4.4 DRAINAGE AND WATER QUALITY

Information in this section was compiled from the *Dana Point Harbor Revitalization Master Plan Drainage and Water Quality Study*, prepared by Rick Engineering (December 2002); the *Local Water Quality Management Plan*, prepared by the County of Orange (August 2003); the *City of Dana Point Master Plan of Drainage Facilities,* prepared by Willdan and Associates (February 1998); the *Program Water Quality Management Plan for the Dana Point Harbor Revitalization Plan*, prepared by Fuscoe Engineering (September 2005); and the *City of Dana Point General Plan Master Environmental Assessment*, prepared by the Cotton Beland Associates (March 1991).

4.4.1 EXISTING CONDITIONS

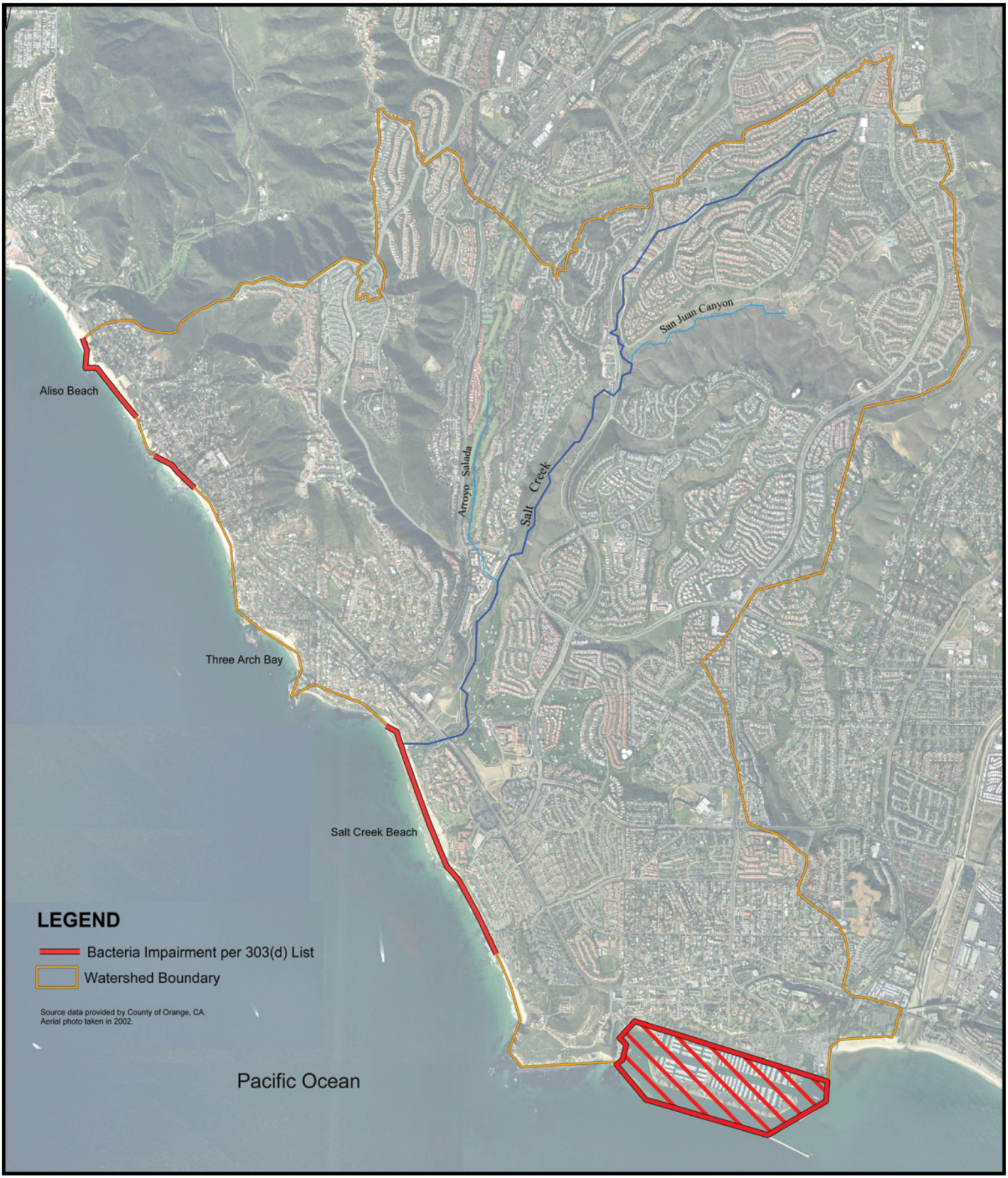
4.4.1.1 SETTING

Dana Point Harbor is located in the City of Dana Point (City) that is within the Dana Point hydrologic subarea of the San Juan hydrologic unit, which is within the San Diego Basin. More specifically, the Project site lies within the Dana Point Coastal Streams Watershed (Watershed), which drains to the Pacific Ocean; refer to Exhibit 4.4-1 (Dana Point Coastal Streams Watershed). Adjacent land uses are the Dana Point Headlands development, restaurant and residential uses immediately north of the Harbor on the bluffs, which use off-site drainage mitigation techniques and terrace drains, respectively. The most immediate receiving waters for the Project site are Dana Point Harbor and the Pacific Ocean. The site is located east of the Old Cove Marine Preserve and west of Doheny State Beach. These areas serve as habitat for several marine species of flora and fauna that are under special protection for their biological resource significance.

4.4.1.2 WATERSHED

The Harbor is located in the Dana Point Coastal Steams Watershed. The main tributary is Salt Creek, which ultimately drains into the Pacific Ocean. The 6-square-mile Watershed is almost fully developed and includes portions of the cities of Dana Point, Laguna Beach, Laguna Niguel, and San Juan Capistrano. Remaining undeveloped areas include open space within the Aliso and Wood Canyons Regional Park in the upper watershed and the Salt Creek Corridor Regional Park in the eastern part of the watershed. Also included in the Watershed are a number of coastal drains that discharge to the Pacific Ocean through Dana Point Harbor. A few small, unnamed drainages and larger tributaries (Arroyo Salado Creek and San Juan Canyon Creek) join Salt Creek as it makes its way through the Watershed.

The Watershed permittees include the County, the cities of Dana Point, Laguna Beach, Laguna Niguel, and San Juan Capistrano, and the Orange County Flood Control District.



Scale: N.T.S.
Source: County of Orange Watershed & Coastal Resources Division, 2003 Drainage Area Master Plan, 2003.

DANA POINT COASTAL STREAMS WATERSHED

DANA POINT HARBOR REVITALIZATION PROJECT
PROGRAM ENVIRONMENTAL IMPACT REPORT

EXHIBIT 4.4-1

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4.4.1.3 DRAINAGE FACILITIES

OFF-SITE DRAINAGE FACILITIES

Dana Point Harbor collects drainage from existing off-site commercial and residential development, as well as the Harbor and portions of Street of the Golden Lantern, Cove Road, Santa Clara Avenue, Street of the Blue Lantern, Harbor Drive, Scenic Drive, and the adjoining off-site properties in the vicinity of Harbor Point; refer to Exhibit 4.4-2 (Existing Drainage). Drainage is conveyed to the Pacific Ocean via a series of various sized storm drains.

Most of the runoff from the off-site properties above the Harbor is collected within the existing storm drain system in the Street of the Golden Lantern and Cove Road. Off-site surface storm water is conveyed by a series of existing V-ditches that are located at the back of (north of) the Harbor parking lots, at the base of the bluffs. Between there and the outlet location, the pipe accepts runoff from various inlets located in the Harbor parking lots and Dana Point Harbor Drive. A minor portion of sheet flow runoff originating from Dana Point Harbor Drive enters the Harbor from Casitas Place, Street of the Golden Lantern, and Embarcadero Place, but most off-site flows are collected within the curb and gutters of Dana Point Harbor Drive and conveyed into the regional (County) storm drain facilities that run underneath the Project site.

ON-SITE DRAINAGE FACILITIES

Within the Dana Point Harbor, most on-site runoff from the parking lots and facilities enters a series of drain inlets and catch basins prior to discharging into the Harbor Marinas. Some of these systems tie into the County storm drains running underneath the Harbor, while others discharge directly into the Harbor Marinas through smaller pipe outfalls. For instance, runoff from the parking lot at the southern end of the East Marina within the Commercial Core component of the Project enters a 24-inch grate inlet and discharges directly into the East Basin through an outfall adjacent to the County's 60-inch reinforced concrete pipe (RCP). This localized drainage system is typical of the existing parking lots throughout the Harbor.

Rooftop drainage from the existing buildings just north of the boat launch ramp area is collected by a series of 4- to 6-inch pipes and confluence into a larger pipe that discharges directly into the Harbor. This system is also typical of other rooftop collection systems throughout the Harbor. These facilities are illustrated in Exhibit 4.4-2 and are discussed further below.

In summary, all on-site flows and a portion of off-site runoff from the surrounding streets collects a series of grate inlets, catch basins, and roof drainage pipes, all of which discharge directly into the Harbor through a series of local outfall pipes, County-owned storm drains, and/or direct sheet flow from sloped sidewalks and hardscape areas.

The East Marina receives runoff from three stormwater outfalls, located in the quay wall about 5 to 10 feet below the water surface. Two 18-inch pipes discharge runoff from an area near the Harbor and surrounding bluffs. One is located at the boat launch ramp and the other is located east of Island Way. The Golden Lantern Storm Drain discharges runoff from a 60-inch pipe from a storm drain network that extends farther inland into the City. At the maintenance area and boat holding pens within Planning Area 1, the runoff sheet flows across this surface and adjacent parking lots and enters Dana Point Harbor at the boat-launch ramp.

The West Marina receives runoff from five stormwater pipes. There are two 18-inch pipes that discharge runoff from areas adjacent to the Ocean Institute dock and Ensenada Place. The 51-inch El Encanto Storm Drain discharges runoff from a storm drain network that extends beyond the Project boundary. A small 15-inch pipe discharges runoff from Dana Point Harbor Drive, west of Island Way, and a 24-inch pipe discharges drainage from the Baby Beach West Storm Drain.

The existing Harbor stormwater pipe system and drainage areas are summarized in Table 4.4-1 (Existing Storm Drain Facilities).

Table 4.4-1
EXISTING STORM DRAIN FACILITIES

Pipe Location	Drainage Area (DA)[1]	Pipe Size (inches)	Watershed (Drainage) Area (acres)
East Marina			
Boat Launch Ramp	1	18	10.4
Golden Lantern Storm Drain	2	60	247
East of Island Way	3	18	10.7
West Marina			
West of Island Way, Dana Point Harbor Drive	4	15	5.3
El Encanto Storm Drain	5	51	195
Ocean Institute Dock	6	18	4.63
Baby Beach West Storm Drain	7	24	34.1
Ensenada Place	8	18	14.7
[1] Refer to Exhibit 4.4-2 for the location of the Drainage Area.			
Source: Fuscoe Engineering, *Program Water Quality Management Plan for the Dana Point Harbor Revitalization Plan*, July 2005.			

4.4.1.4 GROUNDWATER

The San Juan Creek Groundwater Basin underlies the Project site. This groundwater basin is a component of the Coastal Plain Basin in western Orange County. The Project site lies in the lower portion of the San Juan Creek Basin.[1] This area generally has a lower permeability and infiltration capacity than do the upper portions. Approximately 80,000 acre-feet of groundwater exists in the San Juan Creek Basin, 30,000 acre-feet of which is unusable due to poor water quality. In the vicinity of the Project site, the groundwater contains substantial amounts of nitrate and salts due to seawater intrusion.

[1] City of Dana Point, *Final Environmental Impact Report for the City of Dana Point General Plan, Local Coastal Program and Zoning Ordinance*, June 12, 1991.

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EXISTING DRAINAGE
DANA POINT HARBOR REVITALIZATION PROJECT
ENVIRONMENTAL IMPACT REPORT
EXHIBIT 4.4-2

The primary containment source of groundwater within the San Juan Creek Basin is valley fill alluvium, which occupies 11,700 acres of the watershed. Most water recharge in the area occurs through existing streambeds. The water-bearing strata basin lies 30 to 110 feet below ground. During the summer, the water table lies approximately 50 feet below the surface, while in the winter, it rises to a depth of 8 to 10 feet below the surface. Most of the Project site is underlain by beach sand, San Onofre Breccia, marine terrace deposits, slope wash, artificial fill, and landslide material. The varying levels of material and bedrock affect the groundwater levels and cause them to periodically fluctuate.

4.4.1.4 SURFACE WATER QUALITY

PERVIOUS SURFACES AND SOIL TYPE

Because the Harbor is currently developed with parking lots, boat services, and commercial uses, very little pervious surface exists on the Project site. The underlying soil type found at Dana Point Harbor is classified as Type D soils (Plate-C), according to the *Orange County Hydrology Manual*. Type D soils generally exhibit a high runoff potential. The soils have a very slow infiltration rate when thoroughly wetted. They chiefly consist of clay soils that have a high swelling potential, soils with a permanent high water table, soils with a clay layer at or near the surface, and shallow soils over nearly impervious material, giving them a very slow rate of water transmission.

POLLUTANT FILTERS

As part of an ongoing water quality improvement program, the County has installed 41 FossilFilters^{TM} throughout the public areas of Dana Point Harbor. The City has storm drain inserts installed along Dana Point Harbor Drive, between Pacific Coast Highway and Street of the Golden Lantern. The County, through contracted services with Downstream Services, currently inspects and completes preventative maintenance of these storm drain inserts every two weeks and replaces the filter once annually. FossilFilters^{TM} are trough-type inserts filled with granular amorphous alumina silicate media to remove pollutants by sorption. They are, thus, configured to remove sediment, constituents absorbed to sediment, as well as oil and grease. Gross pollutants, such as trash and green waste, are also captured by the trough design. The use of these filters and inserts throughout the various areas of the Harbor provides treatment of dry weather nuisance flows and initial storm flows.

