

James V. Fitzgerald Area of Special Biological Significance (ASBS) Draft Compliance Plan

Submitted in Compliance with State Water Resources Control Board Resolution No. 2012-0031 (Ocean Plan Special Protections for ASBS)

Prepared for:
County of San Mateo
400 County Center
Redwood City, CA 94063



Prepared by:
EOA, Inc.
1410 Jackson St.
Oakland, CA 94612



Draft September 20, 2014

Page intentionally left blank

EXECUTIVE SUMMARY

In 1972, the California State Water Resources Control Board (State Water Board) adopted the California Ocean Plan (Ocean Plan) as the State's water quality control plan for ocean waters. It has since been reviewed every three years and updated as necessary. The Ocean Plan provides the basis for regulation of waste discharges to ocean waters and applies to both point and nonpoint source discharges. It identifies Beneficial Uses of California's ocean waters, establishes Water Quality Objectives (WQOs), and sets forth a program of implementation to protect the Beneficial Uses and achieve the WQOs.

The Ocean Plan prohibits waste discharges, including stormwater runoff, to Areas of Special Biological Significance (ASBS). This absolute waste discharge prohibition applies unless an "exception" is granted. On March 20, 2012, the State Water Board adopted a General Exception to the Ocean Plan waste discharge prohibition to ASBS. The General Exception (State Water Board Resolution No. 2012-0012, as amended by 2012-0031) governs point and nonpoint source waste discharges to ASBS, including stormwater runoff. It includes Special Protections for Beneficial Uses of ASBS and requires development of ASBS Compliance Plans by permitted point source dischargers or ASBS Pollution Prevention Plans by nonpoint source dischargers. Twenty-seven applicants, including the County of San Mateo (County) for the James V. Fitzgerald (Fitzgerald) ASBS, were granted coverage under the General Exception.

The Fitzgerald ASBS is located in unincorporated San Mateo County approximately 7 miles north of the City of Half Moon Bay. The Fitzgerald Marine Reserve (Reserve) with its 3 miles of shoreline is located within the boundary of the ASBS. The Reserve was created in 1969 to protect the mosaic of habitats and tremendous diversity of marine life that exists in the area. The Reserve receives over 100,000 visitors annually and is one of the most frequently visited rocky shorelines in California. The watershed draining to the ASBS covers approximately 4.5 square miles of which more than two thirds is unincorporated rural lands. Three unincorporated residential communities are located in the watershed: Montara, Moss Beach, and Seal Cove. The State Water Board has identified thirty-nine natural and anthropogenic discharges to Fitzgerald ASBS. The County has confirmed that eleven of the discharges are storm drain discharges from County-maintained roadways. The remaining discharges are natural creeks, seeps, gullies or private storm drain discharges.

This Draft Fitzgerald ASBS Compliance Plan describes how the County will comply with the Special Protections for areas under its jurisdiction. As a participant in the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), County stormwater discharges are permitted under the San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (Order No. R2-2009-0074; referred to as the MRP). The MRP prohibits most non-stormwater discharges and specifies actions necessary to reduce the discharge of pollutants in stormwater to the Maximum Extent Practicable. Non-structural Best Management Practices (BMPs) required by the MRP include public education and outreach, BMPs related to municipal operations, inspections of businesses and construction sites to ensure proper implementation of stormwater BMPs, investigation and abatement of illicit discharges, and associated reporting to the Regional Water Quality Control Board (Regional Water Board). Structural BMPs include post-construction stormwater management at development sites consisting of site design measures, source control measures, Low Impact Development (LID) design standards, and hydromodification management measures. The MRP also requires non-structural and/or structural BMPs to address certain water quality pollutants of concern (e.g., pesticides and trash).

The Ocean Plan Special Protections requirements are primarily being met through existing programs and measures, such as MRP compliance activities, Local Coastal Program policies, County zoning regulations,

and the County Code of Ordinances. However, to fully comply with the Special Protections, the County is implementing or will implement additional actions in the ASBS watershed beyond the requirements of these programs. An enhanced inspection program has been implemented by the County to comply with requirements in the Special Protections to inspect storm drain outlet pipes into the ASBS and to conduct more frequent inspections of industrial, commercial, and construction sites. The County is also implementing enhanced non-stormwater discharge elimination measures within the Fitzgerald ASBS watershed. Through the planning and building permit review process enhanced on-site source control, BMPs, and stormwater treatment for development project sites are required. Furthermore, in June 2011 as part of the Proposition 84 James V. Fitzgerald ASBS Pollution Reduction Program (Fitzgerald Pollution Reduction Program), the County began implementing an education and outreach campaign that targets residences and businesses in the ASBS watershed. As part of the Fitzgerald Pollution Reduction Program, as of November 2014, the County will have installed a total of 23 structural stormwater treatment BMPs, including storm drain filtration devices, vegetated swales, grassy swales, and bioretention features at 18 locations. In addition, the San Mateo County Resource Conservation District conducted outreach related to residential Low Impact Development (LID). Outreach included conducting sustainable landscaping assessments at residential properties throughout the ASBS watershed. LID BMP and landscape plans were then prepared for nine properties based on the assessment results. BMPs The plans included the following types of BMPs: rain gardens, drainage swales, rainwater storage tanks, driveway drainage and runoff/erosion control improvements, and permeable driveways.

The ASBS Special Protections contain monitoring requirements for identified discharges to an ASBS. These mandatory requirements include the Core Discharge Monitoring Program and the Ocean Receiving Water and Reference Area Monitoring Program. In order to meet the monitoring requirements, the County signed a Memorandum of Agreement for participation in the Central Coast ASBS Regional Monitoring Program (CCRMP). The two-year monitoring program focuses on storm events during the 2013-2014 and 2014-2015 wet seasons.¹ If, based upon the results of the monitoring, it is determined that stormwater runoff from the County's identified discharge points is causing or contributing to an alteration of natural ocean water quality in the ASBS, the ASBS Compliance Plan may need to be updated. However, establishing a link between the stormwater discharge and water quality in the ASBS receiving water may be challenging for a number of reasons, including the high variability in stormwater monitoring results and the multitude of factors that may impact water quality in the ASBS receiving water, such as discharges to the ASBS from lands not under County jurisdiction, proximity to San Francisco Bay, and potential impacts from Ocean water outside of the ASBS.

The County will implement all Special Protections requirements consistent with the schedule set forth in the State Water Board Resolution. Compliance measures will be reported each year in the County's MRP-required Annual Report. Water quality monitoring reports for the CCRMP and Fitzgerald Pollution Reduction Program will be finalized in Fiscal Year 2014/15. BMPs and this ASBS Compliance Plan will be updated accordingly prior to submittal of the Final ASBS Compliance Plan in September 2015.

¹The monitoring program was originally scheduled to begin in the 2012-13 wet weather season but was postponed by one year due to a lack of rainfall that season.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	III
TABLE OF CONTENTS	V
LIST OF TABLES	VI
LIST OF FIGURES	VI
LIST OF APPENDICES	VI
LIST OF ABBREVIATIONS	VII
1.0 INTRODUCTION	1
2.0 ASBS REGULATORY BACKGROUND	2
2.1. SPECIAL PROTECTIONS	3
2.1.1. Permitted Point Source Stormwater Discharges	3
2.1.2. Permitted Point Source Non-Stormwater Discharges	3
2.2. WATER QUALITY OBJECTIVES	4
2.2.1. Natural Water Quality Definition	4
2.3. COMPLIANCE PLAN.....	4
3.0 FITZGERALD ASBS DESCRIPTION	6
3.2. DRAINAGES TO FITZGERALD ASBS.....	11
3.3. EXISTING AND POTENTIAL WATER QUALITY IMPACTS	16
3.3.1. Clean Water Act 303(d) Listings	16
3.3.2. Fitzgerald Critical Coastal Areas Program Watershed Assessment	16
3.3.3. Fitzgerald Pollution Reduction Program Monitoring.....	17
3.3.4. Ocean Plan Exception Monitoring	17
4.0 EXISTING PROGRAMS ADDRESSING WATER QUALITY IN THE ASBS	18
4.1. MUNICIPAL REGIONAL PERMIT	18
4.2. LOCAL COASTAL PROGRAM	24
4.3. FITZGERALD MARINE RESERVE MASTER PLAN.....	25
4.4. COUNTY PARKS MAINTENANCE ACTIVITIES.....	25
4.5. COUNTY ZONING ORDINANCE REGULATIONS.....	25
4.6. COUNTY CODE OF ORDINANCES	28
4.7. CALTRANS STORMWATER MANAGEMENT PLAN	28
4.8. SAN MATEO COUNTY RESOURCE CONSERVATION DISTRICT	29
4.9. CRITICAL COASTAL AREAS PROGRAM	29
5.0 ADDITIONAL BEST MANAGEMENT PRACTICES IN ASBS WATERSHED	34
5.1. NON-STRUCTURAL BMPs	34
5.1.1. Inspection Program	34
5.1.2. Microbial Source Tracking	35
5.1.3. Public Outreach and Education	35
5.1.4. Non-Stormwater Discharge Elimination.....	37
5.1.5. Development Review	38
5.2. STRUCTURAL BMPs	39
5.2.1. Proposition 84 Fitzgerald ASBS Pollution Reduction Program	39

6.0 MONITORING 44
6.1. CENTRAL COAST ASBS REGIONAL MONITORING PROGRAM 44
6.1.1. Process for Exceedances 45
7.0 COMPLIANCE AND IMPLEMENTATION SCHEDULE 46
8.0 REFERENCES 47

LIST OF TABLES

Table 3.1. Fitzgerald ASBS Drainages. Drainages in **bold** are included in the Central Coast Regional Monitoring Program. 13
Table 4.1. Existing Programs Addressing Water Quality in the Fitzgerald ASBS 31
Table 5.1. Fitzgerald Pollution Reduction Program Elements and Status 40
Table 5.2. Fitzgerald Pollution Reduction Program Pilot and Phase 2 BMPs Installed by the County 42
Table 7.1. San Mateo County ASBS Special Protections Implementation Schedule 46

LIST OF FIGURES

Figure 3.1. Fitzgerald ASBS Watershed..... 8
Figure 3.2. Land Use in the Fitzgerald ASBS Watershed..... 9
Figure 3.3. Landslide Susceptibility in the Fitzgerald ASBS Watershed 10
Figure 3.4. Fitzgerald ASBS Drainage Points 15
Figure 5.1. Phase 2 BMP Locations at County Storm Drains, Fitzgerald Pollution Reduction Program 43

LIST OF APPENDICES

- Appendix A.** Fitzgerald Special Edition Newsletters
- Appendix B.** Map of Montara Sanitary District Sewer System

