), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), and Shellfish Harvesting (SHELL) are existing beneficial uses.

303(d) List

Under Section 303(d) of the 1972 Clean Water Act, states, 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 law requires that the above-mentioned jurisdictions establish priority rankings for water on the lists and develop action plans, called Total Maximum Daily Loads (TMDLs), to improve water quality.

Numerous studies of receiving water quality and sediment quality in San Diego Bay have been performed by several agencies, and the studies have found that beneficial uses are impacted by the existing water quality conditions. As a result the receiving waters have been listed for several pollutants and TMDLs are in place or in progress.

On October 25, 2006, the SWRCB approved the 2006 CWA Section 303(d) List of Water Quality Limited Segments (303(d) List). Subsequently on June 28, 2007, the United States Environmental Protection Agency (USEPA) gave final approval to California's 303(d) List. The receiving waters for the project that are currently listed as impaired based on the 2006 303(d) List are: Chollas Creek and San Diego Bay Shoreline. The pollutants/stressors causing impairment of Chollas Creek are copper, indicator bacteria,

lead, and zinc. The pollutants/stressors causing impairment of San Diego Bay Shoreline vary depending on the specific location, and include benthic community effects, sediment toxicity, copper, mercury, PAHs (polycyclic aromatic hydrocarbons), PCBc (polychlorinated biphenyls), zinc, chlordane, and lindane/hexachlorocyclohexane (HCH). Excerpts from the 303(d) List, which include the specific locations and potential sources of the impairments, are included in Attachment C.

TMDL Status

A TMDL is a quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect bodies of water. TMDLs are adopted as amendments to the Basin Plan. The following is the status of existing and planned TMDLs for receiving waters that storm water runoff from the community of Barrio Logan drains into.

TMDLs Adopted and Being Implemented

Resolution Number R9-2002-0123, "Chollas Creek Diazinon Total Maximum Daily Load," was adopted August 14, 2002 by the SDRWQCB. The State Water Resources Control Board subsequently approved the TMDL on July 16, 2003. The Office of Administrative Law and the USEPA approved the TMDL on September 11, 2003, and November 3, 2003 respectively. This TMDL is being implemented through SDRWQCB Order No. R9-2004-0277 and through other requirements incorporated into the San Diego County storm water discharge requirements contained in SDRWQCB Order No. R9-2007-0001 (Municipal Permit).

The SDRWQCB developed the Chollas Creek TMDL to address water quality impairment due to the pesticide diazinon. Diazinon is causing acute and chronic toxicity to aquatic life in Chollas Creek. Diazinon is an organophosphate insecticide common in indoor, residential, landscape and agricultural applications. Urban storm water flows are the primary source of diazinon to Chollas Creek. Toxicity in Chollas Creek due to

diazinon during storm events was the basis for placement of Chollas Creek onto the 303(d) List in 1996. The Chollas Creek 303(d) listing for diazinon was moved to the "Being Addressed" category of the 2006 303(d) List based on the TMDL having been approved.

TMDLs Adopted and Pending Implementation

Resolution Number R9-2007-0043, "A Resolution Adopting An Amendment to the Water Quality Control Plan for the San Diego Basin (9) to Incorporate Total Maximum Daily Loads for Dissolved Copper, Lead, and Zinc in Chollas Creek, Tributary to San Diego Bay, and to Revise the Toxic Pollutants Section of Chapter 3 to Reference the California Toxics Rule" (Chollas Creek Copper, Lead, and Zinc TMDLs), was adopted June 13, 2007 by the SDRWQCB. Resolution Number R9-2007-0044, "A Resolution Amending the 'Water Quality Control Plan for the San Diego Basin (9)' to incorporate Total Maximum Daily Loads for Indicator Bacteria Project I – Beaches and Creeks in the San Diego Region," (Indicator Bacteria TMDLs) was adopted December 12, 2007 by the SDRWQCB. The State Water Resources Control Board subsequently approved the TMDL on July 15, 2008. The Office of Administrative Law and the USEPA approved the TMDL on October 22, 2008, and December 18, 2008 respectively.