WATER QUALITY PARAMETERS

Standard parameters that assess the quality of stormwater provide a method of measuring impairment of water quality. The quantity of a material in the environment and its characteristics determine the degree of availability as a pollutant in surface runoff. In an urban environment, the quantity of certain pollutants in the environment is a function of the intensity of the land use. For instance, a high density of automobile traffic makes a number of potential pollutants (such as lead and hydrocarbons) more available. The availability of a material, such as a fertilizer, is a function of the quantity and the manner in which it is applied. Applying fertilizer in quantities that exceed plant needs leaves the excess nutrients available for loss to surface or groundwater.

The physical properties and chemical constituents of water traditionally have been the primary means of monitoring and evaluating water quality. Evaluating the condition of water through a water quality standard refers to its physical, chemical, or biological characteristics. Water quality parameters for stormwater comprise a long list and are classified in many ways. In many cases, the concentration of an urban pollutant, rather than the annual load of that pollutant, is needed to assess a water quality problem. The County 2003 Drainage Area Master Plan requires that a Water Quality Management Plan (WQMP) be used to evaluate the overall physical, chemical, or biological characteristics, and certain water pollutants, as listed below in Table 4.4-2 (Water Pollutants Generated by Land Use Type).

Table 4.4-2
WATER POLLUTANTS GENERATED BY LAND USE TYPE

Land Use Type	Pollutant Type								
	Bacteria and Viral	Heavy Metals	Nutrients	Pesticides	Organic Compounds	Sediments	Trash and Debris	Oxygen Demanding Substances	Oil and Grease
Detached Residential Development	X		X	X		X	X	X	X
Attached Residential Development	P		X	X		X	X	P [1]	P [2]
Commercial/Industrial Development >100,000 ft.[2]	P [3]	P	P [1]	P [1]	P [5]	P [1]	X	P [1]	X
Automotive Repair Shops		P			X [4,5]		X		X
Restaurants	X						X	X	X
Hillside Development >5,000 ft.[(2)] in SDRWQCB	X		X	X		X	X	X	X
Hillside Development >10,000 ft.[2] in SARWQCB	X		X	X		X	X	X	X
Parking Lots	P [6]	X	P [1]	P [1]	X [4]	P [1]	X	P [1]	X
Streets, Highways & Freeways	P [6]	X	P [1]	P [1]	X [4]	X	X	P [1]	X

X = Anticipated
P = Potential
[1] A potential pollutant if landscaping or open area exist on-site.
[2] A potential pollutant if the project includes uncovered parking areas.
[3] A potential pollutant if land use involves food or animal waste products.
[4] Including petroleum hydrocarbons.
[5] Including solvents.
[6] Analyses of pavement runoff routinely exhibit bacterial indicators.

Source: County of Orange Flood Control District, *2003 Drainage Area Master Plan, Table 7-1.3*, July 1, 2003.

EFFECT OF URBANIZATION

A net effect of urbanization can be to increase pollutant export over naturally occurring conditions. The impact of the higher export can be on the adjacent streams and also on the downstream receiving waters. Receiving waters can assimilate a limited quantity of various constituents; however, there are thresholds beyond which the measured amount becomes a pollutant and has an undesirable impact.

WATER QUALITY AND PROJECT SITE

The most immediate receiving waters for the Project site are Dana Point Harbor and the Pacific Ocean. According to the California 2002 303(d) list published by the San Diego Regional Water Quality Control Board (RWQCB Region 9), both Dana Point Harbor and the Pacific Ocean in the vicinity of the Harbor are impaired waters for bacteria indicators.

The Harbor water quality impairment listing is at Baby Beach; potential sources include urban runoff and storm sewers, marinas and recreational boating, unknown nonpoint sources, and unknown point sources. The Pacific Ocean shoreline in the vicinity of Dana Point Harbor is impaired at the following locations: Aliso Beach at West Street, Aliso Beach at Table Rock Drive, 1000 Steps Beach at Pacific Coast Highway, Salt Creek, Salt Creek Beach at the Salt Creek service road, and Salt Creek Beach at Dana Strand Road. Approximately 2 miles of shoreline are impaired. Both the Harbor and the shoreline in the vicinity of Dana Point Harbor have been assigned a TMDL priority level of "medium," with no completion time yet determined.[2]

Table 4.4-3 (303[d] Impairments of Downstream Water Bodies), summarizes the receiving waters and their classification by the RWQCB Region 9.

Table 4.4-3
303(D) IMPAIRMENTS OF DOWNSTREAM WATER BODIES

Receiving Water	Hydrologic Unit Code	303(d) Impairment(s)
Dana Point Harbor	901.14	Bacteria Indicators
Pacific Ocean – Dana Point Hydrologic Sub Area	901.15	Bacteria Indicators

Source: Fuscoe Engineering, *Program Water Quality Management Plan for the Dana Point Harbor Revitalization Plan*, September 2005.

The Orange County Health Care Agency Environmental Health Division samples for coliform bacteria and *Enterococcus* at several locations within Dana Point Harbor during the dry season months of April to October. Table 4.4-4 (Dana Point Harbor Bacteria Testing), indicates the number of single-sample exceedances during April through October at various locations throughout the Harbor.

In general, typical pollutants generated within commercial/retail areas of the Harbor are trash, sediment, nutrients, bacteria, oil and grease, and pesticides from landscaping activities. Typical pollutants from restaurants in the Harbor are trash, debris, BOD increasing substances, and oil and grease. From the parking facilities and streets within the Harbor, pollutants generated include sediment, nutrients, trash, debris, heavy metals, oil and grease, and pesticides from landscaping.

[2] The TMDL for bacterial indicators in the San Diego region (including Dana Point Harbor and the Pacific shoreline in the vicinity of Dana Point Harbor) are currently under development and available for review on the Region 9 web site (http://www.swrcb.ca.gov/rwqcb9/tmdls/bacteria.html).

Table 4.4-4
DANA POINT HARBOR BACTERIA TESTING

Sampling Location	Total Coliform		Fecal Coliform		*Enterococcus*	
	2000	2001	2000	2001	2000	2001
Fuel Dock	0	0	2	1	0	1
Pier	0	0	1	0	1	0
West End Baby Beach	0	0	9	9	9	11
Buoy Line Baby Beach	0	0	11	3	10	6
Swim Area Baby Beach	0	0	10	0	13	8
East End Baby Beach	0	1	6	4	5	11
Pilgrim	0	1	0	0	1	1
Youth Dock	0	1	1	1	1	1
Harbor Patrol Dock (East Basin)	0	0	2	0	0	1
Guest Dock End (West Basin)	1	0	1	0	1	1
Dana Point Harbor Entrance	0	0	0	0	2	1
Totals	1	3	43	18	43	42

Source: Fuscoe Engineering, *Program Water Quality Management Plan for the Dana Point Harbor Revitalization Plan*, September 2005.

Baby Beach Studies

Postings at Baby Beach due to high fecal indicator bacteria concentrations have been frequent and consistent since 1996. Multiple measures have been used to mitigate suspected sources of those bacteria; however, the postings persist. Seven special bacteriological investigations have been undertaken to discern those sources so that effective BMPs can be implemented to mitigate sources of contamination; refer to Table 4.4-5 (Summary of Studies at Baby Beach).

Table 4.4-5
SUMMARY OF STUDIES AT BABY BEACH

Study	Purpose	Number of Samples Taken
Leaks from Sewers into Groundwater	To assess groundwater in sediment as possible source of fecal indicator bacteria	50
Groundwater Monitoring Wells	To assess groundwater in the area above Baby Beach	8
Storm Drain Transect Studies	To assess storm drain and nearby sediment	174
10-Week Monitoring of Water and Sediments	To assess storm drain and nearby sediment	124
Sediment Analysis	To assess nearshore sediment	24
Boat Sewage Discharge Study	To assess effect of increased boating activities on fecal indicator levels at routine sampling sites	132
Bacterial Indicator Level Variability Studies	To assess effect of ultraviolet light, bird density, circulation, and human activities on fecal indicator levels.	110

Source: Fuscoe Engineering, *Program Water Quality Management Plan for the Dana Point Harbor Revitalization Plan*, September 2005.

A circulation study was conducted by Science Applications International Corporation as part of the *State of the Beach Report for Baby Beach* for the Clean Beaches

Initiative (CBI) program.[3] For this study, circulation patterns and potential needs for improved water movement in the Baby Beach region were evaluated. Conditions were evaluated over a two-day period targeting a range of tidal and wind conditions and potentially variable conditions of wave height and direction. The overall objective of this study was to evaluate the circulation presently occurring in the Baby Beach region and potential circulation-related impacts on Baby Beach.

As part of the data mining for the CBI, three investigations were conducted to identify the sources of the bacteria at Baby Beach. The results suggest four primary sources for which BMPs could be implemented:

- Contaminated discharges from urban runoff;
- Bacteria resident in beach sediments;
- Limited near beach water circulation; and
- Bacterial contamination from local birds.

The circulation study results showed that general flow conditions could tend to maintain surface waters in the vicinity of Baby Beach. Therefore, sources of bacterial contamination (e.g., storm drain discharges, birds, or sediments) could tend to be maintained in the immediate vicinity of the beach, possibly further contributing to the high incidence of postings. Increases in general circulation may improve these conditions as a result of greater dilution and mixing. Construction of the permanent Baby Beach storm drain to sanitary sewer diversion is was completed on June 30, 2005. The bird netting is under construction and should be complete by September 2005.

The County of Orange has partnered with the City of Dana Point and West Technology in a six-month summer time pilot project to improve water quality at Baby Beach. The goal of the pilot project was to evaluate the effectiveness of using Oloid devices in circulating the calm waters at Baby Beach ad decrease bacteria levels. The County of Orange has installed six Oloid devices and retained Everest International Consultants to provide engineering and scientific support for this pilot project.

The Oloid devices are uniquely shaped geometric paddles that move water without the noise associated with traditional pumps. Pending the results of water quality sampling and testing in and around the Baby Beach area, the County of Orange may seek State grant funds to allow the permanent installation of the Oloid devices.

California Clean Marina Toolkit Programs

The *California Clean Marina Toolkit* (Toolkit*)*, which was produced by the California Coastal Commission, is a guidebook designed to help a marina operator, manage and operate a "clean marina." A "clean marina" complies with environmental laws and regulations and also strives to maintain a healthy, pollution-free environment by providing services that support clean boating, educating customers about clean boating practices, and training staff to be partners in the clean marina program. The

[3] Science Applications International Corporation, *State of the Beach Report – Baby Beach Region*, June 2003.

Toolkit recommends practices for addressing particular pollution problems and also provides guidelines to assist with educating marina customers to be partners in clean marina programs. The Toolkit also provides information of diverse marinas in California and what they have done to operate as clean marinas as well as sources for additional information.

The operators at the Dana Point Harbor are currently implementing the practices and programs included within the Toolkit to maintain a clean marina. Harbor operators are also currently in the process of attaining certification in the Clean Marina Program – San Diego region.

Dana Point Headlands Water Quality Filter

As condition of approval for the *Dana Point Headlands Development and Conservation Plan EIR*, a water quality filter system was conditioned for their development in the parking lot adjacent to the pier in Planning Area 5. Note that this filtration system is not a component of the Dana Point Harbor Revitalization Project. The proposed filter is one of three proposed for the Headlands Development, and is proposed to treat the first flush runoff during the early stages of every storm event. In addition, this facility conveys all dry weather run-off (nuisance flows) directly into the sanitary sewer system for treatment. The Headlands LLC installed the Baby Beach west storm drain filtration system in November 2005.

4.4.1.5 APPLICABLE REGULATIONS

The Project must satisfy the requirements of several Federal and State regulatory agencies and permits, most notably, the following:

- The State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity General Permit), under the Federal Clean Water Act;
- California's Nonpoint Source (NPS) Pollution Control Program; and
- San Diego Regional Water Quality Control Board Municipal NPDES Order No. R9-2002-0001.

FEDERAL PROGRAMS

The Environmental Protection Agency (EPA) is the primary Federal agency responsible for management of water quality in the United States. The Clean Water Act (CWA) is the Federal legislation that governs water quality control activities initiated by the EPA and others. Section 303 of the CWA requires the adoption of water quality standards for all surface water in the U.S. Under Section 303(d), each state is required to develop a list of water bodies that do not meet water quality objectives after required levels of treatment by point source dischargers. Total maximum daily loads (TMDLs) must be established for each listed pollutant to bring the water bodies into compliance with established water quality objectives.

In 1972, provisions of the CWA were amended so that discharge of pollutants to waters of the U.S. from any point source is effectively prohibited, unless the discharge is in compliance with a National Pollutant Discharge Elimination (NPDES) permit. The 1987 amendments to the CWA added Section 402(p), which established a framework for regulating municipal, industrial, and construction stormwater discharges under the NPDES program. On November 16, 1990, the EPA published final regulations that established application requirements for stormwater permits for any municipal separate storm sewer system (MS_4) that serves a population of over 100,000 ("Phase 1 communities") and for certain industrial facilities comprising construction sites 5 acres or greater. On December 8, 1999, the EPA published the final regulations for communities under 100,000 (Phase II MS_4s) and operators of construction sites from 1 acre through 5 acres.

In California, the EPA's NPDES permits are administered by the State Water Resources Control Board (SWRCB).

STATE PROGRAMS

CWA and Nonpoint Pollution Sources

Nonpoint-source (NPS) pollution (also known as polluted runoff) is the leading cause of water quality impairments in California. Section 319 of the CWA requires that each state prepare and submit a report that "identifies those navigable waters within the State which, without additional action to control nonpoint sources of pollution, cannot reasonably be expected to attain or maintain applicable water quality standards."

To comply with this directive, the SWRCB adopted California's NPS Control Program (NPS Program) in 1988. The NPS Program was updated in January of 2000 to the *Plan for California's Nonpoint Source Pollution Control Program* (Program Plan). The chief way in which the Program Plan fulfills the requirement of CWA Section 319 is through the implementation of management measures (MMs). MMs are general goals for the control and prevention of NPS pollution.

Sixteen MMs have been identified by the SWRCB and other agencies to address marina and recreational boating sources of nonpoint pollution, the most likely sources that will be associated with the Project. According to the Program Plan, these measures are designed to reduce NPS pollution through the following:

- Requiring the best possible siting for marinas and maintenance areas;
- Providing the best available design and construction practices and appropriate operation and maintenance practices; and
- Encouraging the development and use of effective pollution control and education efforts.