LIST OF ABBREVIATIONS

ABAG	Association of Bay Area Governments
AMS	Applied Marine Services
ASBS	Area(s) of Special Biological Significance
BASMAA	Bay Area Stormwater Management Agencies Association
BMP	Best Management Practice
C/CAG	City/County Association of Governments
CCA	Critical Coastal Area
CCRMP	Central Coast Regional Monitoring Program
CEQA	California Environmental Quality Act
CII	Commercial, Industrial and Illicit
CPS	Connector Pipe Screen
CWA	Clean Water Act
DPW	Department of Public Works
ERP	Enforcement Response Plan
HHW	Household Hazardous Waste
IPM	Integrated Pest Management
LCP	Local Coastal Program
LID	Low Impact Development
MEP	Maximum Extent Practicable
MRP	Municipal Regional Permit
MS4	Municipal Separate Storm Sewer System
MST	Microbial Source Tracking
MWSD	Montara Water and Sanitary District
NPDES	National Pollution Discharge Elimination System
NPS	Nonpoint Source
PAH	Polynuclear Aromatic Hydrocarbons
PIP	Public Information and Participation
QAPP	Quality Assurance Project Plan
RCD	Resource Conservation District
SCCWRP	Southern California Coastal Water Research Project
SFEI	San Francisco Estuary Institute
SMCWPPP	San Mateo Countywide Water Pollution Prevention Program
STORM	Storage Treatment Overflow and Runoff Model
SWMP	Storm Water Management Program
SWPPP	Storm Water Pollution Prevention Plan

SWQPA	State Water Quality Protection Area
TMDL	Total Maximum Daily Load
UCD	University of California, Davis
USEPA	United States Environmental Protection Agency
WQO	Water Quality Objective

1.0 INTRODUCTION

On March 20, 2012, the California State Water Resources Control Board (State Water Board) adopted a General Exception to the California Ocean Plan waste discharge prohibition to Areas of Special Biological Significance (ASBS). The General Exception (State Water Board Resolution No. 2012-0012, as amended by 2012-0031) governs point and nonpoint source waste discharges to ASBS, including storm water runoff. It includes Special Protections for Beneficial Uses of ASBS and requires development of ASBS Compliance Plans by permitted point source dischargers or ASBS Pollution Prevention Plans by nonpoint source dischargers. Twenty-seven applicants, including the County of San Mateo (County) for the James V. Fitzgerald ASBS (Fitzgerald ASBS), were granted coverage under the General Exception. This Draft ASBS Compliance Plan describes how the County, a National Pollutant Discharge Elimination System (NPDES) permitted point source stormwater discharger, will comply with the Special Protections.

The content and organization of this Draft ASBS Compliance Plan follow the requirements described in Provision I.A.2 of Attachment B (Special Protections for Areas of Special Biological Significance, Governing Point Source Discharges of Storm Water and Nonpoint Source Waste Discharges) to the General Exception Resolution. Following this introduction, Section 2 provides a regulatory background and describes fundamental provisions of the Special Protections. Section 3 describes the Fitzgerald ASBS watershed. Section 4 describes the existing regulatory programs that address water quality in the ASBS. Section 5 describes the structural and non-structural Best Management Practices (BMPs) currently employed or planned in the future. Section 6 summarizes the County's ASBS monitoring program. Section 7 includes the compliance and implementation schedule. References used in the development of this Draft ASBS Compliance Plan are cited in Section 8.

2.0 ASBS REGULATORY BACKGROUND

In 1972, the State Water Board adopted the California Ocean Plan (Ocean Plan) as the State's water quality control plan for ocean waters. The Ocean Plan provides the basis for regulation of waste discharges to coastal waters and applies to both point and nonpoint sources discharges. It is implemented by the State Water Board and the six coastal Regional Water Quality Control Boards (Regional Water Boards). In San Mateo County, the San Francisco Bay Regional Water Board participates in Ocean Plan implementation.

The Ocean Plan identifies Beneficial Uses of California's ocean waters, establishes narrative and numerical Water Quality Objectives (WQOs) protective of those Beneficial Uses, identifies areas where discharges are prohibited, and sets forth a program of implementation to ensure that WQOs are achieved and Beneficial Uses are protected. The California Water Code requires review of the Ocean Plan at least every three years to ensure that current standards are adequate and continue to protect indigenous marine species and human health. The current 2012 Ocean Plan was adopted by the State Water Board with Resolution No. 2012-0562 and is in effect as of August 19, 2013.

Shortly after adoption of the 1972 Ocean Plan, the State Water Board designated thirty-four ASBS, comprising approximately one-third of the State's coastline, including the Fitzgerald ASBS. ASBS support an unusual variety of aquatic life, and often host unique individual species. They are considered the basic building blocks for a sustainable, resilient coastal environment and economy. Since 1983 the Ocean Plan has prohibited waste discharges to ASBS and states that "discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas." This absolute waste discharge prohibition applies unless an "exception" is granted.

As of January 2005, ASBS areas were re-designated as a subset of "State Water Quality Protection Areas" (SWQPAs) that require special protection. Section 36700(f) of the Public Resources Code defines a state water quality protection area as "a nonterrestrial marine or estuarine area designated to protect marine species or biological communities from an undesirable alteration of natural water quality, including but not limited to, areas of special biological significance that have been designated by the State Water Board through its water quality control planning process." The section further states that "In a state water quality protection area, point source waste and thermal discharges shall be prohibited or limited by special conditions. Nonpoint source pollution shall be controlled to the extent practicable."

Recognizing that point and nonpoint source discharges into ASBS were occurring, despite the Ocean Plan prohibition, the State Water Board contracted with the Southern California Coastal Water Research Project (SCCWRP) to survey by foot or boat all discharges into ASBS in California. SCCWRP (2003) identified 1,658 discharges into ASBS statewide, many of which were stormwater outfalls permitted under the NPDES program through Municipal Separate Storm Sewer System (MS4) permits to local governments (State Water Board 2012).

On October 18, 2004, following the SCCWRP study, the State Water Board notified the County that they must cease stormwater and non-stormwater waste discharges into the Fitzgerald ASBS or apply for an exception to the Ocean Plan. The County was one of twenty-seven applicants requesting an exception to discharge to various ASBS throughout California. The exception was approved by the State Water Board as part of a General Exception in Resolution No. 2012-0012 titled, "Approving Exceptions to the California Ocean Plan for Selected Discharges into Areas of Special Biological Significance, Including

Special Protections for Beneficial Uses, and Certifying a Program Environmental Impact Report.” The exception is a special permission, granted by the State Water Board, to discharge into the ASBS. It is not a discharge permit and only applies to point and nonpoint source discharges (e.g., stormwater runoff, which can be either a point or nonpoint discharge) provided they are covered under an appropriate authorization, such as an NPDES permit. Stringent Special Protections were adopted by the State Water Board as conditions for the Ocean Plan Exception. State Water Board Resolution No. 2012-0031 revised the deadline for compliance with natural ocean water quality from four years to six years after adoption of the Special Protections. Potential environmental effects of the General Exception and Special Protections were evaluated in an Environmental Impact Report in accordance with the requirements of the California Environmental Quality Act (CEQA) (State Water Board 2012).

2.1. Special Protections

This Draft ASBS Compliance Plan describes how the County, a point source (storm drain system) discharger permitted under the NPDES program, will comply with the Special Protections.

2.1.1. Permitted Point Source Stormwater Discharges

Permitted point source stormwater discharges into an ASBS are only allowed under the conditions set forth in Provision I.A.1.a of the Special Protections, which include:

- (1) The discharges are authorized by an NPDES permit issued by the State Water Board or Regional Water Board;
- (2) The discharges comply with all of the applicable terms, prohibitions, and special conditions contained in the Special Protections; and
- (3) The discharges:
 - (i) Are essential for flood control or slope stability, including roof, landscape, road, and parking lot drainage;
 - (ii) Are designed to prevent soil erosion;
 - (iii) Are composed of only stormwater runoff.

In addition, discharges composed of stormwater runoff shall not alter natural ocean water quality in an ASBS, the discharge of trash is prohibited and only discharges from existing stormwater outfalls are allowed.

2.1.2. Permitted Point Source Non-Stormwater Discharges

Non-stormwater discharges into an ASBS are prohibited except as provided in the Special Protections. “Non-storm water discharges” are defined in two similar ways in the Special Protections. The first definition is as “any waste discharges from an MS4 or other NPDES permitted storm drain system to an ASBS that are not composed entirely of storm water” (p. 2), and the second definition is as “any runoff that is not the result of a precipitation event. This type of runoff is often referred to as ‘dry weather flow’” (p. 20).

Several types of non-stormwater discharges are allowed under Provision I.A.1.e.(2) of the Special Protections, “provided that the discharges are essential for emergency response purposes, structural stability, slope stability or occur naturally.” These include:

- (a) Discharges associated with emergency firefighting operations.
- (b) Foundation and footing drains.
- (c) Water from crawl space or basement pumps.
- (d) Hillside dewatering.

- (e) Naturally occurring groundwater seepage via a storm drain.
- (f) Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, as long as there are no contributions of anthropogenic runoff.

In addition, an NPDES permitting authority (i.e., State or Regional Water Board) “may authorize non-storm water discharges to an MS4 with a direct discharge to an ASBS only to the extent the NPDES permitting authority finds that the discharge does not alter natural ocean water quality in the ASBS.” Special Protections Provision I.A.1.e.(3) states that “authorized non-storm water discharges shall not cause or contribute to a violation of the water quality objectives in Chapter II of the Ocean Plan nor alter natural ocean water quality in an ASBS.”

2.2. Water Quality Objectives

Chapter II of the Ocean plan sets forth narrative and numeric limits or levels of water quality characteristics for ocean waters to protect Beneficial Uses, and include bacterial (for water contact recreation and shellfish harvesting), physical, chemical, and biological standards. Provision II.A.3 of the Ocean Plan states that “compliance with the water quality objectives of this chapter shall be determined from samples collected at stations representative of the area within the waste field where initial dilution is completed.” For surface discharges, such as the discharges to the Fitzgerald ASBS, initial dilution is “considered to be completed when the momentum induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Regional Board, whichever results in the lower estimate for initial dilution.”

2.2.1. Natural Water Quality Definition

In response to regulatory concerns about ASBS, the State Water Board empanelled eight experts from different scientific disciplines to develop a functional definition of “natural water quality.” Recognizing that natural ocean water would be expected to vary noticeably from place to place and from time to time, and that there are naturally occurring large-scale ocean cycles that dramatically influence water quality characteristics, and that truly natural water quality probably does not now exist in California’s coastal ocean, the Natural Water Quality Committee set up criteria that could be used to define *operational natural water quality for an ASBS*. The definition must satisfy the following (SCCWRP 2010):

- It should be possible to identify a reference area or areas for each ASBS that currently approximate natural water quality and that are expected to exhibit the likely natural variability that would be found in that ASBS, and
- Any detectable human influence on the water quality must not hinder the ability of marine life to respond to natural cycles and processes.