TMDLs Currently Being Developed

The SDRWQCB has initiated efforts to develop TMDLs for sediment toxicity in San Diego Bay near the mouths of Chollas, Paleta, and Switzer Creeks. Sediments in San Diego Bay near the mouths of Chollas, Paleta, and Switzer Creeks are contaminated with anthropogenic chemicals. In addition, these sites contain a degraded benthic macroinvertebrate community, and samples from these areas have demonstrated toxicity to various marine invertebrate species in laboratory toxicity tests.

4.0 CURRENT REGULATIONS, POLICIES AND PROGRAMS

This Section discusses existing policies and regulations that apply to drainage and water quality in the City of San Diego. Redevelopment projects in the community of Barrio Logan will be subject to requirements and design criteria outlined in these policies and regulations.

Drainage

Pursuant to San Diego Municipal Code Chapter 14 Article 2 Division 2, Storm Water Runoff and Drainage Regulations, drainage regulations apply to all development in the City of San Diego, whether or not a permit or other approval is required.

Drainage design policies and procedures for the City of San Diego are given in the City of San Diego's "Drainage Design Manual," dated April 1984, which is incorporated in the Land Development Manual as Appendix B. The Land Development Manual provides information to assist in the processing and review of applications. The "Drainage Design Manual" provides a guide for designing drainage and drainage-related facilities for developments within the City of San Diego. Chapter 1 of the "Drainage Design Manual" outlines basic policies and objectives. Subsequent Chapters provide design criteria. Redevelopment projects in the community of Barrio Logan will be required to adhere to these existing criteria. Of particular relevance to a fully built out community such as Barrio Logan is basic objective (10), comparing and coordinating proposed design with existing structures and systems handling the same flows. In addition to coordinating proposed design with existing structures and systems, coordination with the United States Navy may be necessary where storm water runoff from Barrio Logan flows across the 32nd Street Naval Station property.

The City of San Diego will be responsible for reviewing hydrologic and hydraulic studies and design features for conformance to criteria given in the "Drainage Design Manual"

for every map or permit for which discretionary approval is sought from the City of San Diego.

Floodplain Management

National Flood Insurance Program (NFIP)

The NFIP is a Federal program enabling property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods. Participation in the NFIP is based on an agreement between local communities and the Federal Government that states if a community will adopt and enforce a floodplain management ordinance to reduce future flood risks to new construction in Special Flood Hazard Areas, the Federal Government will make flood insurance available within the community as a financial protection against flood losses.

In support of the NFIP, FEMA identifies flood hazard areas throughout the United States and it's territories by producing Flood Hazard Boundary Maps (FHBMs), Flood Insurance Rate Maps (FIRMs), and Flood Boundary & Floodway Maps (FBFMs). Several areas of flood hazards are commonly identified on these maps. One of these areas is the Special Flood Hazard Area (SFHA) or high risk area defined as any land that would be inundated by the 100-year flood – the flood having a 1-percent chance of occurring in any given year (also referred to as the base flood). See Attachment B of this document for the SFHAs within the community of Barrio Logan. Development may take place within the SFHA, provided that development complies with local floodplain management ordinances, which must meet the minimum Federal requirements.

The City of San Diego is a participating community in the NFIP. Therefore, the City of San Diego is responsible to adopt a floodplain management ordinance that meets certain minimum requirements intended to reduce future flood losses. The City of San Diego

has adopted Council Policy 600-14, Development Within Areas of Special Flood Hazard. The City of San Diego has also adopted Development Regulations for Special Flood Hazard Areas in the Land Development Code Sections 143.0145 and 143.0146. If redevelopment is proposed within one of the SFHA Zones, these existing regulations will apply. A copy of these policies and regulations is included in Attachment D. The SFHA Zones within Barrio Logan are shown on the FIRMettes located in Attachment B. The area approximately between Interstate 5 and Main Street from the Interstate 15 terminus at Wabash Boulevard to just past Thor Street is within the SFHA associated with Chollas Creek and South Las Chollas Creek. A portion of the Atchison Topeka and Santa Fe railroad alignment between Harbor Drive and Crosby Street is within the SFHA associated with Switzer Creek.