SWRCB and the California Ocean Plan

The SWRCB has adopted a Water Quality Control Plan (WQCP) for ocean waters of California, called the *California Ocean Plan*. With the exception of wildlife habitat, the

Ocean Plan identifies the same beneficial uses as the *San Diego Basin Plan*. The *Ocean Plan* has similarly established water quality objectives for bacteriological, physical, chemical, radioactive, and biological characteristics. The Plan also incorporates general requirements for the management of wastes directly discharged directly into the ocean; effluent quality requirements for waste discharges directly into the ocean; discharge prohibitions; and general provisions. The *Ocean Plan* is incorporated by reference into the *San Diego Basin Plan*.

CWA and NPDES General Construction Permit

While the EPA allows two permitting options to meet the NPDES requirements (Individual Permits and General Permits), the SWRCB has elected to adopt one Statewide General Permit for California that applies to all construction-related stormwater discharges except for those on tribal lands, those in the Lake Tahoe Hydrologic Unit, and those from the California Department of Transportation (CalTrans) projects.

Construction activities subject to the *General Permit* include clearing, grading, stockpiling, and excavation that results in soil disturbances of at least one acre of total land area. Construction activities disturbing less than one acre may still be subject to this permit if the activity is part of a larger common plan of development or if significant water quality impairment will result from the activity.

The *General Permit* requires all dischargers whose construction activity disturbs one acre or more to:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) that specifies Best Management Practices (BMPs) to prevent all construction pollutants from contacting storm water and to keep all products of erosion from moving off-site into receiving waters.

- Eliminate or reduce nonstormwater discharge to storm sewer systems and other waters of the U.S.

- Perform inspections of all BMPs.

The proposed Project will disturb more than one acre of land; therefore, it will be subject to the requirements of the NPDES *General Permit* for construction activity.

LOCAL WATER QUALITY REGULATIONS

Orange County Municipal Stormwater Requirements

The 2003 DAMP requires the implementation of BMPs for site design, pollutant source control, and water treatment control. The enforcement mechanism is the *Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4) Draining the Watersheds of Orange County, the Incorporated Cities of Orange County, and the Orange County Flood Control District within the San Diego Region* Permit. (The permit is also generally known as the San Diego Regional Water Quality Control Board Municipal NPDES Permit No. R9-2002-0001.)

The proposed Project is considered a priority project under the 2003 DAMP and requires that appropriately sized treatment control BMPs be included in the Project WQMP.

County of Orange Drainage Area Master Plan

Since 1990, the County has cooperated with cities (the Permittees) in complying with the NPDES permits issued by the Santa Ana and San Diego Regional Water Quality Control Boards. The result of this cooperation has been the development of numerous common stormwater programs that have been integrated in the areawide DAMP.

As a result of the NPDES permits issued in early 2002 (Third Term Permits), the DAMP has undergone significant changes and restructuring and is now termed the *2003 Drainage Area Master Plan* (2003 DAMP). The 2003 DAMP contains model program guidance that was developed through a collaborative effort among all Permittees, including the County, as well as interested agencies, organizations, and the public. The 2003 DAMP requires that each permittee, including the County, prepare a Local Implementation Plan (LIP) as an Appendix to the 2003 DAMP. The County's LIP describes the activities that the County has previously undertaken and is currently undertaking to meet the requirements of the Third Term Permits and to make meaningful improvements in urban water quality. The LIP is the basis for County compliance during the five-year period of the Third Term Permit. However, the LIP is subject to modifications and updates as the County determines necessary, or as directed by the RWQCBS.

SDRWQCB and the San Diego Basin Plan

The State Porter-Cologne Act (Water Code 13000, et seq.) is the principal legislation for controlling stormwater pollutants in California. The Act requires development of Basin Plans for drainage basins within California. Each plan serves as a blueprint for protecting water quality within a watershed. These basin plans are used in turn to identify more specific controls of discharges (e.g., wastewater treatment plant effluent, urban runoff, and agriculture drainage).

The San Diego RWQCB designates the beneficial uses of surface and groundwater in the San Diego region. The beneficial uses are defined in the Basin Plan as the uses of water necessary for the survival or wellbeing of human, plants, and wildlife. Table 4.4-6 (Beneficial Water Uses in the San Diego Basin) describes each beneficial use category. The objectives in the Basin Plan that apply to the existing or potential beneficial uses for Dana Point Harbor are also summarized in Table 4.4-6.

As a result of the RARE (support of rare, threatened, or endangered species) beneficial use classification for Dana Point Harbor, the SWRCB has designated Dana Point Harbor an Environmentally Sensitive Area (ESA). The San Diego Basin Plan objectives are assigned based on the receiving water beneficial uses. Each water body has designated beneficial uses that are the types of activities for which the water body is currently used or could be used. Objectives are then prescribed to protect the water quality so that the beneficial uses are preserved. Certain reaches of rivers and creeks are more sensitive or have different characteristics and, therefore, require objectives specific to the water body.

Table 4.4-6
BENEFICIAL WATER USES IN THE SAN DIEGO BASIN

Beneficial Use	Description	Beneficial Use in the Harbor
MUN	Community, military, or individual water system use, including, but not limited to, drinking water supply.	
AGR	Uses of water for farming, horticulture, or ranching.	
PROC	Uses of water for industrial activities that depend primarily on water quality.	
IND	Uses of water for industrial activities that do not depend primarily on water quality	X
GWR	Natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.	
FRSH	Natural or artificial maintenance of surface water quantity or quality.	
NAV	Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels.	X
MAR	Uses of water to support marine ecosystems.	X
POW	Uses of water for hydropower generation.	
REC1	Recreational uses of water involving body contact with the water.	X
REC2	Noncontact recreational uses of water.	X
COMM	Commercial or recreational collection of fish, shellfish, or other organisms for human consumption or bait.	X
AQUA	Use of water for aquaculture or mariculture.	
WARM	Support of warm-water ecosystems.	
COLD	Support of cold-water ecosystems.	
SAL	Support of inland saline water ecosystems.	
EST	Uses of water to support estuarine ecosystems.	
WILD	Support of terrestrial ecosystems.	X
BIOL	Support of designated areas or habitats where the preservation or enhancement of natural resources requires special protection.	
RARE	Support of habitats necessary for the survival and maintenance of rare, threatened, or endangered species.	X
MIGR	Support of habitats necessary for migration, acclimatization between fresh and salt water, or other temporary activities by aquatic organisms.	X
SHELL	Support of aquatic habitats suitable for the collection of filter-feeding shellfish.	X
SPWN	Support of aquatic habitats suitable for reproduction and the early development of fish.	X

Source: Fuscoe Engineering, *Program Water Quality Management Plan for the Dana Point Harbor Revitalization Plan*, September 2005.

Because of the variety of beneficial uses and the different requirements necessary to protect those uses, constituents could have more than one objective in the San Diego Basin Plan (e.g., the lead objective for drinking water is different from the lead objective for aquatic life protection in the ocean). In addition to quantitative objectives, the Basin Plan contains qualitative objectives. Constituents of concern were identified from these objectives. The narrative objectives for which numeric values were assigned are shown in Table 4.4-7 (San Diego Basin Plan Narrative Standards). Additional constituents of concern are derived from the 2003 DAMP; refer to Table 4.4-2.

Table 4.4-7
SAN DIEGO BASIN PLAN NARRATIVE STANDARDS

Narrative Title	Narrative Objective
Suspended Solids	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
Pesticides	No individual pesticide or combination of pesticides shall be present in the water column, sediments or biota at concentrations that adversely affect beneficial uses. Pesticides shall not be present at levels that will bioaccumulate in aquatic organisms to levels that are harmful to human health, wildlife or aquatic organisms.
Sediment	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
Temperature	Natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.
Toxicity	All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.

Source: Fuscoe Engineering, *Program Water Quality Management Plan for the Dana Point Harbor Revitalization Plan*, September 2005.

4.4.2 METHODOLOGY

HYDROLOGY AND DRAINAGE

The Rational Method and Modified Rational Method are empirical computation procedures for developing a peak runoff rate (discharge) for storms of a specific recurrence interval. Rational Method equations are based on the assumption that the peak flowrate is directly proportional to the drainage area, rainfall intensity, time of concentration, land use and soil type. The design discharges were computed by generating a hydrologic "link-node" model, which divides the area into drainage (watershed) subareas. These subareas are tributary to concentration points or hydrologic "node" points determined by the existing terrain and street layout. Hydrologic parameters used in the analysis are based upon Type "D" soils (Plate C, *Orange County Hydrology Manual*) and the manual's nomographs. Runoff coefficients are derived from Table A-1 of Attachment A of the *Orange County Local WQMP* (August 13, 2003).

WATER QUALITY

The Program WQMP that was prepared by Fuscoe Engineering addresses construction stormwater runoff management for Dana Point Harbor in its entirety to satisfy the regulatory requirements of the County, City, and other agencies having jurisdiction over water quality control. Development and individual revitalization projects within the Harbor will rely upon a site-specific approach (all or a portion of a Planning Area) for the site design, source control, and treatment control BMPs to mitigate stormwater runoff pollution conditions. The Program WQMP recommends categories of treatment BMPs applicable to the specific land use within Planning Areas to be considered at the time of Coastal Development Permit approval. It is presently anticipated that the ultimate buildout condition of Dana Point Harbor will be achieved over an approximately 20-year period.

FLOODING

Potential flood impacts are evaluated based on qualitative assessments of project-related effects in the context of the existing setting of the Harbor. Existing information was gathered from available reports and publications, including the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM).

4.4.3 SIGNIFICANCE CRITERIA

The purpose of this technical evaluation is to determine the impact of the proposed Project on surface water drainage and stormwater quality within Dana Point Harbor and the Pacific Ocean. For any impact that the analysis determines will be significant, appropriate mitigation is specified to reduce Project impacts to less than significant levels.

The following thresholds of significance, based on the criteria contained in Appendix G of the *State CEQA Guidelines* were used to determine whether or not implementation of the proposed Project will result in significant impacts related to hydrology, drainage, or water quality. Impacts will be considered significant if the Project will:

- Violate any water quality standards or waste discharge requirements; refer to Impact Statements 4.4-2 (Water Quality - Construction) and 4.4-3 (Water Quality – Long Term);

- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there will 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 will drop to a level that will not support existing land uses or planned uses for which permits have been granted); refer to Section 7.0 (Effects Found Not to be Significant);

- 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 that will result in substantial erosion or siltation on- or off-site; refer to Impact Statement 4.4-1 (Drainage and Runoff);

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that will result in flooding on- or off-site; refer to Impact Statement 4.4-1 (Drainage and Runoff);

- Create or contribute runoff water that will exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; refer to Impact Statement 4.4-1 (Drainage and Runoff);

- Have a significant adverse impact on groundwater quality or otherwise substantially degrade water quality; refer to Impact Statements 4.4-2 (Water Quality - Construction) and 4.4-3 (Water Quality – Long Term);

- 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; refer to Section 7.0 (Effects Found Not to be Significant);

- Place within a 100-year flood hazard area structures that will impede or redirect flood flows; refer to Impact Statement 4.4-4 (Flood hazards);

- 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; refer to Impact Statement 4.4-4 (Flood hazards);

- Inundation by seiche, tsunami, or mudflow; refer to Impact Statement 4.4-4 (Flood hazards);

4.4.4 PROJECT IMPACTS

The following discussion evaluates the proposed Project and compares it to existing conditions to determine impacts.

4.4.4.1 DRAINAGE AND RUNOFF

4.4-1 *The proposed Project could alter drainage patterns and increase erosion and runoff amounts and increase sedimentation. Impacts will be reduced to a less than significant level with incorporation of the recommended Standard Conditions of Approval (SCAs)*.

HARBORWIDE

As discussed below, there are numerous activities currently taking place to investigate storm drain diversions and treatment methods to improve the water quality within the Harbor. As a summary of the discussions below, long-term water quality will be improved through the development of new or additional drainage and water quality facilities.

Off-Site Storm Drain Diversion (Dana Point Coastal Streams)

The City of Dana Point, working with the South Coast Water District (SCWD), designed and constructed its first Urban Low-Flow Diversion Project in the spring of 2000. This project constructed low-flow grated interceptor basins upstream of the new peak-flow catch basins constructed by the City. Observation of the diversion system over the summer season indicated that the grates are effectively intercepting irrigation water and other low-flow constituents. Catch basin filters in the new peak flow basins immediately downstream are intercepting large floating trash and other macro pollutants. Six additional low-flow diversion projects are planned or have recently been built:

- The Alipaz Storm Drain Project and Del Obispo Park Storm Drain Projects are two projects that incorporate a Continuous Deflective Separation (CDS)™ unit followed by low-flow diversion to the sanitary sewer.

- The Urban Runoff Diversion Project, collects multiple pipe discharges from above Pacific Coast Highway and diverts the low flow to an existing sanitary sewer that currently lacks sufficient flow to be self-cleaning. Currently, stormwater flows down Palisades Drive from Camino Capistrano to a low-flow diversion on Pacific Coast Highway.

- The Salt Creek Storm Drain Treatment Project is planned for construction by the City; the North Creek Storm Drain Diversion has already been constructed. Both diversions will function year-round, except during storms. The construction date for the Salt Creek Storm Drain Treatment Project has not yet been established.

- The Dana Point Headlands Development Project will incorporate a water quality media system and a dry weather diversion system located in the parking lot adjacent to the pier within the Dana Point Harbor.

On-Site Storm Drain Diversion

As part of the Clean Beaches Initiative (CBI), the water quality at Baby Beach was studied in the *State of the Beach Report, Baby Beach Region*. The first phase of the CBI included data mining and source tracking. Based on the recommendations of the report, various BMPs were implemented including a storm drain diversion near Baby Beach at the west drain by the pier adjacent to the Ocean Institute. The west drain is diverted via gravity flow into the sewer via a low flow system. In addition, a Stormceptor device captures oil and grease from the Ocean Institute parking lot.

The Project will not substantially change any of the existing off-site storm drain conveyances that run underneath the Harbor and ultimately outlet at the East and West Marinas. Moreover, all on-site water quality concerns within the site will be addressed prior to connection to off-site drainage systems or creating new outlet locations into the East and West Marinas. No significant intensification of land uses, including major expansions of impervious surfaces and additional runoff quantities, are expected throughout the Harbor, and the regional storm drain facilities that collect off-site flows and on-site flows will remain in place. No improvements are expected or required for the regional facilities. Based on the proposed Harborwide

improvements, the most intensive alterations to the existing portions of the Harbor will be in Planning Areas 1 and 2, as described below in the Commercial Core discussion.