Two reference sites for the Fitzgerald ASBS were selected as part of the Central Coast ASBS Regional Monitoring Program. They were selected based on watershed characteristics with greater than 90 percent open space and no listed water quality impairments (AMS 2014). The locations are in the surf zone at the mouths of the Tunitas Creek and Gazos Creek watersheds in San Mateo County.

2.3. Compliance Plan

The Special Protections require development of a Compliance Plan that describes the measures by which the Special Protections will be achieved. The County of San Mateo, with jurisdiction throughout the unincorporated areas of San Mateo County including areas draining to the Fitzgerald ASBS, the San Mateo County Flood Control District, and the 20 municipalities in San Mateo County are covered under the San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (Order No. R2-2009-0074;

referred to as the MRP). This Draft ASBS Compliance Plan addresses the portion of the Fitzgerald ASBS watershed that is drained by the County-owned and operated MS4 and is covered under the MRP. This area includes parks and recreation facilities and therefore, this ASBS Compliance Plan addresses stormwater runoff from those facilities per Provision II of the Special Protections. Stormwater and non-stormwater discharges from rural land (that drain directly to natural water bodies and not the County-maintained MS4 system) and the United States Air Force facilities located within the watershed are not covered under the MRP and are not specifically addressed in this Draft ASBS Compliance Plan. However, many of the countywide measures, plans, and existing ordinances described in this plan are likely to prevent pollution and improve water quality from areas not covered by the MRP.

This Draft ASBS Compliance Plan is due by September 20, 2014, per the time adjustment granted by the State Water Board on August 14, 2013, and is subject to approval by the Executive Officer of the San Francisco Bay Regional Water Board. The Final ASBS Compliance Plan is due by September 20, 2015, one year after submittal of the Draft ASBS Compliance Plan. Implementation of the ASBS Compliance Plan is reported in the County's MRP Annual Reports.

If, based upon results of discharge and receiving water monitoring required under Special Protections (see Section 6), it is determined that the County's identified discharge is causing or contributing to an alteration of natural ocean water quality in the ASBS, it may be necessary to revise the ASBS Compliance Plan. A process for evaluating potential alterations to natural water quality in the ASBS and their potential causes will be developed by the Central Coast ASBS Regional Monitoring Program. However, establishing a link between the stormwater discharge and water quality in the ASBS may be challenging for a number of reasons, including the high variability in stormwater monitoring results and the multitude of factors that may impact water quality in the ASBS receiving water, such as discharges to the ASBS from lands not under County jurisdiction, proximity to San Francisco Bay, and the influence of other Ocean waters.

3.0 FITZGERALD ASBS DESCRIPTION

The Fitzgerald ASBS is located in unincorporated San Mateo County approximately 7 miles north of the City of Half Moon Bay and extends from 4th Street in Montara south to the Pillar Point breakwater (Figure 3.1). The Fitzgerald ASBS is located approximately 20 miles south of Golden Gate and the confluence of the Sacramento River Basin (27,000 square mile drainage basin) with the Pacific Ocean. Coastal San Mateo County is rural in nature and presents a stark contrast to the densely urbanized areas located only 10 miles to the east along the San Francisco Bay peninsula on the opposite side of the Santa Cruz Mountains. The area is drained by relatively small creeks originating on the steep and forested west-facing slopes of the Santa Cruz Mountains and pollutant loadings via stormwater runoff are expected to be low relative to more densely urbanized areas.

The Fitzgerald Marine Reserve (Reserve) with its 3 miles of shoreline is located within the boundary of the ASBS. The Reserve was created in 1969 to protect the mosaic of habitats and tremendous diversity of marine life that exists in the area. The Reserve is currently designated as a State Marine Park and is jointly managed by the California Department of Fish and Wildlife and the County. A 5.5-mile band of shoreline including the Reserve was designated as an ASBS due to the diversity of habitat and biological assemblages, dense stands of bull kelp found along with red algae, the diverse array of invertebrates that inhabit the broad reef, and the three types of subtidal habitat that are present at this location. Past studies and monitoring efforts have recorded 164 species (or taxa) of invertebrates, 134 species of algae and marine flora, many bird species, and several mammals including harbor seals, sea lions and sea otters (State Water Board 1979, Harding Lawson and Associates 1993, Tenera Environmental 2004). The Reserve receives over 100,000 visitors annually and is one of the most frequently visited rocky shorelines in California.

The watershed draining to the Fitzgerald ASBS is approximately 4.5 square miles (sq.mi.) or 2,880 acres. The dominant land uses are park/open space, ranching and equestrian facilities, small-scale agriculture, residential, light commercial/industrial, and a military facility, (Figure 3.2). More than two thirds of the watershed is unincorporated rural lands. Three unincorporated residential communities are located in the watershed: Montara, Moss Beach, and Seal Cove. The urbanized areas are primarily very-low to medium density residential. As of 2010, the combined population of Montara and Moss Beach was approximately 6,000. The southern half of the watershed is less populated with the bluffs just north of Pillar Point being occupied by a United States Air Force radar station and Peninsula Open Space Trust lands. A municipal airport (Half Moon Bay Airport) is located in the vicinity; however, the majority of runoff from this facility flows to Pillar Point Harbor which is located outside of the ASBS boundary to the south. The community of El Granada is also located in the vicinity, but drains to Pillar Point Harbor. A relatively limited network of storm drains and culverts directs runoff from some of the developed areas to receiving waters. Engineered storm drain features are mapped in Figures 3.1 and 3.4. These figures will be updated if and when changes to the storm drain system are made; updates will be documented in the County's MRP Annual Reports. The area is served by the Montara Sanitary District (see Appendix B for a map of the sewer system).

Three creeks drain directly into the ASBS: Montara Creek, with a watershed of approximately 1,100 acres (1.7 sq.mi.); Dean Creek (also known as Sunshine Valley), with a watershed of approximately 360 acres (0.6 sq.mi.); and San Vicente Creek, with a watershed of approximately 1,200 acres (1.8 sq.mi.). A portion of the runoff from the community of Montara is within the Kanoff Creek watershed (approximately 350 acres; 0.5 sq.mi.), which discharges to the ocean just north of the ASBS boundary. The Seal Cove area, located along the southern bluffs, drains directly to the ASBS. The Pillar Point Marsh

watershed (approximately 800 acres) is adjacent to the ASBS watershed but drains into Pillar Point Harbor, which is located outside of the ASBS boundary. A map showing the Fitzgerald ASBS watershed is included as Figure 3.1.

Impervious cover area in each watershed draining to the ASBS and vicinity was estimated as part of the Critical Coastal Areas Program Pilot Project. Based on established relationships between impervious area and aquatic degradation, percent impervious area has been identified as a predictor of stream health. Degradation, including channel erosion, reduced groundwater discharge, and increased flooding, has been observed in watersheds with as little as 10 percent impervious area. Watersheds with 10 to 25 percent impervious area may experience major alterations in stream morphology. Watersheds with over 25 percent impervious area suffer from loss of habitat, lack of floodplain connectivity, bank instability, and decreased water quality. Current impervious area in the San Vicente, Dean, and Montara watersheds was estimated at 7 percent, which is below the threshold for stream health degradation. Future development in the watersheds will increase impervious area but will be constrained by Local Coastal Plan restrictions (San Mateo Countywide Stormwater Pollution Prevention Program 2002, California Coastal Commission 2008).

The coast along the Fitzgerald ASBS is generally characterized by steep bluffs. Bluffs along the southern portion of the ASBS are mapped by Wilson and Keep (1985) as having relatively high landslide susceptibility (Figure 3.3). Most of the bluff tops are traversed by recreational trails or public and private roads. The Bluff Trail traverses approximately one half mile of windswept bluff top between the Reserve parking lot (near San Vicente Creek) and Seal Cove to the south. The Jean Lauer Trail, which is part of Pillar Point Bluff County Park, traverses another half mile of bluff top farther south. These unpaved foot paths are maintained by the County of San Mateo Parks Department (County Parks). An informal trail is also present to the north of Juliana Avenue, but it is not maintained by County Parks.