Water Quality

Pursuant to Section 402 of the Clean Water Act, the EPA has established regulations under the National Pollutant Discharge Elimination System (NPDES) program to control direct storm water discharges. In California, the State Water Resources Control Board (SWRCB) administers the NPDES permitting programs and is responsible for developing waste discharge requirements. The California Regional Water Quality Control Board San Diego Region (SDRWQCB) also is responsible for developing waste discharge requirements specific to its jurisdiction.

General waste discharge requirements that will directly apply to design and construction of redevelopment projects within the community of Barrio Logan will include:

- SWRCB Order No. 99-08-DWQ National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002 Waste Discharge Requirements (WDRs) for Discharges of Storm Water Runoff Associated With Construction Activity (General Construction Permit), adopted August 19, 1999. The General Construction

Permit is due to be reissued. This permit may be reissued several times during the life of the Barrio Logan Community Plan.

- SDRWQCB Order No. R9-2007-0001, a renewal of National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108758, "Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego County, the San Diego Unified Port District, and the San Diego County Regional Airport Authority" (Order No. R9-2007-0001, or "Municipal Storm Water Permit"), adopted by the SDRWQCB on January 24, 2007. Order No. R9-2007-0001 supersedes Order No. 2001-01, National Pollutant Discharge Elimination System (NPDES) No. CAS0108758 "Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego County, and the San Diego Unified Port District" adopted by the SDRWQCB on February 21, 2001. This permit may be reissued several times during the life of the Barrio Logan Community Plan.

The following discussions describe the General Construction Permit and Municipal Permit, which will directly affect design and construction of redevelopment projects. At the end of this Section is a discussion of other permits that may affect specific activities or project sites.

General Construction Permit

During the construction phase, any redevelopment project that is 1 acre or greater in size, or that is less than 1 acre in size but is part of a larger common plan of development, will be subject to the requirements of the General Construction Permit, or a future SWRCB Order re-issuing the General Construction Permit. The General Construction Permit was adopted by the SWRCB on August 19, 1999, and is due to be reissued. For coverage by the General Construction Permit, the project owner is required to submit to the SWRCB a

Notice of Intent (NOI) to comply with the General Construction Permit, and develop and implement a Storm Water Pollution Prevention Plan (SWPPP) describing best management practices (BMPs) to be used during and after construction to prevent the discharge of sediment and other pollutants in storm water runoff from the project.

Projects less than one acre in size and not part of a larger common plan of development are not subject to the requirements of the General Construction Permit. However, in the City of San Diego, construction storm water requirements apply to all new development and redevelopment activities based on the City of San Diego's Storm Water Management and Discharge Control Ordinance (San Diego Municipal Code Section 43.03, et. seq.). Projects less than one acre are required to have a Water Pollution Control Plan (WPCP) which identifies the pollution prevention measures that will be taken.

Municipal Storm Water Permit

The SDRWQCB issues the Municipal Storm Water Permit in order to establish the conditions under which pollutants can be discharged from the storm drain system to local streams, coastal lagoons, and the ocean. The Municipal Storm Water Permit implements requirements of the Clean Water Act and Federal NPDES stormwater regulations. The current Municipal Storm Water Permit in effect that applies in the community of Barrio Logan in the City of San Diego is Order No. R9-2007-0001, adopted January 24, 2007. The permit is required to be renewed every 5 years.

The City of San Diego is a Co-Permittee under the Municipal Storm Water Permit. As a Co-Permittee, the City of San Diego must implement several storm water management programs, including programs designed to control storm water discharges from new development and redevelopment. Specific Sections of the Municipal Storm Water Permit that will affect design and construction of redevelopment projects include Section D.1, Development Planning Component, and D.2, Construction Component. These titles refer to required components of the City of San Diego's Jurisdictional Urban Runoff Management Program (JURMP), which is one of the programs that must be implemented

by the City of San Diego under the Municipal Storm Water Permit. The City of San Diego implements the requirements through their JURMP and "Storm Water Standards Manual." See City of San Diego Storm Water Standards, below. In addition, Section H of the Municipal Permit, Total Maximum Daily Loads, provides requirements for TMDLs. The City of San Diego will also implement these requirements through their Storm Water Standards Manual, and these requirements will affect design of permanent post-construction BMPs.

City of San Diego Storm Water Standards

The City of San Diego's current "Storm Water Standards Manual" is dated March 24, 2008 and is incorporated in the Land Development Manual as Appendix O. The Storm Water Standards Manual provides information to project applicants on how to comply with the permanent and construction storm water quality requirements in the City of San Diego.