Because the Harbor is fully developed, general drainage of the proposed Project will be similar to existing conditions. Where feasible, the design of each Planning Area will include a network of surface water drainage conveyance improvements that will provide water quality treatment opportunities prior to connection with the existing storm drains that drain into the area. In the Planning Areas where sheet flows currently discharge untreated into the marina, the drainage will be redesigned, to the extent feasible, to drain towards areas where stormwater runoff could be treated prior to discharge.

With the implementation of SCAs 4.4-1 through 4.4-5, Project specific drainage issues will be addressed and covered by either (a) a future separate Project WQMP or (b) a future amendment to the Project WQMP, as revitalization of each Planning Area is implemented. Thus, a less than significant impact will result.

COMMERCIAL CORE

Project hydrology (based on assumed flow paths and storm drain locations) was studied by AC Martin Partners (May 2004) to determine the hydrology impacts within the Commercial Core. The Commercial Core will receive upgrades to the storm drain system, and consequently the area is divided into 5 drainage areas; refer to Table 4.4-8 (Project Subdrainage Characteristics). The watershed subarea boundaries were delineated utilizing topographic mapping, a site visit, and proposed Project maps. Exhibit 4.4-3 (Commercial Core Drainage Key Map) illustrates the Project hydrologic conditions. Additional detail is illustrated on Exhibits 4.4-3a through 4.4-3d. Hydrologic parameters used in the analysis are based upon Type "D" soils (Plate C, *Orange County Hydrology Manual*) and the manual's nomographs for a 10-year design storm.

Table 4.4-8
PROJECT SUBDRAINAGE CHARACTERISTICS

Area Designation	Pipe Size (Inches)	Watershed Area (Acres)	Total Flow rate (cubic feet per second)
A	30 (Line A)	10.73	27.50
B	24 (Line B)	6.59	15.61
C	36 (Line C)	21.08[1]	48.31
D	18 (Line D)	1.69	5.46
E	Sheet Flow	4.4	14.25

[1] 11.08 acres from the Project site and 10.0 acres from the City of Dana Point.

Source: AC Martin Partners, *Dana Point Harbor Revitalization Schematic Design Package*, May 2004.

Drainage Area A consists of the western 10.73 acres of the Project site. Most of the Drainage Area is comprised parking areas, where surface runoff will be conveyed southward via a system of proposed swales, gutters, and underground storm drains that ultimately discharge into the proposed 30-inch storm drain that outlets into the East Marina. Drainage Area B (6.59 acres) conveys runoff through a system of roof drain collection, catch basins, and storm drain lines. The runoff (composed only of roof runoff) will discharge into a proposed 24-inch storm drain line that will outlet into the East Marina. Drainage Area C (21.08 acres) consists of car parking, dry stacked boat storage, boat launch ramp area, boat maintenance area, and off-site runoff from the City of Dana Point. Runoff will be conveyed southward through a system of storm drains connected to a proposed 36-inch storm drain line and discharged immediately northeast of the boat launch ramp. In Drainage Area D (1.69 acres), a proposed 18-inch storm drain will collect roof runoff and surface flows will be discharged between the dry stacked storage #1 and #2 buildings. Drainage Area E will sheet flow over 4.4 acres northwestward, and the runoff will ultimately enter the Harbor waters to the west and south of the shipyard.

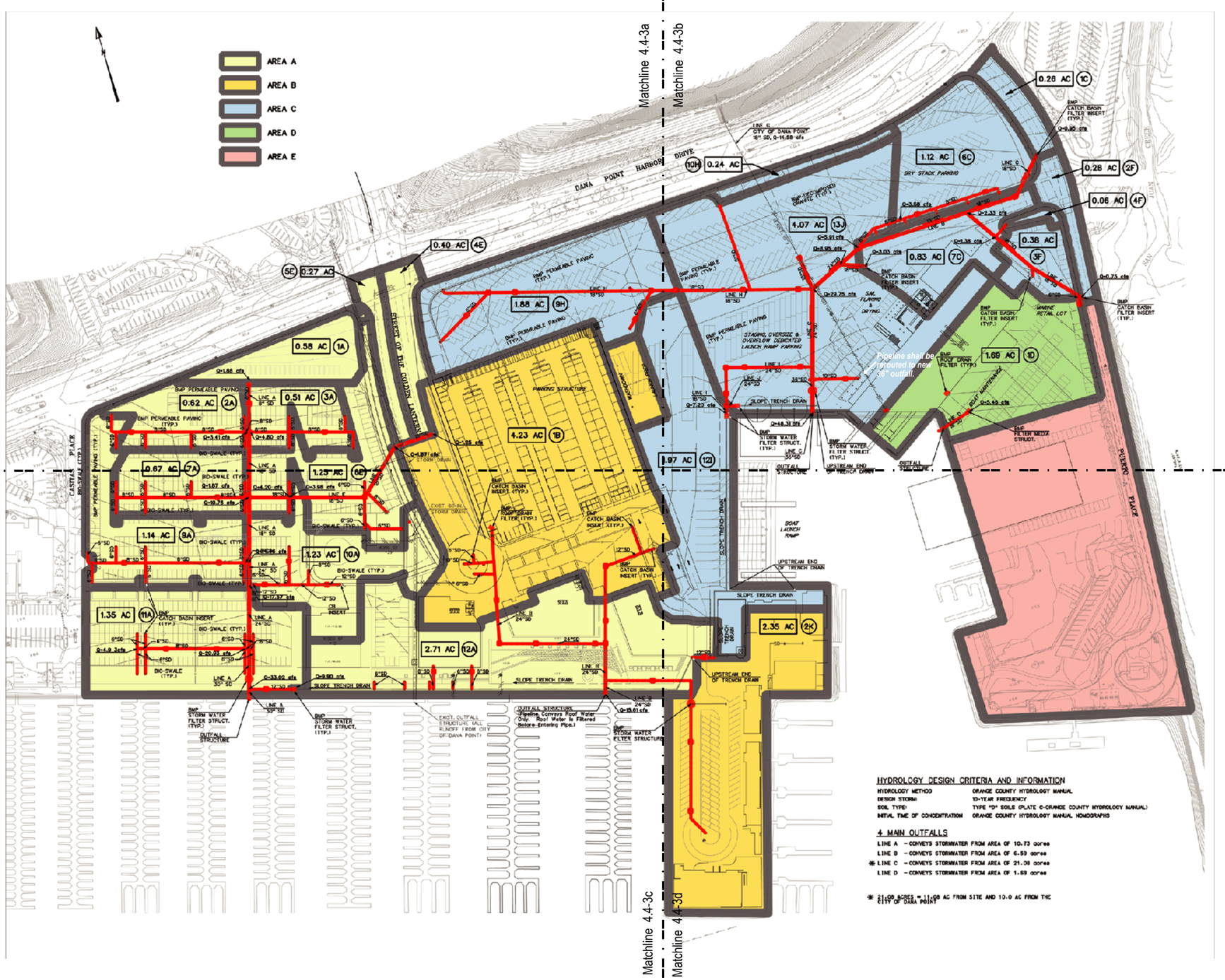
From the existing to the post-project condition, the amount of impervious area will remain relatively unchanged. The Project proposes demolition and replacement of the Mariners Village buildings and the construction of a parking deck; refer to Section 3.0 (Project Description). Prior to construction, Drainage Areas A and E are approximately 90% impervious, while Drainage Areas B through D are approximately 94% impervious. Upon buildout of the Commercial Core, the imperviousness will not be substantially altered. Drainage Areas A and E will be relatively similar to existing conditions, at 91.8% imperviousness, and Drainage Areas B through D will be slightly less at 90.8%.

Table 4.4-9 (Hydrology Comparison [10-Year Storm]), compares the flowrate per acre for the five drainage areas. The assumptions and guidelines applied for use of the Rational and Modified Rational Methods are outlined in Appendix F (Water Quality Assessment).

Table 4.4-9
HYDROLOGY COMPARISON (10-YEAR STORM) — EXISTING AND PROJECT CONDITIONS

Area	Existing Condition (cubic feet per second)	Project Condition (cubic feet per second)	Difference (cubic feet per second)
A	30.03	27.50	-2.53
B	15.70	15.61	-0.09
C	29.46	48.31	18.85
D	5.41	5.46	0.05
E	14.25	14.25	0.0
Total	94.85	111.13	16.28

Existing flows were calculated with the Advanced Engineering Software (AES) Rational Method.
Source: AC Martin Partners, *Dana Point Harbor Revitalization Schematic Design Package*, May 2004.



HYDROLOGY DESIGN CRITERIA AND INFORMATION

HYDROLOGY METHOD	ORANGE COUNTY HYDROLOGY MANUAL
DESIGN STORM	10-YEAR FREQUENCY
SOIL TYPE	TYPE "D" SOILS (PLATE C-ORANGE COUNTY HYDROLOGY MANUAL)
INITIAL TIME OF CONCENTRATION	ORANGE COUNTY HYDROLOGY MANUAL NOMOGRAPHS

4 MAIN OUTFALLS

LINE A – CONVEYS STORMWATER FROM AREA OF 10.73 acres
LINE B – CONVEYS STORMWATER FROM AREA OF 6.59 acres
* LINE C – CONVEYS STORMWATER FROM AREA OF 21.08 acres
LINE D – CONVEYS STORMWATER FROM AREA OF 1.69 acres

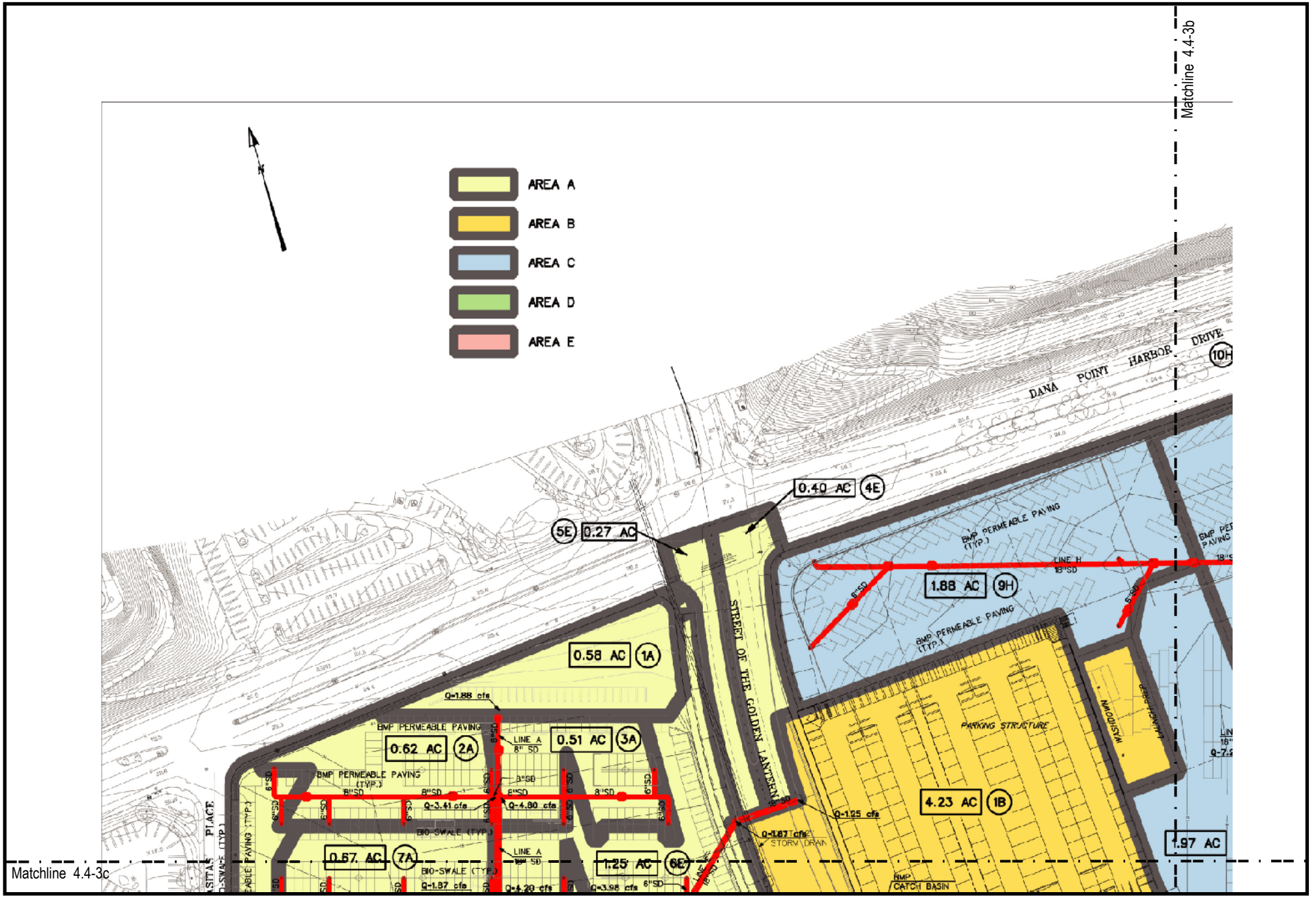
* 21.08 ACRES = 11.08 AC FROM SITE AND 10.0 AC FROM THE CITY OF DANA POINT

Source: AC Martin Partners, September 2005.