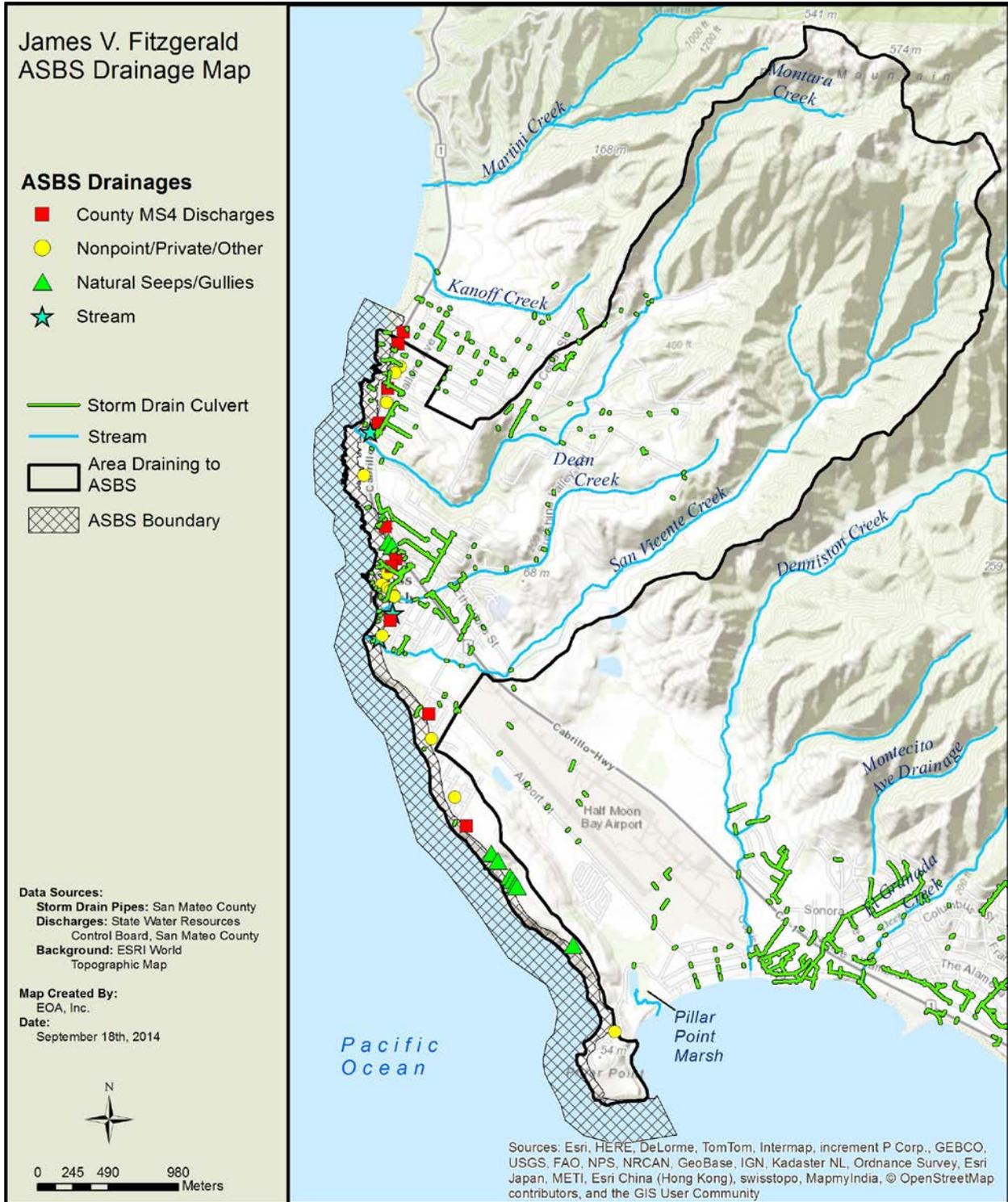


Figure 3.1. Fitzgerald ASBS Watershed

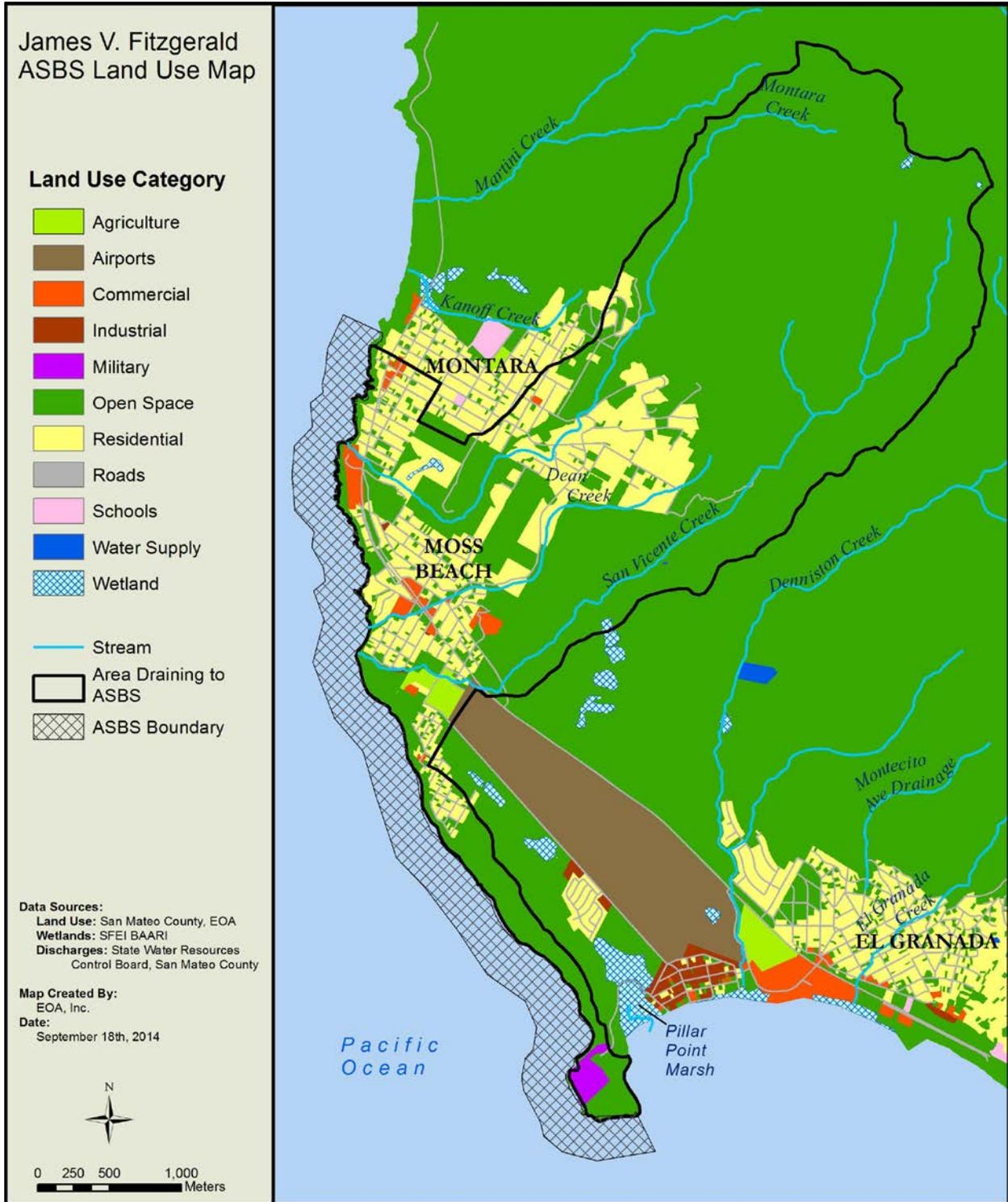


Figure 3.2. Land Use in the Fitzgerald ASBS Watershed

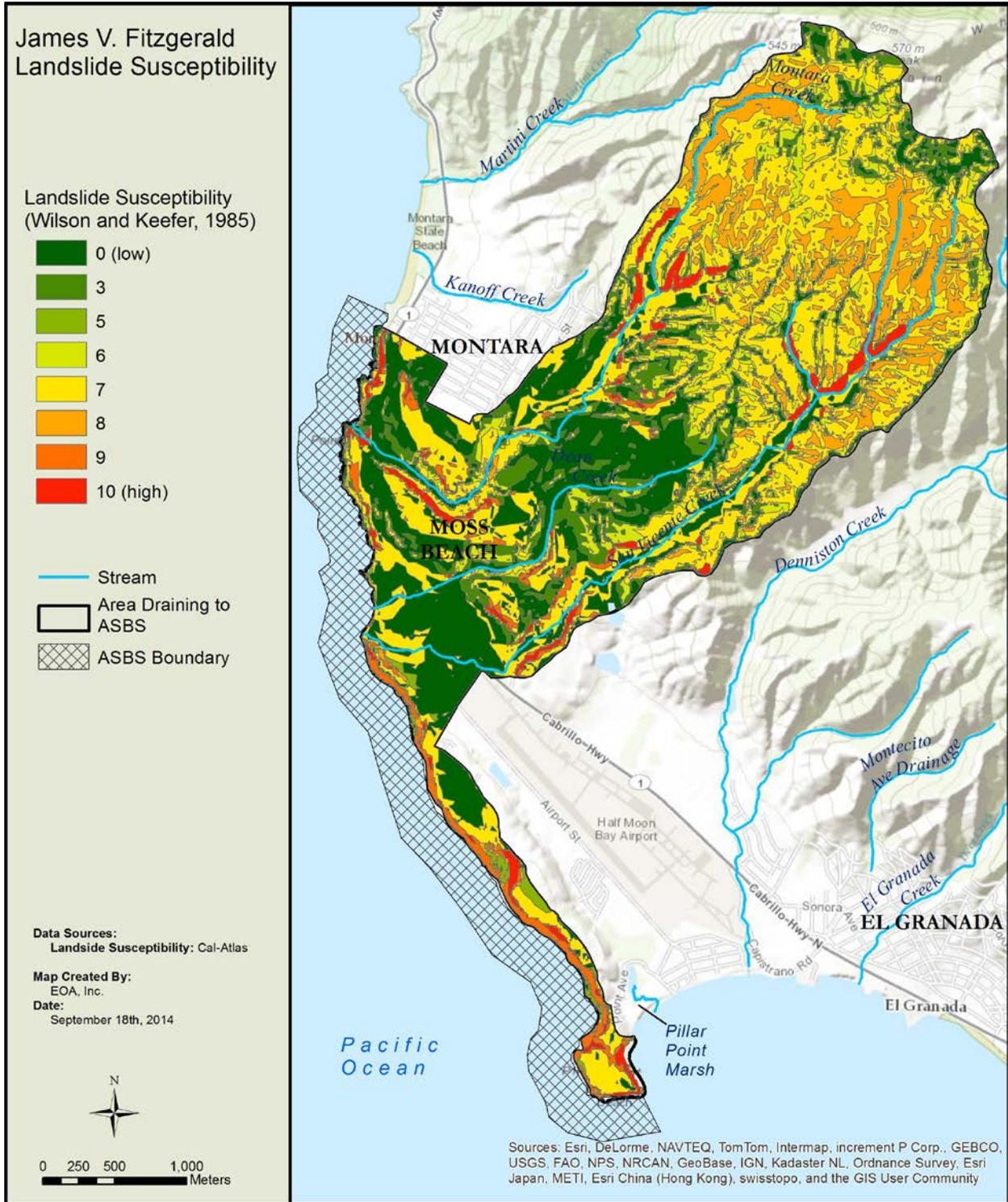


Figure 3.3. Landslide Susceptibility in the Fitzgerald ASBS Watershed

3.2. Drainages to Fitzgerald ASBS

The 2003 SCCWRP discharge survey, conducted on December 18, 2002, mapped thirty-eight “drainages” into the Fitzgerald ASBS (identified as FIT002 through FIT039). These drainages were listed in Appendix 5 of the Program Draft and Final Environmental Impact Reports (EIR) (State Water Board 2011 and 2012) which also included an additional drainage (FIT040). Each drainage was described according to several characteristics including, but not limited to, location, stream name, type (e.g., non-porous, earthen, perennial stream), material that comprises the discharge channel or outlet (e.g., metal, PVC, concrete, earthen), shape, width, flow, and responsible party (e.g., owner of property at discharge point). The State Water Board assigned a threat level (high, medium, low) to each drainage based on the data from the 2003 SCCWRP study. Nineteen of the drainages were identified as high threat discharges due to the potential for sewage spills or runoff from residential, parking, and highway land uses.

Drainages identified by SCCWRP (2003) were categorized according to one of three source types: discharge, outlet, or spring/seep. The term “outlet” was used to describe natural streams and gullies, which themselves may be impacted by upstream pollutants, but are regulated under the Water Quality Control Plan for the San Francisco Bay Basin (commonly referred to as the Basin Plan; Regional Water Board 2010) rather than the Ocean Plan (and are therefore the responsibility of the State). Based on the SCCWRP (2003) definition, spring/seeps fall into the “outlet” category. The Special Protections requirements apply only to drainages categorized as “discharges” which are defined as ‘an anthropogenic source or location of a discernable volume of water that flows or is released directly into or immediately adjacent to the marine environment of a SWQPA.’ In Fitzgerald ASBS, discharge sources include municipal/industrial storm drains, small storm drains, and nonpoint. The original list of drainages included:

- Discharges to which the Special Protections apply:
 - 17 municipal storm discharges from County-maintained or related facilities
 - 9 private storm drain discharges
 - 1 discharge from the Pillar Point Air Force Station (FIT038)
- Outlets regulated under the Basin Plan:
 - 8 natural seeps and gullies
 - 3 creek outlets

County staff reviewed the drainage information from the SCCWRP study and conducted field reconnaissance to verify the data and responsibility assignments. A total of thirty-nine discharges into the Fitzgerald ASBS were confirmed, including removal of FIT023 and FIT039 (abandoned/removed pipes) from the list, and addition of three discharges (FITNEW1, FITNEW2, and FIT040):

- 11 storm drain discharges from County-maintained roadways (FIT002, FIT003, FIT006, FIT008, FIT009, FIT012, FIT015, FIT024, FIT027, FIT029, FITNEW1),
- 1 nonpoint discharge from County-maintained Reserve access trail (FIT026),
- 11 private storm drain discharges for which the County does not have jurisdiction (FIT004, FIT005, FIT007, FIT016, FIT017, FIT018, FIT019, FIT020, FIT021, FIT028, FITNEW2),
- 11 natural seeps and gullies (FIT011, FIT013, FIT014, FIT030, FIT031, FIT032, FIT033, FIT034, FIT035, FIT036, FIT037),
- 3 creeks (FIT010, FIT022, FIT025),

- 1 discharge from the Pillar Point Air Force Station (FIT038),
- 1 nonpoint discharge from the Montara Water and Sanitary District (MWSD) wastewater treatment facility (FIT040).