Significant elements of the Storm Water Standards Manual, which are based on requirements of Order No. R9-2007-0001, that will dictate design elements in redevelopment projects include:

- **Low Impact Development (LID) BMP Requirements** (Order No. 2007-0001 Section D.1.d.(4), Storm Water Standards Manual Section III.B.1)
- **Source Control BMPs** (Order No. 2007-0001 Section D.1.d.(5), Storm Water Standards Manual Section III.B.2)
- **BMPs Applicable to Individual Priority Development Project Categories** (Order No. 2007-0001 Section D.1.d.(5), Storm Water Standards Manual Section III.B.3)
- **Treatment Control BMPs** (Order No. 2007-0001 Section D.1.d.(6), Storm Water Standards Manual Section III.B.4)

LID BMPs will be significant to site planning because these features require area on-site to retain storm water for infiltration, re-use, or evaporation. The March 24, 2008 Storm Water Standards Manual states, "For Priority Development Projects, the feasible portion of the post-project runoff volumes and peak flows from the water quality design storm ... shall be infiltrated on-site. If it is shown to be infeasible to infiltrate the requisite volume of water, that water may be retained on-site for re-use or evapotranspiration. If it is shown to be infeasible to retain the requisite volume of water, then that water must be treated with treatment control BMPs." Although the footprint of the LID BMPs can often be fit in to planned landscaping features, this requires early planning to ensure that the features are located in places where they can intercept the drainage and safely store the water without adverse effects to adjacent slopes, structures, roadways or other features.

The Storm Water Standards Manual also addresses "Hydromodification – Limitations on Increases of Runoff Discharge Rates and Durations" (Order No. R9-2007-0001 Section D.1.g, Storm Water Standards Manual Appendix K). Hydromodification management requirements will dictate design elements in locations where downstream channels are susceptible to erosion from increases in storm water runoff discharge rates and durations. Redevelopment in the community of Barrio Logan will typically be exempt from hydromodification management requirements because of the location. Projects discharging into underground storm drains discharging directly to bays or the ocean are exempt. Downstream drainage systems from the community of Barrio Logan are hardened to San Diego Bay and/or are tidally influenced, and therefore are not susceptible to erosion from increases in storm water runoff discharge rates and durations.

Section IV of the "Storm Water Standards Manual," Construction Storm Water BMP Performance Standards, describes the City of San Diego's construction storm water BMP standards, which will apply during the construction of redevelopment projects in the community of Barrio Logan. This provides minimum requirements for construction site management, inspection and maintenance of construction BMPs, monitoring of the weather and implementation of emergency plans as needed, and provides minimum performance standards including: pollution prevention measures so that [there will be] no

measurable increase of pollution (including sediment) in runoff from the site; no slope erosion; water velocity moving offsite must not be greater than pre-construction levels; and preserve natural hydraulic features and riparian buffers where possible.

Other Permits

In addition to the permits described above, other permits may be applicable to specific activities or project sites.

Temporary Groundwater Extraction

Sites requiring temporary groundwater extraction (such as for dewatering during construction), will be subject to the requirements of SDRWQCB Order No. R9-2007-0034, NPDES No. CAG919001, "General Waste Discharge Requirements for Discharges From Temporary Groundwater Extraction and Similar Waste Discharges to San Diego Bay, Tributaries Thereto Under Tidal Influence, and Storm Drains or Other Conveyance Systems Tributary Thereto (WDR)." This permit was adopted in 2007 and effective until 2012. This permit may be reissued several times during the life of the Barrio Logan Community Plan. This permit does not cover permanent groundwater extraction discharges. Starting in a previous version of this permit, SDRWQCB Order No. 2000-90, the SDRWQCB found that the capacity of San Diego Bay to assimilate pollutants is limited, and prohibited groundwater extraction waste discharges to San Diego Bay from new permanent groundwater extraction operations.