PROJECT CONDITION DRAINAGE KEY MAP

DANA POINT HARBOR REVITALIZATION PROJECT
ENVIRONMENTAL IMPACT REPORT
EXHIBIT 4.4-3

RBF CONSULTING PLANNING ■ DESIGN ■ CONSTRUCTION



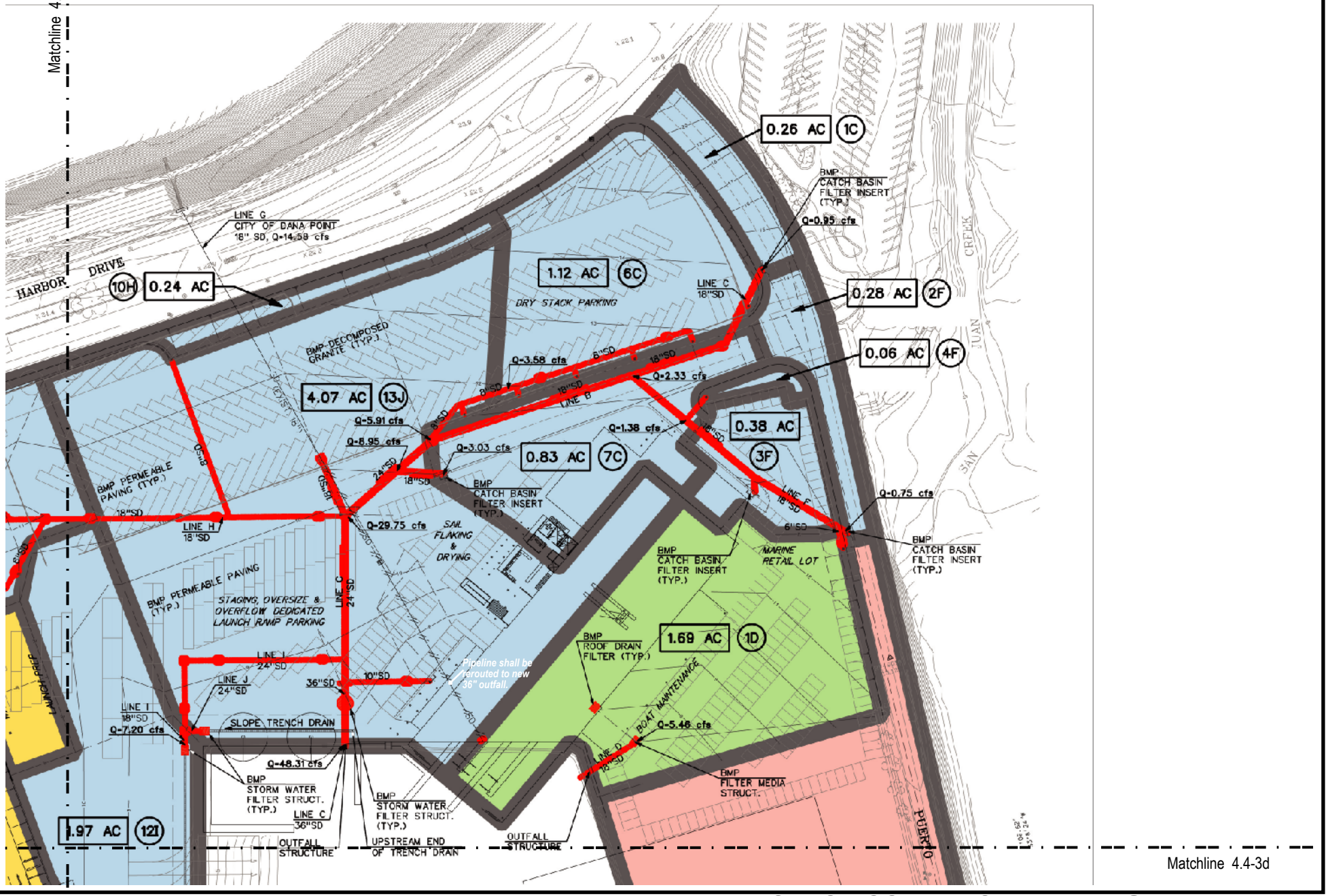
Source: AC Martin Partners, September 2005.

PROJECT CONDITION DRAINAGE DETAIL MAP

DANA POINT HARBOR REVITALIZATION PROJECT
ENVIRONMENTAL IMPACT REPORT

EXHIBIT 4.4-3a

RBF CONSULTING — PLANNING ■ DESIGN ■ CONSTRUCTION



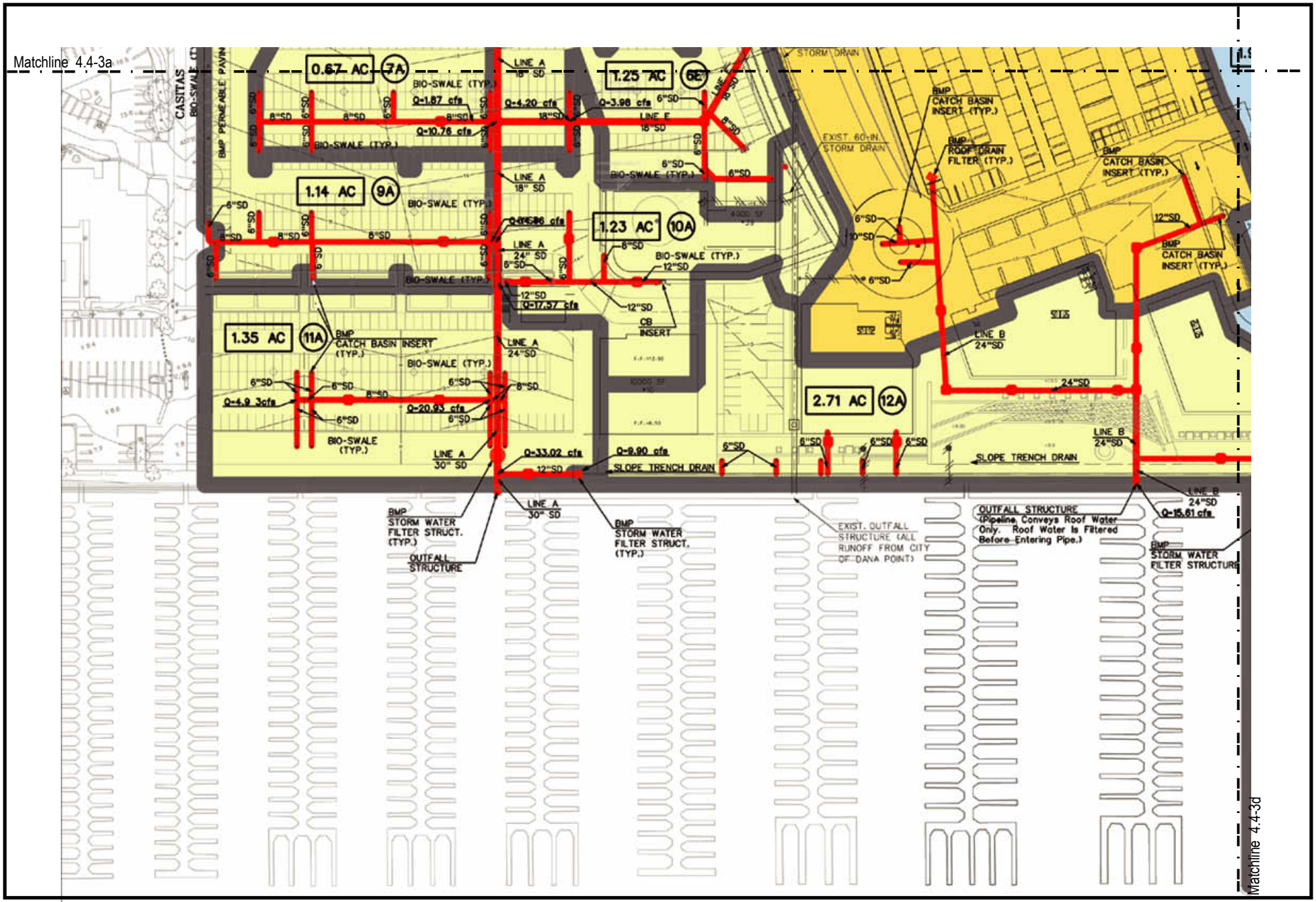
Source: AC Martin Partners, September 2005.

PROJECT CONDITION DRAINAGE DETAIL MAP

DANA POINT HARBOR REVITALIZATION PROJECT
ENVIRONMENTAL IMPACT REPORT

EXHIBIT 4.4-3b

RBF CONSULTING — PLANNING ■ DESIGN ■ CONSTRUCTION



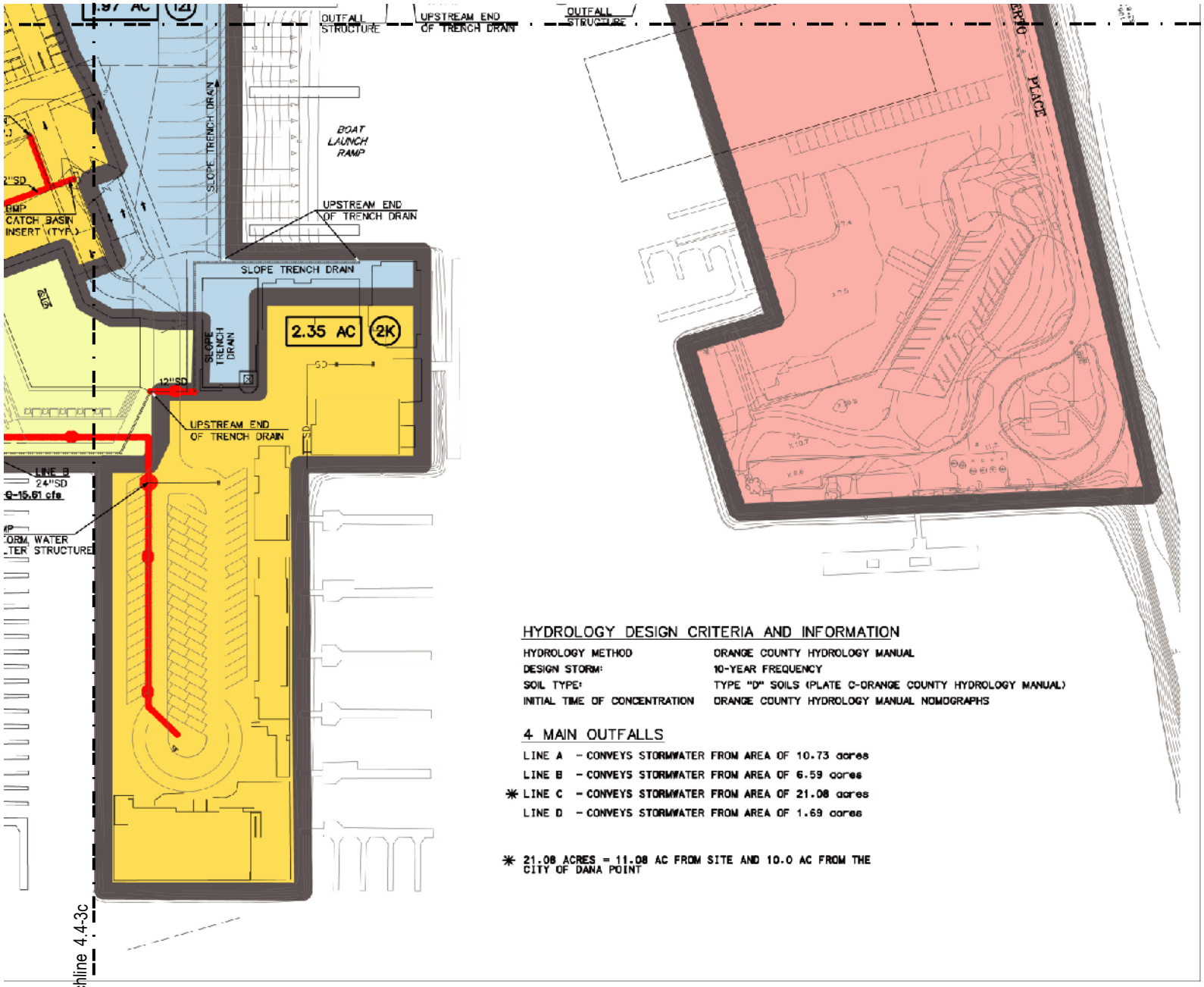
Source: AC Martin Partners, September 2005.

PROJECT CONDITION DRAINAGE DETAIL MAP

DANA POINT HARBOR REVITALIZATION PROJECT
ENVIRONMENTAL IMPACT REPORT

EXHIBIT 4.4-3c

RBF CONSULTING — PLANNING ■ DESIGN ■ CONSTRUCTION



Source: AC Martin Partners, September 2005.

PROJECT CONDITION DRAINAGE DETAIL MAP

DANA POINT HARBOR REVITALIZATION PROJECT
ENVIRONMENTAL IMPACT REPORT

EXHIBIT 4.4-3d

RBF CONSULTING — PLANNING ■ DESIGN ■ CONSTRUCTION

As indicated in Table 4.4-9, there will be a cumulative increase of approximately 16.28 cubic feet per second (cfs) between the existing and proposed peak-flow conditions. This is primarily due to the 18-inch reinforced concrete pipe (RCP) in Drainage Area 1 (refer to Exhibit 4.4-2) being rerouted to be part of Drainage Area C (refer to Exhibit 4.4-3). Flows in Drainage Area C, encompasses the boat trailer lot, dry stacked boat storage, and a surface boat storage lot. The resultant flow will be handled through a 36-inch outfall that is located just west of dry stack storage dock #1 (Line C). Drainage Areas A and B will actually have reduced flows, while Drainage Area D will be slightly higher (0.5 cubic feet per second [cfs]).

In summary, the Project will not significantly alter the drainage patterns on the Dana Point Harbor site, and the alteration will be a less than significant impact with the incorporation of SCAs 4.4-1 through 4.4-3. The proposed Project will implement SCAs 4.4-1, 4.4-2 and 4.4-3 to help reduce impacts associated with drainage and runoff from impervious surfaces. As specified in SCA 4.4-3, prior to the issuance of any grading permits, further drainage studies shall be submitted to the Manager, Subdivision and Grading. Additionally, the County of Orange Dana Point Harbor Department shall construct all applicable drainage improvements in accordance with the recommendations and requirements identified in the approved Water Quality Management Plan for Dana Point Harbor.

OFF-SITE AREAS

The SCWD Lot and the Selva Parking Lot will be used as overflow parking and boat storage during Harbor construction. Specific improvements (fencing and gates, etc.) to allow the existing Selva Parking Lot to be used for temporary storage of boats and employee vehicles will be made. Therefore, no significant drainage or runoff impacts are anticipated.