Drainages confirmed through County field reconnaissance are mapped in Figure 3.4 and listed in Table 3.1 along with drainage size, type, source, and other details. Of the eleven County-maintained discharges, eight primarily drain small bluff top areas west of Highway 1. The eight bluff top discharges consist of informal roadside ditches or shoulder drainages leading to single pipes at the end of the roadways that deliver runoff over the bluff. Three of the eight bluff top drainage catchment areas are two to five acres in size, and the remaining five are less than one acre in size. Only three of the eleven County-maintained discharges have larger catchment areas (15 to 30 acres) and drain areas east of Highway 1. Six of the eleven discharges receive runoff from Highway 1. In general, pollutant loadings are expected to be low relative to more densely urbanized areas on the Bayside of San Mateo County, and this is especially true for small drainages due to their limited flow volumes. Drainage points are mapped in Figure 3.4.

Five discharges are part of the County's inspection program and the Central Coast ASBS Regional Monitoring Program (CCRMP) required by the Special Protections (see Section 5.1.1 for a discussion of the inspection program and Section 6.1 for a discussion of the CCRMP). Three of the eleven storm drain discharge pipes with full or partial County responsibility are greater than 18 inches in diameter (FIT012, FIT015, and FITNEW1), and therefore are included in the County's inspection program and the CCRMP. The largest County-maintained discharge is a 36-inch storm drain pipe that receives flow from Highway 1 and the surrounding residential areas (FITNEW1). At the request of the Regional Water Board, the County also included two discharges that are located on private property (Moss Beach Distillery Restaurant outfall [FIT028] and Ocean Boulevard/Madrone Avenue outfall [FITNEW2]) in the County's inspection program and the CCRMP because they receive runoff from County-maintained roads.

BMPs have been installed (or are planned) at ten of the eleven discharges as part of the Proposition 84-funded Fitzgerald Pollution Reduction Program. These are identified in Table 3.1. Details of this program are described in Section 5.2.1 of this Draft ASBS Compliance Plan.

Table 3.1. Fitzgerald ASBS Drainages. Drainages in **bold** are included in the Central Coast Regional Monitoring Program.

Drainage ID	Location	Responsible Party(ies)	Source Type	Approx. Size	Material	Threat Level ³	Source
FIT002*	Seacliff Ct. -- 6 th St.	County	Discharge	15 in	CMP	H	Municipal/industrial storm drain
FIT003*	7th St.	County & Caltrans	Discharge	15 in	CMP	--	Municipal/industrial storm drain
FIT004	8450 Hwy 1 near 9th St	Private	Discharge	16 in	metal	--	Small storm drain
FIT005	8520 Hwy 1 near 9th St	Private	Discharge	8 in	metal	--	Small storm drain
FIT006*	11th St.	County	Discharge	12 in	CMP	MH	Municipal/industrial storm drain
FIT007	12th St.	Private	Discharge	16 in	CMP	MH	Small storm drain
FIT008*	14th St. north	County & Caltrans	Discharge	12 in	CMP	MH	Municipal/industrial storm drain
FIT009*	14th St. south	County & Caltrans	Discharge	15 in	ADS	MH	Municipal/industrial storm drain
FIT010*	Montara Creek	State	Outlet	2.5 m	earthen	--	Stream
FIT011	coastal bluff (The Strand)	natural gully	Discharge	20 in	earthen	--	Natural coastal bluff erosion
FIT012¹	Maritime Walk	County & Caltrans	Discharge	24 in	A/C swale below 24" RCP	L	Municipal/industrial storm drain; Not maintained by County
FIT013 ²	coastal bluff (The Strand)	natural gully	Discharge	39 in	earthen	L	Natural coastal bluff erosion
FIT014	coastal bluff (The Strand)	natural gully	Discharge	16 in	earthen	L	Natural coastal bluff erosion
FIT015^{*1}	Juliana Avenue	County & Caltrans	Discharge	20 in	earthen ditch below 12" CMP	L	Municipal/industrial storm drain
FIT016	185 Reef Pt Rd	Private	Discharge	8 in	PVC	L	Small storm drain
FIT017	near 150 and 165 Reef Pt Rd	Private	Discharge	16 in	metal	MH	Small storm drain
FIT018	near 150 and 165 Reef Pt Rd	Private	Discharge	16 in	metal	MH	Small storm drain
FIT019	near 150 and 165 Reef Pt Rd	Private	Discharge	16 in	metal	MH	Small storm drain
FIT020	near 198 Arbor Lane	Private	Discharge	8 in	PVC	L	Small storm drain
FIT021	near 198 Arbor Lane	Private	Discharge	8 in	PVC	L	Small storm drain
FIT022*	Dean Creek	State	Discharge	31 in	metal	H	Stream
FIT023	abandoned pipe on South Laguna						
FIT024*	Beach St.	County	Discharge	15 in	ADS	MH	Municipal/industrial storm drain
FIT025*	San Vicente Creek	State	Outlet	4 m	earthen	--	Stream

Drainage ID	Location	Responsible Party(ies)	Source Type	Approx. Size	Material	Threat Level ³	Source
FIT026 ²	FMR access trail	County	Discharge	4 m	dirt/gravel	L	Nonpoint; runoff from dirt/gravel trail
FIT027*	Cypress & Beach Way	County	Discharge	15 in	CMP	MH	Municipal/industrial storm drain
FIT028¹	Beach Way/Ocean Blvd @ Distillery Restaurant	Private (flow from County)	Discharge	48 in	A/C swale below 15" PVC	H	Small storm drain
FIT029*	Ocean Blvd & Bernal Ave	County	Discharge	15 in	CMP	MH	Municipal/industrial storm drain
FIT030 - FIT037	natural spring/seeps and gullies (i.e., "outlets") along the coastal bluff						
FIT038	US Air Force	US Air Force	Discharge	39 in	earthen	--	Municipal/industrial storm drain
FIT039	pipe removed from FMR						
FIT040	wastewater treatment facility	MWSD	Discharge	--	--	H	Sewage facility
FITNEW1*¹	Wienke Way	County & Caltrans	Discharge	36 in	RCP	--	Municipal/industrial storm drain
FITNEW2¹	Ocean Blvd & Madrone Ave	Private (flow from County)	Discharge	24 in	A/C swale into bluff gully	--	Small storm drain

Notes:

A/C = asphalt/concrete, ADS = advanced drainage system, CMP = corrugated metal pipe, FMR = Fitzgerald Marine Reserve, in = inches, m = meters, MWSD = Montara Water and Sanitary District, PVC = polyvinyl chloride pipe, RCP = reinforced concrete pipe

* indicates presence of Pilot or Phase 2 BMP under the Proposition 84-funded Fitzgerald ASBS Pollution Reduction Program

¹ indicates inclusion in County inspection program and CCRMP.

² FIT013 (natural bluff erosion) and FIT026 (FMR access trail) ≥ 18 inches but are not storm water outfalls and therefore are not included in the inspection or monitoring programs.

³ Threat level assigned by State Water Board: L = low, M = medium, MH = medium high, H = high