General Industrial Permit

Industrial facilities are subject to the requirements of State Water Resources Control Board Water Quality Order No. 97-03-DWQ National Pollutant Discharge Elimination System (NPDES) Permit No. CAS000001, "Waste Discharge Requirements for Discharges of Storm Water Associated With Industrial Activities Excluding Construction Activities," (General Industrial Permit). This permit was adopted in 1997 and is due to

be reissued. This permit currently applies to operation of existing industrial facilities associated with ten broad categories of industrial activities, and will apply to operation of proposed new industrial facilities within those ten categories. The General Industrial Permit requires the implementation of storm water management measures and development of a Storm Water Pollution Prevention Plan (SWPPP). This permit may be reissued several times during the life of the Barrio Logan Community Plan.

Individual Waste Discharge Requirements

Some existing dischargers (existing ship construction, modification, repair or maintenance facilities) require individual waste discharge requirements for discharge to navigable waters (San Diego Bay). Whether individual waste discharge requirements will be needed for redevelopment projects depends on the specific type and location of the redevelopment project.

Alterations to Chollas Creek Channel

Alteration to the channel of Chollas Creek would require permits issued at many levels from federal, state, and local agencies including Section 404 (of the Clean Water Act) Permit from the United States Army Corps of Engineers, Section 401 Water Quality Certification from the SDRWQCB, and several agreements and certifications from other agencies that are required as part of the Section 404 and/or Section 401 permitting process, including documentation and review under the California Environmental Quality Act (CEQA).

Other Programs

City of San Diego General Plan

The City of San Diego's General Plan, "City of San Diego General Plan," adopted March 10, 2008, presents goals and policies for storm water infrastructure in the Public Facilities, Services, and Safety Element (PF), and presents goals and policies for open space (including floodplain management) and urban runoff management in the Conservation Element (CE). Relevant excerpts from the General Plan are included in Attachment E.

Chollas Creek Enhancement Program

The City of San Diego has adopted a "Chollas Creek Enhancement Program," dated May 14, 2002. The Chollas Creek Enhancement Program is for the total Chollas Creek drainage system from its headwaters in La Mesa and Lemon Grove to San Diego Bay. The document consolidates information contained in numerous documents adopted by the City Council since the late 1970s into a single document specifically designed for the enhancement of Chollas Creek. The boundaries of the program encompass the Chollas Creek channel, floodway and floodplain fringe including the first legal parcel abutting the Creek's floodway (channel). The program provides a Community Vision for Development, Existing City Policies, Design/Development Guidelines, and a Strategy for Implementation.

The following text is excerpted from the "Chollas Creek Enhancement Program." In some cases the text is condensed:

> The Community Vision for Development envisions a Linear Park encompassing the multiple branches of Chollas Creek, with possible natural and urban treatments. The vision for the Chollas Creek area is multi-faceted including: maintaining the natural areas in an undisturbed fashion, promoting cohesive new

development that integrates buildings, open space, and the creek into successful and useable areas for the community, and restoring channeled creeks in urbanized areas to more natural and safe conditions. Finally, the vision creates useable linkages throughout the Chollas Creek and the community to San Diego Bay.

The Design/Development guidelines are based on long established City policies and are specifically designed to address: Wetland Restoration and Rehabilitation, Channel Reconstruction, Landscaping, Trail System, Public Art, and Education/Interpretive Program. Some of these guidelines are existent in City Council adopted documents, while others are new, designed to implement the stated policies in their related setting.

The Strategy for Implementation includes a 20-year phasing and funding timeline, as well as maintenance and oversight strategies.

The portion of Chollas Creek within the community of Barrio Logan is in Phase VI, "Bayside" of the Chollas Creek Enhancement Program. The following Design/Development Guidelines are specifically identified for Bayside based on the existing Barrio Logan/Harbor 101 Community Plan:

"Design considerations for its development should include: Elevating the area to the south of Rigel Street industrial area, and developing berms for flood protection purposes, maintaining the channel bottom natural and developing landscaping areas along its edges. The landscaped area could include man made structures with sculptural qualities that are combined with natural landscaping, trees, and plants."

"The open space buffer and pedestrian easement on both sides of the creek channel and outside the channel proper should be 40 feet."

Other Design/Development Guidelines provided in the program will also apply. Finally, the Chollas Creek Enhancement Program recommends a public arts project as an approach to the ultimate development of the Bayside area, "which could balance engineering, habitat enhancement and human needs and development opportunities."