4.4.4.2 WATER QUALITY — CONSTRUCTION

4.4-2 *Grading, excavation, and construction activities associated with the proposed Project could impact water quality due to sheet erosion of exposed soils and subsequent deposition of particles and pollutants in drainage areas. Impacts will be reduced to a less than significant level through regulatory compliance and with incorporation of recommended Standard Conditions of Approval (SCAs).*

HARBORWIDE

Construction controls are considered separately from other types of water quality management because the measures are temporary and specific to the type of construction. Construction of the proposed Project could produce typical pollutants such as nutrients, heavy metals, pesticides and herbicides, toxic chemicals related to construction and cleaning, waste materials (including washwater, paints, wood, paper, concrete, food containers, and sanitary wastes), fuel, and lubricants.

As part of its compliance with NPDES General Permit requirements, a Notice Of Intent (NOI) will need to be prepared and submitted to the SDRWQCB providing notification and intent to comply with the General Permit. Prior to construction, a SWPPP is required for the construction activities on-site.

Implementation of recommended SCAs 4.4-4 through 4.4-7 will reduce construction-related impacts on water quality to less than significant. Prior to issuance of any grading approvals, SCA 4.4-4 states that the Project will be required to obtain permit approval from the NPDES Statewide Stormwater Permit for General Construction Activities prior to issuance of grading permits. SCAs 4.4-5 shall require the Project to prepare a Stormwater Pollution Prevention Plan (SWPPP) prior to the issuance of grading or building permits. As mentioned in SCAs 4.4-6 and 4.4-7, construction impacts shall be analyzed and controlled through the preparation of the Runoff Management Plan and a Sediment Control Plan prior to the issuance of any grading or building permits. Subject to the findings of the various plans, the proper construction related BMPs, which prevent degradation of water quality shall be determined. BMPs may include, but are not limited to NS – 2 (Dewatering), NS – 5 (Clear Water Diversion), NS-14 (Materials Over Water), and NS –15 (Demolition Adjacent to Water). The Project Hydrology consultants shall advise the proper methodology and practices.

COMMERCIAL CORE

Refer to the Harborwide discussion above.

OFF-SITE AREAS

The SCWD Lot and the Selva Parking Lot will be used as overflow parking and boat storage during Harbor construction. Specific improvements (fencing and gates, etc.) will be made to allow the existing Selva Parking Lot to be used for temporary storage of boats and employee vehicles. However, no construction activities or subsurface activities will occur within these sites. Therefore, no significant drainage or runoff impacts are anticipated.

4.4.4.3 WATER QUALITY – LONG TERM

4.4-3 *Implementation of the proposed Project could result in long-term impacts on the quality of stormwater and urban runoff, subsequently impacting water quality. Impacts will be reduced to less than significant levels through compliance with regulatory requirements, and implementation of recommended Project Design Features and Standard Conditions of Approval (SCAs).*

HARBORWIDE

Upon preparation of construction plans and specifications, the County will determine the specific locations of the various Project components within Planning Areas 3 through 7. Currently, the plans for these areas are at a programmatic level of detail, and will be addressed and covered by either (a) a future separate Project WQMP or (b) a future amendment to the Project WQMP, when such Project features are proposed within Dana Point Harbor. Thus, the Project WQMP provides only a narrative description of postconstruction BMPs for Planning Areas 3 through 7, because their precise location will not be determined until those site plans are furnished for each project proposal. Thus, the WQMP serves as the foundation of all future amendments and future separate Project WQMPs associated with the Project.

With the implementation of PDFs 4.4-1 through 4.4-3 and SCAs 4.4-11 through 4.4-14, operational water quality impacts will be reduced to less than significant.

COMMERCIAL CORE

The Project site incorporates three major types of BMPs into the Commercial Core; refer to Exhibit 4.4-4 (Commercial Core Water Quality BMP Locations). These types of BMPs are site design BMPs, source control BMPs, and treatment control BMPs. In general, site design BMPs and source control BMPs reduce the amount of pollution prevention resulting from stormwater. Treatment-control BMPs target anticipated potential stormwater pollutants. Table 4.4-10 (BMP Efficiency), summarizes expected removal efficiencies for BMPs proposed within the Dana Point Harbor Project.

Table 4.4-10
BMP EFFICIENCY

Best Management Practices	TSS[1]	Total Cu[2]	Total Zn[3]	Total Pb[4]	Nox[5]	TP[6]	Hydrocarbons[7]
Swales (pretreatment)	Med	Med	Med	Med	Low	Low	Med
Drain Inlet Inserts	Low	Low	Low	Low	Low	Low	Med
Hydrodynamic Separators	Med	Low	Low	Low	Low	Low	Varies
StormFilter™	Med	Med	Med	Med	Med-Low	Med-Low	Med
Porous Pavers	High	High	High	High	High	High	High

TSS = total suspended solids; Cu = copper; Zn = zinc; Pb = lead; NOx = nitrogen oxides; TP – total phosphorus.
[1] TSS removal is defined as sandy loam soil distribution (55% sand, 40% silt, 5% clay)
[2] Total Cu removal is defined as particulate and dissolved copper average removal efficiency.
[3] Total Zn removal is defined as particulate and dissolved zinc average removal efficiency.
[4] Total Pb removal is defined as particulate and dissolved lead average removal efficiency.
[5] NO_x removal is defined as nitrate and nitrite average removal efficiency.
[6] TP removal is defined as particulate and dissolved phosphorus average removal efficiency.
[7] Hydrocarbon removal is defined as oil, diesel, and gasoline average removal efficiency.
Source: Fuscoe Engineering, *Program Water Quality Management Plan for the Dana Point Harbor Revitalization Plan*, September 2005.

Site Design BMPs

Site design BMPs aim to conserve natural areas and minimize impervious cover, especially impervious areas "directly connected" to receiving waters, to maintain or reduce increases in peak-flow velocities from the Project site. The EPA (2002) has listed several site design BMPs that can be implemented for development projects. The proposed Project features a 2 level parking deck to park more cars in a smaller impervious-area footprint. Landscaped areas will also be provided adjacent to the structure. In addition, the use of impervious surfaces (such as decorative concrete) will be minimized in landscape design to minimize the site's impervious footprint and the amount of directly connected impervious surface.

Source Control BMPs

Source control BMPs are activities, practices, and procedures (primarily nonstructural) that are designed to prevent urban runoff pollution. These measures either reduce the amount of runoff from the site or prevent contact between potential pollutants and stormwater. Also, source-control BMPs are often the best method to address non-storm (dry-weather) flows.

Postconstruction treatment control stormwater management BMPs treat stormwater emanating from the Project site. Structural BMPs are an integral element of postconstruction stormwater management and include storage, filtration, and infiltration practices.

The proposed Project is not expected to generate significant amounts of pollutants, but many constituents are generally anticipated for projects in this category; refer to Table 4.4-11 (Anticipated and Potential Pollutants for Project). Additionally, the effectiveness of the BMPs that are described varies, depending on the particular pollutant of concern; refer to Table 4.4-12 (Treatment Control BMP Selection Matrix).

Table 4.4-11
ANTICIPATED AND POTENTIAL POLLUTANTS FOR PROJECT

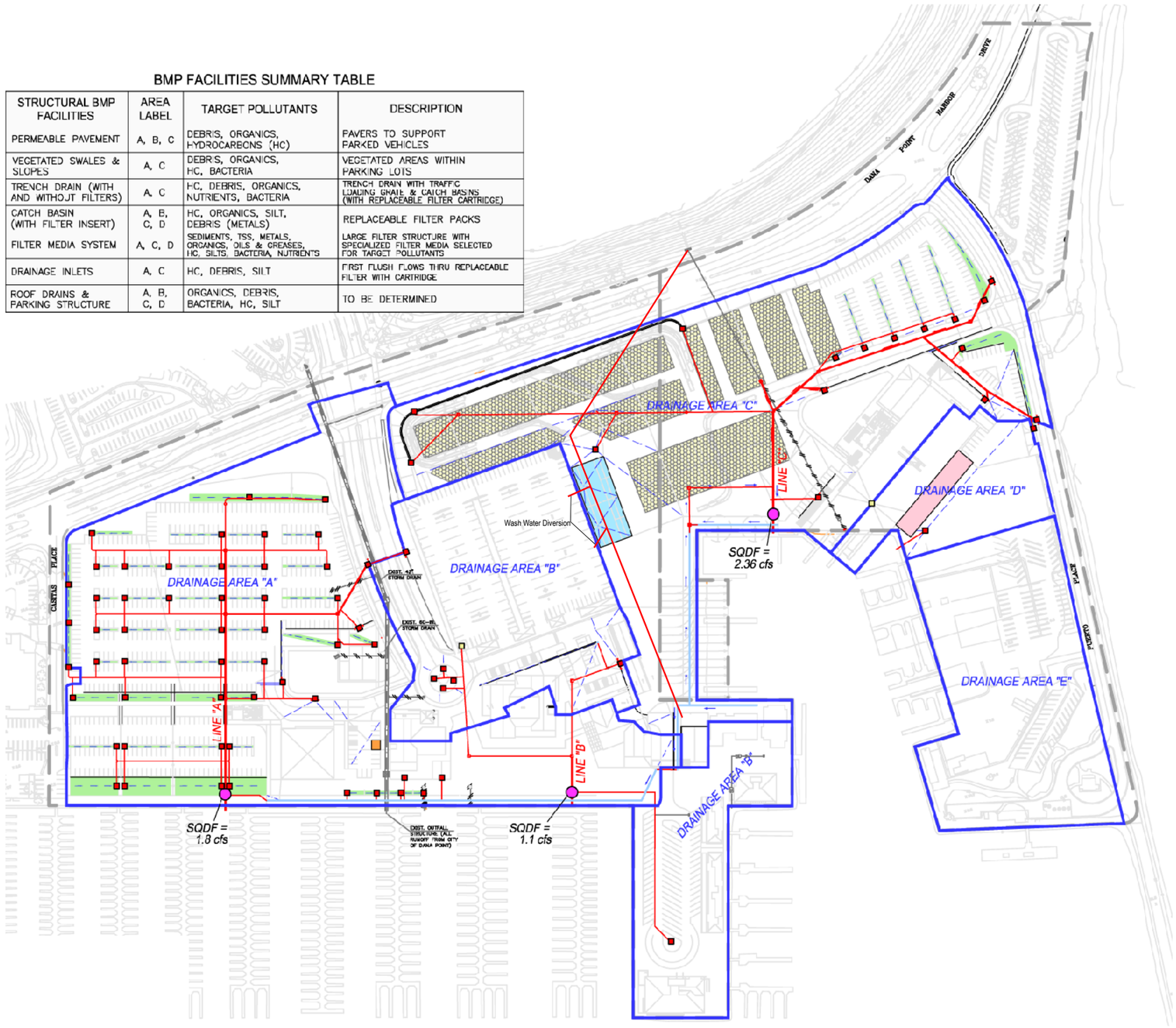
	General Pollutants								
Project Priorities	Sediments	Nutrients	Heavy Metals	Organic Substances	Trash and Debris	Oxygen-Demanding Substances	Oils and Grease	Bacteria and Viruses	Pesticides
Commercial (>100,000 sq. ft.)	P[1]	P[1]		P[2]	A	P[5]	A	P[3]	P[5]
Restaurants					A	A	A	A	
Parking Lots	P[1]	P[1]	A		A	P[1]	A		P[1]
Streets, Highways, and Freeways	A	P[1]	A	A[4]	A	P[5]	A		

A = Anticipated; P = Potential
[1] A potential pollutant if landscaping exists on-site.
[2] A potential pollutant if the Project includes uncovered parking areas.
[3] A potential pollutant if land use involves food or animal waste products.
[4] Including petroleum hydrocarbons.
[5] Including solvents.

Source: Fuscoe Engineering, *Program Water Quality Management Plan for the Dana Point Harbor Revitalization Plan*, September 2005.

BMP FACILITIES SUMMARY TABLE

STRUCTURAL BMP FACILITIES	AREA LABEL	TARGET POLLUTANTS	DESCRIPTION
PERMEABLE PAVEMENT	A, B, C	DEBRIS, ORGANICS, HYDROCARBONS (HC)	PAVERS TO SUPPORT PARKED VEHICLES
VEGETATED SWALES & SLOPES	A, C	DEBRIS, ORGANICS, HC, BACTERIA	VEGETATED AREAS WITHIN PARKING LOTS
TRENCH DRAIN (WITH AND WITHOUT FILTERS)	A, C	HC, DEBRIS, ORGANICS, NUTRIENTS, BACTERIA	TRENCH DRAIN WITH TRAFFIC LOADING GRATE & CATCH BASINS (WITH REPLACEABLE FILTER CARTRIDGE)
CATCH BASIN (WITH FILTER INSERT)	A, B, C, D	HC, ORGANICS, SILT, DEBRIS (METALS)	REPLACEABLE FILTER PACKS
FILTER MEDIA SYSTEM	A, C, D	SEDIMENTS, TSS, METALS, ORGANICS, OILS & GREASES, HC, SILTS, BACTERIA, NUTRIENTS	LARGE FILTER STRUCTURE WITH SPECIALIZED FILTER MEDIA SELECTED FOR TARGET POLLUTANTS
DRAINAGE INLETS	A, C	HC, DEBRIS, SILT	FIRST FLUSH FLOWS THRU REPLACEABLE FILTER WITH CARTRIDGE
ROOF DRAINS & PARKING STRUCTURE	A, B, C, D	ORGANICS, DEBRIS, BACTERIA, HC, SILT	TO BE DETERMINED



BMP LEGEND

- PLANNING AREA BOUNDARY ZONES 1 & 2
- PROPOSED STORM DRAIN
- DRAINAGE BOUNDARY
- TRENCH DRAIN
- SD — EXISTING STORM DRAIN
- EXISTING STORM DRAIN DEMO
- FLOW DIRECTION
- VEGETATED SWALE
- PERMEABLE PAVEMENT
- VEHICLE / EQUIPMENT WASH AREA
- MAINTENANCE BAY
- TRASH ENCLOSURE
- CATCH BASIN INSERT
- FILTER MEDIA SYSTEM
- ROOF DRAIN

STORM WATER QUALITY DESIGN FLOWS

AREA LABEL	AREA (ac)	$Q_{p,sqdf}$*
A	10.73 ac	1.80 cfs
B	6.59 ac	1.10 cfs
C**	21.08 ac	2.36 cfs
D	1.69 ac	0.30 cfs
E	4.4 cc	0.79 cfs

* Qp,sqdf = THE STORM WATER QUALITY DESIGN FLOW IS THE STORM WATER RUNOFF THAT IS REQUIRED TO BE TREATED. CALCULATIONS ARE FROM THE ORANGE COUNTY DRAINAGE AREA MASTER PLAN.