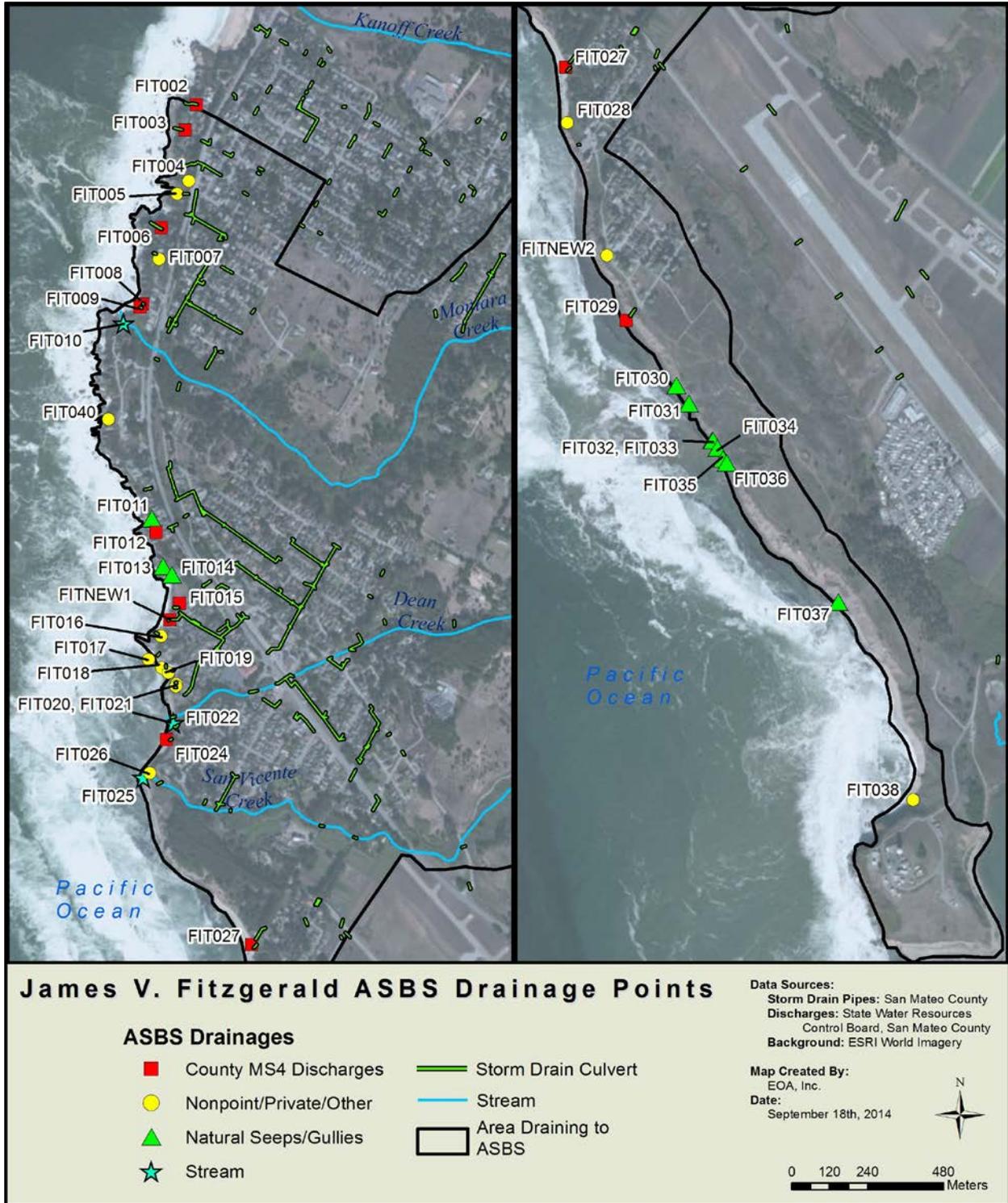


Figure 3.4. Fitzgerald ASBS Drainage Points

3.3. Existing and Potential Water Quality Impacts

Existing and potential water quality impacts to the Fitzgerald ASBS are typical of those common to rural (e.g., open space, equestrian facilities, and small-scale agriculture), park, and residential land uses. San Vicente Creek drains a mixed-use watershed and has been documented for coliform bacteria contamination. Prior to restoration activities targeted at reducing fecal contamination, a sign warning visitors that creek water is contaminated and not suitable for contact was a prominent feature near the main Reserve access point. Agricultural diversions and streamside wells impact flows in San Vicente Creek during the summer months. Montara and Dean Creek watersheds have similar land uses and their respective beaches have also been periodically posted for high bacteria levels. The annual Mavericks surfing competition formerly brought thousands of spectators to cliffs and beaches near Pillar Point resulting in minor bluff erosion, littering, and wildlife disturbances. Since 2010, after a rogue wave caused several injuries, spectating has been relegated to giant screens set up away from the beach.

3.3.1. Clean Water Act 303(d) Listings

The Reserve and San Vicente Creek are included on the 2010 Clean Water Act (CWA) 303(d) list for coliform bacteria with nonpoint sources identified as the potential source. The Pacific Ocean at Pillar Point Beach, located outside of the ASBS to the southeast is also listed for coliform bacteria with nonpoint sources identified as the potential source. The Total maximum daily loads (TMDLs) for both coliform bacteria listings are scheduled to be completed by 2019. The Pacific Ocean at Pillar Point, near the south end of the ASBS, is 303(d) listed for mercury based on fish tissue samples collected in 2000, with the TMDL scheduled for 2019. The source of the mercury has not been identified.

3.3.2. Fitzgerald Critical Coastal Areas Program Watershed Assessment

The Fitzgerald Critical Coastal Areas Program Watershed Assessment (2008) provided a characterization of the subwatersheds, review of existing water quality data, and recommendations for an Action (see Section 4.9 for more details). The Fitzgerald Marine Reserve Critical Coastal Area (CCA) is comprised of the Fitzgerald ASBS watershed and several watersheds to the north and south, including Pillar Point Harbor. Data sources summarized in the Watershed Assessment included the Clean Water Act 303(d) list, Surf rider, County Environmental Health Recreational Water Quality Program, Monterey Bay National Marine Sanctuary Snapshot Day, Caltrans, Montara Water and Sanitary District, Coastside County Water District, and County Parks. Consistent with the 303(d) listing for San Vicente Creek and the Pacific Ocean, coliform bacteria was identified in the CCA Watershed Assessment as the primary pollutant of concern in the study area. Other constituents and issues of concern in the ASBS watersheds that were identified in the CCA Watershed Assessment include (California Coastal Commission 2008):

- pH (exceedance of pH water quality objective measured in Montara Creek on 2005 Snapshot Day),
- MTBE (plume identified in groundwater near MWSD pumping well),
- Flooding (due to inadequate storm drain infrastructure throughout the residential area),
- Parameters associated with Caltrans facilities (possible oil, grease, nutrients, and metals),
- Nitrates, ammonia, sediments (speculative assessment of pollutants associated with ranching and equestrian operations), and
- Legacy chemicals (elevated concentrations of DDT and PCBs in bivalve tissues).

3.3.3. Fitzgerald Pollution Reduction Program Monitoring

The Proposition 84-funded Fitzgerald Pollution Reduction Program was developed to address many of the tasks identified in the CCA Action Plan (e.g., water quality monitoring, targeted BMP implementation, targeted education and outreach). A microbial source tracking study to identify sources of bacteria was recently completed as part of the Fitzgerald Pollution Reduction Program which began in 2011. In addition, water samples were collected to assess BMP effectiveness and were analyzed for urban runoff constituents including metals, PAHs, pyrethroid pesticides, suspended sediment, nutrients, and fecal indicator bacteria. All of these constituents were detected in the samples. See Section 5.2.1 for more details.

3.3.4. Ocean Plan Exception Monitoring

In order to meet the State Water Board's requirements to apply for the Ocean Plan General Exception, the County performed water quality monitoring at representative ASBS outfalls (FIT015, FIT022, FIT025) and ocean receiving water stations in December 2007. Elevated levels of vehicle-derived pollutants, such as copper, PAHs, and oil and grease, as well as bacteria were detected. Observations during the sampling event indicated the source to be localized from runoff from nearby roadways, driveways, and roofs. Two of these locations (FIT015 and FIT025) have been targeted for BMP implementation as part of the Fitzgerald ASBS Pollution Reduction Program.

4.0 EXISTING PROGRAMS ADDRESSING WATER QUALITY IN THE ASBS

Several plans, policies, and ordinances exist that have been developed to protect natural resources throughout the County and the Beneficial Uses of the ocean and other water bodies. The MRP and several other overarching plans and programs are described in this section. A more comprehensive list is provided in Table 4.1. The requirements and compliance schedules of these programs are generally consistent with the requirements of the Special Protections. Additional programs being implemented (or planned) to meet requirements of the Special Protections that go beyond existing plans are described in Section 5.0 of this Draft Compliance Plan.

4.1. Municipal Regional Permit

County stormwater discharges are permitted under the MRP. The MRP outlines requirements for municipal agencies in much of the San Francisco Bay Area (including the County and other San Mateo County agencies) to address the water quality and flow-related impacts of stormwater runoff, and effectively prohibits most non-stormwater discharges. The San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), a program of the City/County Association of Governments of San Mateo County (C/CAG), assists member agencies to comply with the MRP.

Some MRP requirements are implemented directly by the County and other San Mateo County Permittees. SMCWPPP assists with these requirements by providing education and training. Many related materials are available on SMCWPPP's website at www.flowstobay.org. Other MRP requirements are directly implemented by SMCWPPP on behalf of all of its members (e.g., water quality monitoring). In addition, the Bay Area Stormwater Management Agencies Association (BASMAA), a consortium of SMCWPPP and other countywide Bay Area municipal stormwater programs, promotes regional consistency in implementation of the MRP and implements certain MRP requirements on behalf of all MRP Permittees. Each year, SMCWPPP and the County develop separate Annual Reports summarizing stormwater management activities and accomplishments implemented in compliance with the MRP.

The MRP permit term is five years; it became effective on December 1, 2009 and expires November 30, 2014. The Regional Water Board is currently working with Permittees to develop a reissued permit. The next version of the MRP may incorporate the Ocean Plan Special Protections for ASBS Discharges.

MRP requirements are organized into the fifteen major provisions described below. Additional details about County and SMCWPPP programs are available in the Annual Reports which can be downloaded from the Regional Water Board website.

C.1. Compliance with Discharge Prohibitions and Receiving Water Limitations

Provision C.1 of the MRP sets up an iterative process to meet receiving water limitations. If discharges are determined to be causing or contributing to an exceedance of an applicable water quality standard or objective, the Permittee notifies the Regional Water Board and implements additional BMPs (if necessary) to reduce the discharge of pollutants.

C.2. Municipal Operations

MRP Provision C.2, Municipal Operations, requires appropriate BMP implementation during operation, inspection, and routine repair and maintenance of municipal facilities and infrastructure (e.g., roads, bridges, stormwater pump stations, and corporation yards).

SMCWPPP assists the County in meeting these requirements by providing education and training (e.g., subcommittee meetings and municipal maintenance workshops) and tools (e.g., stormwater pollution prevention plan [SWPPP] template, inspection checklists).

The County implements municipal operation BMPs per MRP requirements, conducts and logs routine street sweeping, and follows the County of San Mateo Watershed Protection Maintenance Standards (2004) during all rural roads construction and maintenance activities. The Watershed Protection Maintenance Standards document describes standard operating procedures designed to minimize impacts to water quality and fish and wildlife habitat. County maintenance workers attend erosion control and BMP workshops to learn about new products and techniques.

For maintenance projects involving construction with fill or potential impacts to water quality, creeks, wetlands, and/or special status species (i.e., culvert replacements, slip-out repairs, sediment removal), environmental permits are obtained from the appropriate regulatory agencies (i.e., Department of Fish and Wildlife Streambed Alteration Agreement, Water Board 401 Water Quality certification, Army Corps Permit, Section 7 consultations, Coastal Development Permit, CEQA compliance). Many of the obtained permits for County of San Mateo Department of Public Works (DPW) projects require additional BMPs and protective measures, which are implemented by DPW. For DPW projects requiring environmental permits, County biologists prepare and submit memos to the Roads Manager and Construction Supervisors containing copies of all applicable permits and detailing specific BMP requirements. A monitoring biologist is typically onsite for DPW projects at high priority sites (i.e., coastal zone and/or sensitive habitat).

C.3. New Development and Redevelopment

MRP Provision C.3, New Development and Redevelopment, requires that all regulated projects include source control, site design, and stormwater treatment measures, primarily through the implementation of Low Impact Development (LID) measures. Provision C.3.d specifies numeric sizing criteria for stormwater treatment systems and Provision C.3.g specifies hydromodification standards and control requirements. Regulated projects are described in the MRP and typically include those altering more than 50 percent or creating 5,000 square feet of impervious area. SMCWPPP assists the County in meeting MRP requirements by providing education and training (e.g., subcommittee meetings, outreach products, workshops, stormwater checklists, and a C.3 Technical Guidance Manual).

The County requires implementation of LID treatment measures for all regulated projects through the building permit application and inspection process. The County is also educating local residents and implementing BMPs and LID practices in the Fitzgerald ASBS watershed as part of a Proposition 84 grant. This grant-funded project is described in greater detail in Section 5.2.1 of this Draft Compliance Plan.