** 21.08 ACRES = 11.08 ACRES FROM SITE AND 10.0 ACRES FROM THE CITY OF DANA POINT (PARK).

See Table 4.6 for Water Quality Treatment Calculations.

GRAPHIC SCALE

200 0 100 200 400

N

Scale: 1" = 200'

Exhibit Date: 1-20-05

Source: Fuscoe Engineering, INC. Water Quality Management Plan Amendment for the Dana Point Harbor Revitalization Plan, July 10, 2005.

COMMERCIAL CORE WATER QUALITY BMP LOCATIONS

DANA POINT HARBOR REVITALIZATION PROJECT
ENVIRONMENTAL IMPACT REPORT

EXHIBIT 4.4-4

RBF CONSULTING

Table 4.4-12
TREATMENT CONTROL BMP SELECTION MATRIX

Pollutant of Concern	Treatment Control BMP Categories						
	Filter Media	Biofilters	Detention Basins	Infiltration Basins[1]	Wet Ponds or Wetlands	Filtration	Stormwater Separation Units
Sediment	M	M	M	H	H	H	M
Nutrients	M	L	L	H	M	L	L
Organic Compounds	M	M	M	H	H	H	L
Trash and Debris	?	M	M	H	H	H	L
Oxygen-Demanding Substances	M	L	H	H	H	H	H
Bacteria	?	L	M	H	H	M	L
Oils and Grease	M	M	M	H	H	H	L
Pesticides	?	?	?	H	?	?	L

HM = high/medium removal efficiency; L = low removal efficiency; ? = unknown removal efficiency
[1] Including trenches and porous pavement.

Source: Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters (1993); National Stormwater Best Management Practices Database (2001); and Guide for BMP Selection in Urban Developed Areas (2001).

Based upon the WQMP, the following is a listing of source control practices that will be implemented within the Harbor to the extent feasible:

- Efficient Landscape Design and Irrigation Practices – Efficient landscape design and irrigation practices can be an effective source control to prevent pollution in stormwater and dry-weather flows. The proposed Project will implement principles of common-area efficient irrigation, runoff-minimizing landscape design, and an effective landscape maintenance plan to the maximum extent possible.

- Common-Area Efficient Irrigation – Automatic irrigation systems (if installed) will include water sensors, programmable irrigation timers, automatic valves to shut off water in case of rapid pressure drop (which could indicate water leaks), or other measures to ensure the efficient application of water to the landscape and prevent unnecessary runoff from irrigation. Drip irrigation and other low-water irrigation methods should be considered where feasible.

- Runoff-Minimizing Landscape Design – Landscape designs that group plants with similar water requirements can reduce excess irrigation runoff and promote surface infiltration. Landscape designs should utilize noninvasive native plant species and plants with low water requirements when possible.

- Landscape Maintenance – The landscape maintenance plan should include a regular sweeping of impervious surfaces, litter pick-up, proper equipment maintenance (preferably off-site), and proper use of chemicals to help eliminate sources of stormwater pollutants.

- Catch-Basin Stenciling – Storm drain inlets should have painted messages warning citizens not to dump pollutants into the drains. The stenciled messages are generally a simple phrase to remind passersby that the storm drains connect to local water bodies (and not to a sanitary sewer system) and that dumping pollutes those waters. Some messages specify which particular water body the inlet drains to.

- Storage Area Design – Storage areas such as those for landscaping supplies and trash should be designed to contain the stored materials and to prevent those materials from being distributed into stormwater collection areas. For example, dumpsters should be enclosed to prevent debris from being scattered by wind or animals.

- Pollution Prevention Outreach for Businesses – At the lease-signing or as a term of the lease, tenants will be presented with a brochure to encourage them to develop and implement a pollution prevention program. The pollution prevention program will emphasize source reduction, reuse and recycling, and energy recovery. The pollution prevention outreach should choose the measures most applicable to the Project site. Suggested pollution prevention measures for businesses are:

    - Incorporating environmental considerations into the design of products, buildings, and manufacturing systems to enable them to be more resource-efficient;

    - Rethinking daily operations and maintenance activities to eliminate wasteful management practices that increase costs and cause pollution;

    - Reducing the amount of water used in cleaning or manufacturing to produce less wastewater;

    - Re-engineering and redesigning a facility or certain operation by switching to newer, cleaner, and/or more efficient process equipment;

    - Buying the correct amounts of raw materials to decrease the amount of excess materials being discarded (e.g., paints with a specified shelf life);

    - Using alternative materials for cleaning, coating, lubricating, and other production processes to prevent costly hazardous waste generation, air emissions, and worker health risks; and

    - Using “green” products to decrease use of harmful or toxic chemicals and increase energy efficiency.

Treatment Control BMPs

The proposed Project has selected a treatment train approach to mitigate stormwater runoff pollution from Planning Areas 1 and 2. This system will utilize a combination of treatment BMPs, some of which are recognized by the Countywide Model WQMP

and others that are not so recognized. Pervious pavement, vegetated swales, catch basin inserts, trench drains (with filters), roof drains, and drainage inlets (with filters) will be implemented to pretreat first-flush or low-flow stormwater runoff generated by the Project site. The pretreated runoff will then be treated by a proprietary stormwater filter structure such as a Filter Media System prior to discharging into the Harbor waters. Certain other BMPs (such as constructed wetlands, water quality basins, and infiltration basins) are prohibited by site constraints such as space limitations, the high groundwater table and salt-water intrusion, and poorly infiltrating soils.

Table 4.4-13 (Water Quality Treatment for the Harbor Drainage Area) provides the calculations to determine water quality treatment required prior to discharge of water into the Harbor, in accordance with DAMP sizing requirements. Upstream control measures and pretreatment BMPs may reduce the flow-based treatment requirements of the downstream filter media systems during final design. Note that Drainage Area E (4.4 acres) is not included in the calculations as it is part of the programmatic element of the EIR and will be subject to additional analysis and studies. BMPs associated with this Drainage Area (i.e., second dry stack building and lighthouse facility) will be associated with the Harborwide Program WQMP, and will be designed to control the associated runoff coefficients.

Table 4.4-13
WATER QUALITY TREATMENT FOR THE HARBOR DRAINAGE AREA

Drainage Area	Runoff Coefficient	Intensity (inches/hour)[1]	Area (Acres)	SQDF (cfs)	Proposed BMP
A	0.83	0.2	10.73	1.8	Media filter treatment system (perlite, zeolite)[3]
B	0.83	0.2	6.59	1.1	
C[2]	0.56	0.2	21.08	2.36	
D	0.83	0.2	1.69	0.3	

cfs = cubic feet per second; SQDF = Stormwater Quality Design Flow

[1] The intensity is 0.2 inches/hour per the Orange County Drainage Area Master Plan (DAMP).
[2] Drainage Area C includes 10 acres of off-site runoff from the upstream park area.
[3] Calculations are based on the Orange County Drainage Area Master Plan (DAMP), Table A-1, Exhibit 7.11 – Attachment A.

The typical pollutants that become entrained in stormwater runoff in the existing condition are not expected to be significantly different in the post-condition. However, the treatment of this runoff will be significantly different. All dry-weather runoff or low-flow runoff that previously sheet flowed or drained into a storm drain system directly into the Harbor will be treated by a series of pretreatment and treatment BMPs in the proposed condition. The implementation of a full range of BMPs, including nonstructural and on-site structural BMPs, is included with the Commercial Core redevelopment and will reduce the amount of pollutants in the stormwater runoff. As discussed above, numerous BMPs have been incorporated into the Project design to reduce pollutant loading into Dana Point Harbor. PDFs 4.4-1 through 4.4-2 and SCAs 4.4-8 through 4.4-11 will reduce potential impacts to less than significant. PDF 4.4-1 shall require that new building design will include stormwater collection systems. PDF 4.4-2 specifies that the Project parking areas will be designed to not direct surface run-off into the marinas.

Additionally, as detailed in SCA 4.4-10, prior to any grading or building permit the Project shall be required to demonstrate that all structural and nonstructural BMPs described in the WQMP have been implemented, constructed and installed in conformance with approved plans and specifications. Compliance with SCAs shall reduce the impacts to less than significant levels.

OFF-SITE AREAS

As discussed above under Impact 4.4-2, the SCWD Lot and the Selva Parking Lot will have no construction activities, except for minor improvements (fencing and gates, etc.) to allow the existing Selva Parking Lot to be used for temporary storage of boats and employee vehicles. Additionally, no BMPs are proposed for the off-site areas. Thus, the impact will be less than significant.

4.4.4.4 FLOOD HAZARDS

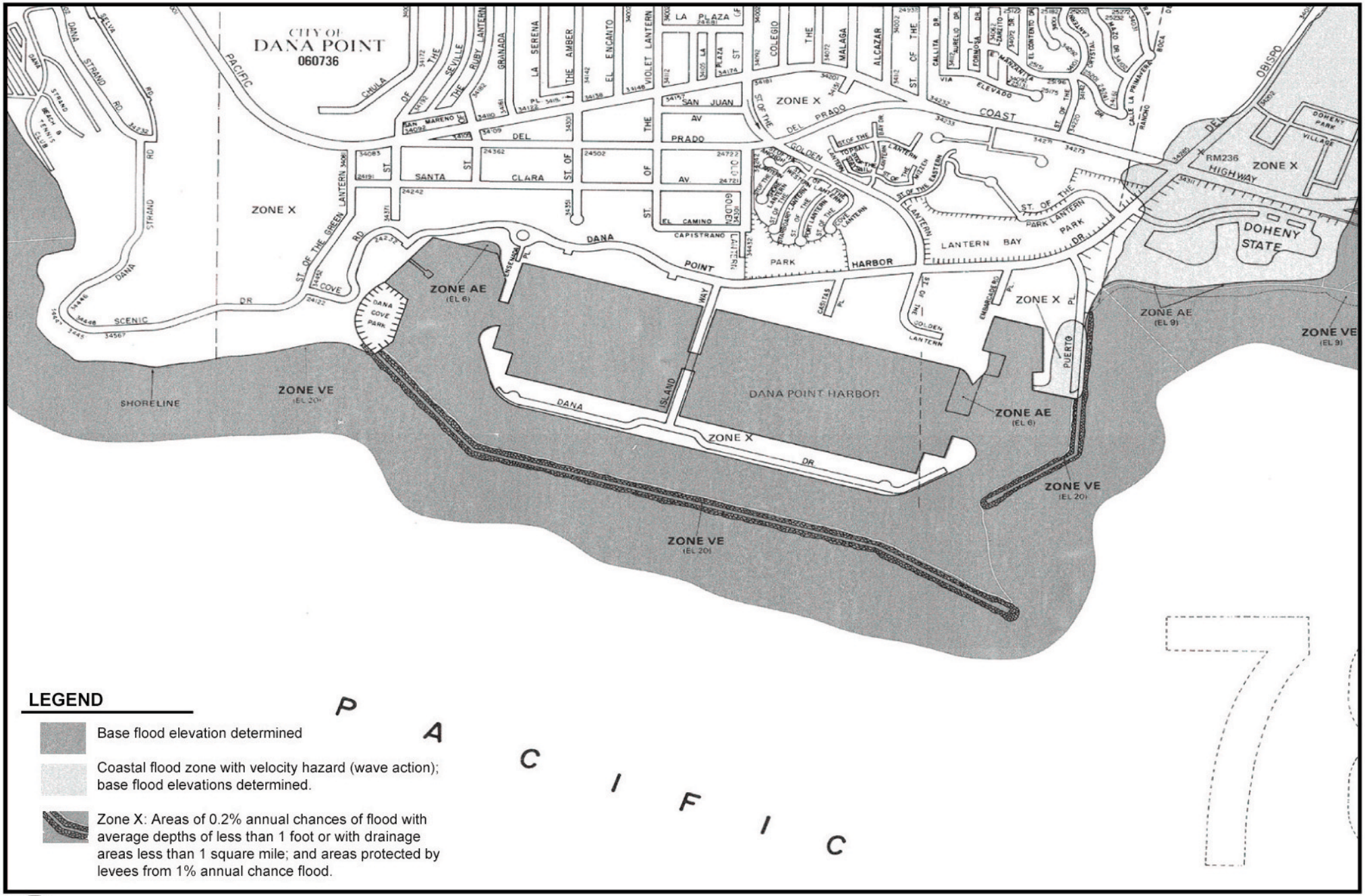
4.4-4 *The proposed Project site may be subject to flood hazards from San Juan Creek. Impacts will be reduced to less than significant levels through compliance with regulatory requirements, and implementation of recommended Standard Conditions of Approval (SCAs) and Mitigation Measures.*

HARBORWIDE

Flooding

Flooding is a natural occurrence for any river or stream. Factors affecting the size and frequency of floods are the amount, intensity, and distribution of rainfall; soil conditions prior to storms; vegetation coverage within a watershed; and stream channel conditions. The Project area is within the 100-year flood hazard zone of San Juan Creek, as well as within a mapped coastal flood with velocity hazard by the FEMA Flood Insurance Rate Map (FIRM) of Orange County. Further study of the potential impacts of flooding of San Juan Creek on the existing or proposed structures along the seawall will be required during the Project's design phase.

The County is a participant in the National Flood Insurance Administration (NFIA) program through FEMA. The NFIA program provides Federal flood insurance subsidies and Federally financed loans for property owners in flood-prone areas. The U.S. Department of Housing and Urban Development (HUD), through FEMA, has identified and mapped those areas of the County that are at risk due to periodic flooding; refer to Exhibit 4.4-5 (FEMA Flood Hazard Map). The resultant FIRM is designed for flood insurance and floodplain management applications. The current Flood Insurance Study (FIS) published by FEMA indicates that the Project site is located within Zones AE, VE, and X (FIRM Map No. 06059C0078E). The land portions of the Harbor (except Dana Wharf and the southeastern portion of Planning Area 1) are in Zone X, which is outside the 500-year flood zone. The southeastern portion of Planning Area 1 is within a subsection of Zone X, which indicates within the 500-year flood zone and within the 100-year flood zone with an average depth of less than one foot. Zone AE, which includes Baby Beach and the Dana Wharf facilities, is considered to have a base flood elevation of six feet. Additionally, Zone VE, which includes the seawalls, has a base flood elevation of 20 feet.