C.4. Industrial and Commercial Site Controls

Provision C.4 of the MRP, Industrial and Commercial Site Controls, requires implementation of an industrial and commercial site control program consisting of an Inspection Plan, an Enforcement Response Plan (ERP), and staff training. The Inspection Plan catalogs and prioritizes industrial and commercial facilities, and establish appropriate inspection frequencies. The ERP provides guidance for inspections, effective follow-up, and enforcement to abate actual or potential pollution sources.

Through its Commercial, Industrial and Illicit Discharge (CII) component, SMCWPPP provides educational materials, templates, reporting forms, and training workshops to assist the County in implementing C.4 provisions.

The County maintains an Industrial and Commercial Business Inspection Plan that lists facilities that potentially discharge to the MS4 and their priority level. Routine stormwater inspections are conducted by County staff and enforcement actions are taken if necessary according to the ERP. The May 17, 2013 update of the Industrial and Commercial Business Inspection Plan includes 17 medium priority businesses (inspected biennially) and 31 low priority businesses (inspected at least once every five years) in Montara and Moss Beach. Most of these are within the Fitzgerald ASBS watershed; however, some (such as the Half Moon Bay Airport) drain to Pillar Point Marsh which is outside of the ASBS. The Moss Beach Distillery Restaurant which is located at discharge point FIT028 is a medium priority business.

An additional 27 low priority facilities within the ASBS were inspected in FY 2013/14 based solely on commercial/retail zoning. Some of these properties are zoned commercial/mixed use and consist of retail shops at the street level with residential above. These facilities would not be inspected if they were outside the ASBS; however, they were included to ensure protection of the receiving water and to meet the spirit of the Special Protections. The efficacy of continuing inspections for these facilities will continue to be assessed and may be modified over time. The Industrial and Commercial Business Inspection Plan is being updated to include ASBS priority businesses and the more frequent inspections required by the Special Protections.

C.5. Illicit Discharge Detection and Elimination

MRP Provision C.5, Illicit Discharge Detection and Elimination, targets non-stormwater and other illicit discharges through active surveillance and complaint response. Provision C.5.d requires oversight and control of pollutants associated with mobile businesses. Provision C.5.e requires annual dry weather inspections at strategic collection system check points within suburban and urban areas and key major outfalls draining industrial areas.

Through its CII component, SMCWPPP provides educational materials, templates, reporting forms, and training workshops to assist the County with implementation of C.5 provisions. Businesses that clean surfaces (i.e., sidewalks, parking areas, building exteriors) are referred to the BASMAA website at www.basmaa.org for annual training and recognition.

The County is responsible for documenting and responding to complaints regarding any type of potential illicit discharge within unincorporated areas. The County maintains an illicit discharge complaint tracking system. In addition, collection system screening is performed consistent with provision C.5.e. A minimum of one screening point per square mile is inspected annually during the dry season for illicit discharge detection and elimination. Additionally, catch basins, v-ditches, curbs, and pipes, including those located in the ASBS watershed, are typically inspected and cleaned as needed prior to the start of the rainy season and during significant storm events.

C.6. Construction Site Control

MRP Provision C.6, Construction Site Control, requires implementation of a construction site inspection and control program at all construction sites, with follow-up enforcement consistent with the ERP. All construction sites must have site-specific effective BMPs for erosion control, run-on and run-off control, sediment control, active treatment systems (as necessary), good site management, and non-stormwater management. Erosion control plans for all construction sites must be reviewed for consistency with local requirements, and sites disturbing one acre or more must file a Notice of Intent for coverage under the NPDES Construction General Permit (Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-006-DWQ) which requires development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). Provision C.6.e requires that inspections are conducted monthly during the

wet season at all sites disturbing one or more acres and at high priority sites. Inspection activities must be tracked and summarized in Annual Reports.

SMCWPPP assists the County in meeting the requirements of Provision C.6 by providing construction site inspection report forms and tracking tables. SMCWPPP also conducts construction site inspector workshops.

The County Planning and Building Department has formed a focused Erosion Control Review Team that reviews erosion control plans for adequacy and consistency through the grading and building permit application process. Inspections are conducted and tracked consistent with MRP C.6 requirements.

C.7. Public Information and Outreach

MRP Provision C.7, Public Information and Outreach, requires that the County and other San Mateo County Permittees a) educate target audiences about the causes of stormwater pollution and its adverse effects on water quality in receiving waters, and b) encourage residents to adopt less polluting and more environmentally beneficial practices. Subsections of Provision C.7 require specific activities (with various compliance deadlines) designed to meet these goals, including: storm drain inlet marking, advertising campaigns, media relations, stormwater point of contact, public outreach events, watershed stewardship collaborative efforts, citizen involvement events, school-age children outreach, and outreach to municipal officials. SMCWPPP assists with these activities through an extensive countywide Public Information and Participation (PIP) program performed on behalf of the County and other San Mateo County Permittees in coordination with BASMAA outreach programs. Other activities consistent with the MRP cover topics such as reusable bag ordinances, household toxics disposal, car care, coastal cleanup days, litter, and integrated pest management (IPM). Most related educational materials are made available on the SMCWPPP website (www.flowstobay.org).

The County implements several additional countywide stormwater-related education and outreach programs, such as the Department of Public Works' RecycleWorks Program (www.recycleworks.org), the County Environmental Health's Toxics and Household Hazardous Waste program, and school training programs. Consistent with Provision C.7, the County participates in multiple watershed stewardship programs overseen by the San Mateo County Resource Conservation District. In addition, the County develops and implements public outreach materials specifically targeting the ASBS watershed as part of the Proposition 84 grant-funded Fitzgerald ASBS Pollution Reduction Program (see Section 5.2.1 for more details).

C.8. Water Quality Monitoring

Provision C.8 of the MRP requires an extensive and comprehensive water quality monitoring program. On behalf of its member agencies, SMCWPPP performs water quality monitoring activities in compliance with MRP Provision C.8. Some of this work is accomplished through participation in BASMAA regional projects. There are currently no C.8 monitoring stations in the Fitzgerald ASBS watershed.

C.9. Pesticide Toxicity Controls

The primary objective of Provision C.9 is to implement requirements of the TMDL for Diazinon and Pesticide-related Toxicity for Urban Creeks in the region. Provision C.9 of the MRP is primarily implemented individually by each SMCWPPP member; however, SMCWPPP helps agency staff to understand the requirements through education and training (e.g., subcommittee meetings and workshops) and implements Provision C.9.h, the public outreach component of Provision C.9.

The County Board of Supervisors adopted the County of San Mateo Integrated Pest Management (IPM) Policy on June 8, 2010 and has since been implementing the policy accordingly. The IPM policy

emphasizes non-pesticide alternatives to pest management. The County's roadside vegetation management program was recently updated to eliminate the use of herbicides adjacent to County roads.

C.10. Trash Load Reduction

MRP Provision C.10, Trash Load Reduction, requires that trash loads from MS4s are reduced by 40 percent by 2014, 70 percent by 2017, and 100 percent by 2022. The first step in meeting this requirement was determination of the baseline load of trash from the MS4 and submittal of a Short-Term Trash Load Reduction Plan by February 2012 (County 2012). A Long-Term Trash Load Reduction Plan and Assessment Strategy was completed in February 2014 (County 2014). Provision C.10.b requires annual cleanup at Trash Hot Spots.

Provision C.10 is primarily implemented by member agencies. SMCWPPP assists by helping agency staff with implement and prepare the Short and Long-term Trash Load Reduction Plans, coordinating a Trash Committee, and by providing Annual Report templates.

In collaboration with BASMAA, the County estimated baseline annual trash generation rates for several land use types and adjusted the estimates according to reductions anticipated by various control measures (County 2012). Details of the County's trash reduction measures are included in the County of San Mateo's Long-Term Trash Load Reduction Plan and Assessment Strategy (February 2014). Control measures already implemented or planned for the Mid-Coast area which encompasses the Fitzgerald ASBS watershed include (but are not limited to):

- DPW routinely sweeps selected County-maintained streets in Montara and Moss Beach. The frequency of street sweeping is generally twice per month. Street sweeping is not conducted on all County-maintained roadways in the ASBS watershed as many of the streets lack improvements (curbs, gutters, etc.) which would enable sweepings to be collected instead of simply being pushed aside.
- On November 6, 2012, the County Board of Supervisors passed a Reusable Bag Ordinance that became effective on April 22, 2013. The Ordinance is available at: http://smchealth.org/sites/default/files/docs/EHS/Final_15_Plastic%20Bag_Ord_04637.pdf
- On March 1, 2011, the County Board of Supervisors adopted Ordinance No. 04542 prohibiting food vendors from using polystyrene-based disposable food service ware. The ordinance is available at: <http://www.smchealth.org/sites/default/files/docs/PolystyreneBan.pdf>
- Since 2012, twenty full trash capture devices (catch basin connector pipe screen devices - CPS) have been installed throughout the ASBS watershed. Three additional trash capture devices (flume filter storm drain inserts and vault cartridge system) were installed as part of the Proposition 84 Pollution Reduction Program as described in Section 5.2.
- Since approximately 2000, the DPW Roads Division has conducted on-land trash cleanups at hot spot locations where litter is more commonly observed. The cleanup activities are conducted using the SWP work force (generally two workers) and a DPW Roads Division supervisor and typically occur every other Wednesday.
- Both SMCWPPP and county programs such as RecycleWorks and the Proposition 84 Fitzgerald Pollution Reduction Program conduct public education and outreach targeted at litter reduction.
- The County also supports volunteer cleanup efforts at the Reserve and Montara State Beach.

C.11. Mercury Controls

Provision C.11, Mercury Controls, implements stormwater runoff-related actions required by the San Francisco Bay mercury TMDL. Although the Pacific Ocean at Pillar Point, near the south end of the Fitzgerald ASBS, is 303(d) listed for mercury, the Bay mercury TMDL does not target this area (a separate TMDL is scheduled for 2019). However, some activities conducted under Provision C.11 are implemented countywide and potentially benefit the ASBS. For example, Provision C.11.a requires promotion, facilitation and/or participation in mercury collection and recycling programs. An estimate of the mass of mercury collected is reported in the Annual Report. SMCWPPP collaborated with BASMAA to develop a spreadsheet calculator to estimate the mass of mercury collected.

County Environmental Health's Household Hazardous Waste (HHW) Program offers residents the opportunity to drop-off mercury containing devices and other hazardous wastes at designated stations or events free of charge. County Environmental Health also has a program that provides inexpensive hazardous waste disposal options to eligible businesses. RecycleWorks provides public outreach promoting these programs.

C.12. PCB Controls

Provision C.12 of the MRP, PCB Controls, implements the urban runoff requirements of the San Francisco Bay PCBs TMDL. Although the Bay PCB TMDL does not target waters in the Fitzgerald ASBS area, some of the activities conducted under Provision C.12 are implemented countywide and potentially benefit the ASBS. For example, Provision C.12.a adds PCB-containing equipment identification into existing industrial inspections.