LEGEND

- Base flood elevation determined
- Coastal flood zone with velocity hazard (wave action); base flood elevations determined.
- Zone X: Areas of 0.2% annual chances of 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.

Scale: N.T.S.
Source: National Flood Insurance Program, Flood Insurance Rate Map, Panel 78, September 15, 1989.

FEMA FLOOD HAZARD MAP

DANA POINT HARBOR REVITALIZATION PROJECT
PROGRAM ENVIRONMENTAL IMPACT REPORT

EXHIBIT 4.4-5

RBF CONSULTING
PLANNING ■ DESIGN ■ CONSTRUCTION

Dam Failure and Inundation

No dams are located within the City of Dana Point whose failure will pose potential hazards to people or property. Upper Oso Reservoir and Lake Mission Viejo, both located in the City of Mission Viejo, are the only significant bodies of water contained by dams that are located on waterways that flow through Dana Point. These dams are approximately 15 miles north of the City of Dana Point. The risk of dam failure is not considered significant because they were designed and constructed to meet the seismic standards at the time.

Implementation of the recommended Mitigation Measures and SCAs 4.4-15 through 4.4-17 will reduce potential inundation impacts to a less than significant level.

COMMERCIAL CORE

Refer to the Harborwide discussion above.

OFF-SITE AREAS

South Coast Water District Lot – The SCWD Lot is located approximately 0.5 mile from shore, within the 100-year flood hazard zone of San Juan Creek, as well as within a mapped coastal flood and velocity hazard zone. It is not anticipated that any structures will be developed on this site as part of the proposed Project. However, should any Project structures be developed by the County, inundation by flooding and/or the wave run-up from a tsunami could impact proposed facilities at the SCWD Lot. Specific evaluation of the potential risks will be required to incorporate appropriate design measures and to reduce impacts to less than significant.

Selva Parking Lot – The Selva Parking Lot is approximately 0.25 mile from shore on an elevated bluff, and therefore has no potential risk of inundation by seiche or tsunami. In addition, the Selva Parking Lot is not located within a mapped floodplain. Therefore, impacts in this regard will be less than significant.

4.4.5 CUMULATIVE IMPACTS

4.4-5 *The proposed Project along with other future development could increase hydrology and drainage impacts in the area. Mitigation Measures have been recommended to reduce impacts to a less than significant level.*

Development projects can increase runoff flows and volumes at a site by increasing the impervious area. As has been demonstrated for the Project, there will be no substantial increase in impervious area. Each particular project must be evaluated to determine its impact on the municipal storm drain system and its potential to cause downstream flooding or erosion on adjacent properties. The properties adjacent to the Harbor have been developed, except for the Headlands. However, per the *Headlands Development and Conservation Plan EIR* (February 2002), numerous control measures and PDFs have been implemented to improve water quality in the area. The proposed Project will improve hydrologic conditions in the Harbor, and other projects in the area will be reviewed by local and regional jurisdictions during the project approval process. Thus, they will comply with the same requirements as the proposed Project and will not significantly impact local and/or regional hydrologic conditions.

Regional regulations and programs such as the Municipal and General Construction Activity NPDES permits, the County DAMP, and the TMDL program have been implemented to protect receiving waters of the State. Each new project must comply with these regulations and programs, as applicable, to prevent further degradation of water quality in the receiving water body. To control and offset potential impacts, the proposed Project and other projects are required to comply with County ordinances, SCAs, and regional water quality programs that are enforced through the review of WQMPs and SWPPPs. Therefore, the proposed Project will not by itself, or in combination with other reasonably foreseeable projects, cause a significant impact on water quality. The proposed Project will not contribute to a significant cumulative impact on water quality; therefore, no Mitigation Measures are required.

4.4.6 PROJECT DESIGN FEATURES

The proposed Project includes features that reduce or eliminate potential impacts to environmental resources. The following Project Design Features (PDFs) are specified to be implemented.

PDF 4.4-1 New building design will include storm water collection systems (e.g. roof-top drainage directed into storm sewer system).

PDF 4.4-2 Parking areas will be designed to direct surface run-off marinas away from the Harbor.

4.4.7 STANDARD CONDITIONS OF APPROVAL

Controls are imposed on new developments through the permitting process via the adoption of conditions of approval or through enforcement of existing ordinances and regulations. The County has developed extensive guidelines for development that will be implemented as the proposed Project is carried out. Existing applicable County of Orange Standard Conditions of Approval (SCAs) are identified below.

DRAINAGE AND RUNOFF

SCA 4.4-1 Prior to the issuance of any grading permits, the following drainage studies shall be submitted to and approved by the Manager, RDMD/Subdivision and Grading:

a. A drainage study of the Project including diversions, off-site areas that drain onto and/or through the Project, and justification of any diversions; and

b. When applicable, a drainage study evidencing that proposed drainage patterns will not overload existing storm drains; and

c. Detailed drainage studies indicating how the Project grading, in conjunction with the drainage conveyance systems including applicable swales, channels, street flows, catch basins, storm drains, and flood water retarding, will allow building pads to be safe from inundation from rainfall runoff which may be

expected from all storms up to and including the theoretical 100-year flood.

SCA 4.4-2 Prior to the issuance of any grading permits, the County of Orange - Dana Point Harbor Department shall, in a manner meeting the approval of the Manager, RDMD/Subdivision and Grading:

1) Design provisions for surface drainage; and

2) Design all necessary storm drain facilities extending to a satisfactory point of disposal for the proper control and disposal of storm runoff; and

3) Dedicate the associated easements to the County of Orange, if determined necessary.

SCA 4.4-3 Prior to the issuance of any building permits, the County of Orange Dana Point Harbor Department shall participate in the applicable Master Plan of Drainage in a manner meeting the approval of the Manager, RDMD/Subdivision and Grading, including construction of the necessary facilities.

WATER QUALITY – CONSTRUCTION

SCA 4.4-4 The County of Orange Dana Point Harbor Department shall obtain coverage under the NPDES Statewide Stormwater Permit for General Construction Activities from the State Water Resources Control Board. Evidence of receipt of permit approval must be presented to the Manager, RDMD/Subdivision and Grading prior to the issuance of a Grading Permit.

SCA 4.4-5 Prior to the issuance of any grading or building permits, the County of Orange Dana Point Harbor Department shall demonstrate compliance under California's General Permit for Stormwater Discharges Associated with Construction Activity by providing a copy of the Notice of Intent (NOI) submitted to the State Water Resources Control Board and a copy of the subsequent notification of the issuance of a Waste Discharge Identification (WDID) Number or other proof of filing in a manner meeting the satisfaction of the Manager, RDMD/Building Permit Services. Projects subject to this requirement shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP). A copy of the current SWPPP shall be kept at the Project site and be available for County review on request.

SCA 4.4-6 Prior to the issuance of any grading permits, County of Orange Dana Point Harbor Department shall submit a Runoff Management Plan (RMP) to the Manager, RDMD/Subdivision and Grading for review and approval.

SCA 4.4-7 Prior to the issuance of any grading or building permit, the County of Orange Dana Point Harbor Department shall submit an Erosion and

Sediment Control Plan (ESCP) in a manner meeting approval of the Manager, RDMD/Building Permit Services, to demonstrate compliance with local and state water quality regulations for grading and construction activities. The ESCP shall identify how all construction materials, wastes, grading or demolition debris, and stockpiles of soil, aggregates, soil amendments, etc. shall be properly covered, stored, and secured to prevent transport into local drainages or coastal waters by wind, rain, tracking, tidal erosion or dispersion. The ESCP shall also describe how the applicant will ensure that all BMP's will be maintained during construction of any future public right-of-ways. A copy of the current ESCP shall be kept at the Project site and be available for County review on request.

WATER QUALITY – OPERATIONAL

SCA 4.4-8 Prior to the issuance of any grading or building permit (whichever comes first), and Coastal Development Permit, the County of Orange Dana Point Harbor Department shall submit for review and approval by the Manager, RDMD/Inspection Services Division, a Water Quality Management Plan (WQMP) specifically identifying Best Management Practices (BMPs) that will be used onsite to control predictable pollutant runoff. The WQMP shall follow the model WQMP as outlined in Exhibit 7.11 of the *2003 Drainage Area Master Plan*, prepared by the County of Orange Flood Control District, July 1, 2003. This WQMP shall identify, at a minimum, the routine structural and non-structural measures specified in the current Drainage Area Management Plan (DAMP). The WQMP may include one or more of the following:

- Discuss regional water quality and/or watershed programs (if available for the Project);
- Address Site Design BMPs (as applicable) such as minimizing impervious areas, maximizing permeability, minimizing directly connected impervious areas, creating reduced or "zero discharge" areas, and conserving natural areas;
- Include the applicable Routine Source Control BMPs as defined in the DAMP;
- Demonstrate how surface runoff and subsurface drainage shall be managed and directed to the nearest acceptable drainage facility (as applicable), via sump pumps if necessary.

SCA 4.4-9 Prior to the issuance of any grading or building permit (whichever comes first) and Coastal Development Permit, the County of Orange Dana Point Harbor Department shall include in the WQMP the following additional Priority Project information in a manner meeting the approval of the Manager, Inspection Services Division:

- Include post-construction Structural Treatment Control BMP(s) as defined in the DAMP;

- Include a conceptual Operation and Maintenance (O&M) Plan that (1) describes the long-term operation and maintenance requirements for the post-construction Treatment Control BMP(s); (2) identifies the entity that will be responsible for long-term operation and maintenance of the referenced Treatment Control BMP(s); and (3) describes the proposed mechanism for funding the long-term operation and maintenance of the referenced Treatment Control BMP(s).

SCA 4.4-10 Prior to the issuance of a certificate of use and occupancy, the County of Orange Dana Point Harbor Department shall demonstrate compliance with the WQMP in a manner meeting the satisfaction of the Manager, RDMD/Inspection Services Division, including:

- Demonstrate that all structural Best Management Practices (BMPs) described in the Project's WQMP have been implemented, constructed and installed in conformance with approved plans and specifications;

- Demonstrate that the County of Orange Dana Point Harbor Department has complied with all non-structural BMPs described in the Project's WQMP;

- Submit for review and approval an Operations and Maintenance (O&M) Plan for all structural BMPs for attachment to the WQMP; and

- Demonstrate that copies of the Project's approved WQMP (with attached O&M Plan) are available for each of the incoming occupants;

FLOOD HAZARDS

SCA 4.4-11 Prior to the approval of a grading permit, the County of Orange Dana Point Harbor Department shall submit an Elevation Certificate to the Manager, RDMD/Current Planning Services, identifying the base flood elevation and certifying that the planned elevation of the lowest floor, including basements, is at least one (1) foot above the Base Flood Elevation (BFE). (To eliminate FEMA requirements for flood insurance, the lowest elevation of any part of the structure, not only the lowest floor, must be above the BFE).

SCA 4.4-12 Prior to the issuance of certificates of use and occupancy for any building, the County of Orange Dana Point Harbor Department shall complete Section "E" of the Elevation Certificate, identifying the Base Flood Elevation (BFE) and certifying the as-built lowest floor, including basements, as constructed, is at least one (1) foot above the BFE, in a manner meeting the approval of the Manager, RDMD/Building Inspection. (To eliminate FEMA requirements for flood insurance, the lowest elevation of any part of the structure, not only the lowest floor,

must be above the BFE).

SCA 4.4-13 Prior to the issuance of any grading permits, County of Orange Dana Point Harbor Department shall delineate on the grading plan the floodplain which affects the property, in a manner meeting the approval of the Manager, RDMD/Subdivision and Grading.

4.4.8 MITIGATION MEASURES

4.4.8.1 HARBORWIDE

DRAINAGE AND RUNOFF

No mitigation is required.

WATER QUALITY – CONSTRUCTION

No mitigation is required.

WATER QUALITY – LONG TERM

No mitigation is required.

FLOOD HAZARDS

MM 4.4-1 During the design phase, the Project shall assess the potential impacts of inundation from a tsunami on the existing and proposed building structures along the seawall, and submit the assessment to the County of Orange RDMD, for verification.

MM 4.4-2 During the design phase, the Project shall assess the potential of wave run-up from a seiche or tsunami near the Harbor during a major seismic event, and submit the assessment to the County of Orange RDMD, for verification.

MM 4.4-3 During the design phase, the Project shall study the potential impacts of flooding of San Juan Creek on the existing or proposed structures along the seawall, and submit the study to the County of Orange RDMD, for verification.

CUMULATIVE IMPACTS

No mitigation is required.

4.4.8.2 COMMERCIAL CORE

DRAINAGE AND RUNOFF

No mitigation is required.

WATER QUALITY – CONSTRUCTION

No mitigation is required.

WATER QUALITY – LONG TERM

No mitigation is required.

FLOOD HAZARDS

MM 4.4-4 Refer to Mitigation Measures 4.4-1 through 4.4-3.

CUMULATIVE IMPACTS

No mitigation is required.

4.4.8.3 OFF-SITE AREAS

DRAINAGE AND RUNOFF

No mitigation is required.

WATER QUALITY – CONSTRUCTION

No mitigation is required.

WATER QUALITY – LONG TERM

No mitigation is required.

FLOOD HAZARDS

Selva Parking Lot

No mitigation is required.

SCWD Lot

MM 4.4-5 Should any structures be developed by the County of Orange on the South Coast Water District Lot as part of the Project, the County of Orange shall, during the design phase, assess the potential impacts of inundation from a seiche, tsunami, and flooding on the SCWD Lot.

4.4.9 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the Best Management Practices (BMPs), Project Design Features (PDFs), Mitigation Measures, and Standard Conditions of Approval (SCAs) will reduce any potential issues pertaining to drainage and runoff, water quality (construction and long-term), and flood hazards to a less than significant level. No significant and unavoidable impacts will occur.