C.13. Copper Controls

Provision C.13 of the MRP implements the copper control measures identified in the Basin Plan (Regional Water Board 2010) that the Regional Water Board has deemed necessary to support copper site-specific objectives in San Francisco Bay. Although the Fitzgerald ASBS is outside of this area, many of the activities required by Provision C.13 are implemented countywide and potentially benefit waters in the ASBS area. Provision C.13 requires management of waste from copper architectural features and discharges from pools that contain copper-based chemicals, participation in the Brake Pad Partnership, and verification of implementation of proper BMPs through industrial facility inspections.

SMCWPPP develops and distributes fact sheets, trains industrial inspectors, and performs other public education and outreach activities. County Planning staff distribute a flyer on architectural copper to project applicants and/or contractors installing and/or maintaining architectural copper. The flyer is also posted on P&B's website:

http://planning.smcgov.org/sites/planning.smcgov.org/files/Architectural_copper_BMPs_FINAL.pdf.

Both the Construction Site Inspection Form used by DPW and Planning inspectors and the Stormwater Requirements Checklist used during the Planning review process include architectural copper BMPs. The County is responsible for conducting and tracking violations related to copper control during industrial inspections and performs follow-up and enforcement as needed.

C.14. PBDEs, Legacy Pesticides and Selenium

Provision C.14 of the MRP requires the County and other Permittees to work collaboratively to begin identifying, assessing, and managing controllable sources of the following lower priority pollutants: polybrominated diphenyl ethers (PBDEs), legacy pesticides, and selenium. SMCWPPP is working with BASMAA on regional projects to address this provision.

C.15. Exempted and Conditionally Exempted Discharges

Provision C.15 exempts certain unpolluted non-stormwater discharges from the MRP Discharge Prohibition A.1. which prohibits non-stormwater discharges. The C.15 exemptions are similar to the non-stormwater discharges allowed under the Special Protections and include:

- Flows from riparian habitats or wetlands;
- Diverted stream flows;
- Flows from natural springs;
- Rising ground waters;
- Uncontaminated and unpolluted groundwater infiltration;
- Single family homes' pumped groundwater, foundation drains, and water from crawl space pumps and footing drains;
- Pumped groundwater from drinking water aquifers (*not allowed under the Special Protections*); and
- NPDES permitted discharges (individual or general permits).

Provision C.15 also conditionally exempts non-stormwater discharges that are potential sources of pollutants if they are identified as not being sources of pollutants to receiving waters, or if appropriate control measures are implemented. Some of these sources are allowed under the Special Protections (e.g., foundation drains, basement pumps from structures other than single family homes), others are not addressed specifically in the Special Protections (e.g., air conditioning condensate, planned, unplanned, and emergency discharges of the potable water system, residential car washing, swimming pool discharges, and irrigation water). Control measures that may be required depending on the type of discharge include (but are not limited to): monitoring, notification, tracking, flow restrictions, land dispersal, public education and outreach, dechlorination, and water conservation.

SMCWPPP assists municipal staff in complying with the MRP requirements and conducts public education and outreach activities related to C.15 (e.g., car washing, landscape irrigation) as part of the pollution reduction Provision C.7 outreach. The County's RecycleWorks program also conducts public education and outreach related to Provision C.15.

4.2. Local Coastal Program

The Local Coastal Program (LCP) is the County's guiding document for implementation of the State Coastal Act administered by the California Coastal Commission. With information and policies pertaining to issues such as buildout and development, water supply capacity, wastewater treatment capacity, recreation, impervious surface zoning standards, nonpoint surface runoff controls, and sensitive species and habitat protection, the LCP governs land development in the unincorporated coastal area of San Mateo County. All development in the Coastal Zone must either comply with the policies and ordinances of the LCP in order to be issued a coastal development permit, or be granted an exemption from the requirements. The County Planning and Building Department released an updated LCP on June 18, 2013. The updated LCP includes policy recommendations from the Midcoast LCP Update Project. The Midcoast project area encompasses the Fitzgerald ASBS watershed and includes policies and amendments such as a limitation on private well development in urban areas, avoidance of development in areas that are susceptible to erosion (e.g., bluff edges and faces), and establishment of minimum stormwater BMPs.

Part of the Midcoast LCP Update Project called for the establishment of the Midcoast Stormwater Drainage Committee to assist in resolving surface water runoff and drainage control issues. The committee was formed by the County Board of Supervisors in October 2006 and began meeting in July 2007. The Committee was made up of a representative of the Midcoast Community Council, the Director of Public Works, the Director of Planning and Building, a community member, and a general contractor. As a final work product, the Committee developed a list of prioritized drainage problems based on their analysis of local drainage issues. The Committee also provided recommendations for addressing the highest priority drainage improvements. The Committee's final recommendations were reported to and accepted by the County Board of Supervisors, and the Committee then disbanded. The recommendations were later used to assist with BMP site selection for the Prop 84 Fitzgerald Pollution Reduction Program.

4.3. Fitzgerald Marine Reserve Master Plan

A draft Master Plan for the Reserve was completed for the County Parks by Brady/LSA (2002). The plan describes the biological resources found at the Reserve and provides a brief history of its use and regulatory status. Visitor use (e.g., direct trampling of delicate algae and invertebrates) is identified as the primary cause of deterioration of natural resources in the intertidal zone. The plan includes goals and policies designed to protect natural resources of the Reserve while providing educational and recreational opportunities. They include: a new visitor management program with an emphasis on education and maximum visitor capacities, uses and facilities program (e.g., new education center and sustainable green parking lot), development of a monitoring program (e.g., 10-year limited visitor use study at Moss Beach Reef), restoration feasibility studies, a water quality improvement program (e.g., San Vicente Creek), sensitive species protection, habitat and vegetation management programs, prohibition of domestic and feral animals, and an implementation program.

4.4. County Parks Maintenance Activities

County Parks is responsible for the operation of parks and trails located throughout the County including two County parks within the Fitzgerald ASBS watershed: the Reserve and Pillar Point Bluff. All County Parks maintenance activities are conducted in accordance with the MRP and the County of San Mateo Watershed Protection Maintenance Standards (2004). These standards were developed in conjunction with FishNet 4C, a County-based salmon protection and restoration program that brought together the central coast counties of Mendocino, Sonoma, Marin, San Mateo, Santa Cruz, and Monterey; the National Marine Fisheries Service; and the California Department of Fish and Wildlife. The Maintenance Standards manual was created to meet NPDES requirements as well the Endangered Species Act Section 4(d) Rule for steelhead and salmon.

The key focus of the manual is on implementing BMPs related to protecting water quality, aquatic habitat, and salmonid fisheries. Guidelines in the manual address road and trail design, routine and emergency road and trail related maintenance activities, common facilities such as storage sites and maintenance yards, and vegetation management practices. The Maintenance Standards manual goes beyond those developed for other coastal counties by increasing the level of commitment to BMP implementation.

4.5. County Zoning Ordinance Regulations

The County Planning and Building Department is responsible for the administration of County Zoning Ordinance Regulations. The following standards and regulations support protection of the Fitzgerald ASBS watershed:

1. Zoning Regulations for the County's Midcoast Area (including Moss Beach, Montara, El Granada, Miramar, and Princeton) were amended on May 24, 2011 by the San Mateo County Board of Supervisors and certified by the California Coastal Commission on August 8, 2012 (making them effective in the coastal zone on September 7, 2012). The amendments discussed below were made to the S-17, S-94, S-105, C-1, CCR, M-1, PAD, and RM-CZ zoning districts found in the Fitzgerald ASBS watershed area:
 - Prohibit grading activities during the wet weather season, unless specifically approved by the Community Development Director and Building Official.
 - Restrict the amount of a parcel area covered by impervious structures less than 18 inches in height to 10 percent of the parcel size.

2. (Rural) Resource Management-Coastal Zone and Planned Agricultural District zoned parcels must comply with the development review criteria of Chapter 20A.2 and 36A.2, respectively, of the Zoning Ordinance. Such criteria include:
 - Environmental Quality Criteria: Use of pesticides and other chemicals should be of the types and amounts that will have no significant or persistent adverse effects upon the environment; use and discharge of chemical agents, particularly including pesticides and heavy metals, which concentrate in the food chain and interrupt or destroy the primary biological network or threaten the survival of endangered species shall be prohibited; development shall not have a significant adverse environmental impact on primary wildlife or marine resources.
 - Site Design Criteria: No use or development shall substantially detract from the natural characteristics of existing major water courses; structural development that will adversely affect a perennial stream and associated riparian habitat shall be prohibited.
 - Water Resources Criteria and Primary Water Resources Criteria: Solid and liquid waste discharge and disposal shall not be permitted to contaminate water resources or otherwise adversely affect a marine, aquatic or riparian environment; all discharges which might effect a water body shall comply with discharge requirements as established by the Regional Water Board; discharge of water containing organic nutrients shall be shifted from the aquatic environment to land environments whenever possible when such shift will produce less detrimental effects; grading and other landscape alteration shall be kept to a minimum; site preparation procedures and construction phasing shall be carefully controlled to reduce erosion and exposure of soils to the maximum extent possible; projects shall utilize methods to maintain surface water runoff at or near existing levels; development, with the exception of agricultural uses and public works and public safety projects, which might cause significant adverse impacts upon the natural course or riparian habitat of any stream, shall not be permitted; projects shall clearly demonstrate methods to be employed for management of vegetative cover, surface water runoff, ground water recharge, and erosion and sedimentation processes to assure stability of downstream aquatic environments; development that will alter or contribute to the deterioration of the quality of water in any water body shall be prohibited.
 - Primary Fish and Wildlife Areas: Prohibit significant reduction of primary habitat areas; ecological characteristics shall not be changed in a manner that would have substantial

adverse impacts on the quantity or quality of marine and other wildlife; filling or dredging of tidal marshes, estuaries or marine waters is not allowed.

3. The County's Confined Animal Ordinance seeks to protect water quality, sensitive habitats, soil and other significant environmental resources from potential adverse impacts of confined animals, among other goals. The Ordinance requires a confined animal permit or exemption be issued by the Department to regulate the keeping of confined animals (e.g., domesticated animals that typically have an adult weight exceeding 300 pounds, including but not limited to horses, mules, donkeys, and pot belly pigs).
 - The Confined Animal Ordinance requires submittal of a detailed drainage and stormwater management plan and manure management plan for review and approval to ensure there are no adverse impacts to water quality or sensitive habitats. The drainage plan is required to show the confined animal areas, feeding and washing areas, direction of water flow, and proposed site drainage system. Specific drainage standards for confined animals include prohibiting surface runoff from coming into contact with stored animal manure; draining liquids more than ten feet from wells, septic tanks and/or drainfields; and draining animal waste runoff and liquids used to clean confined animals away from creeks, streams, lakes or other water bodies.
 - The manure management plan is required to include the method for and frequency of collecting, processing, storing and disposing or using the manure produced on-site. Specific manure management standards include requiring all animal waste be collected daily from confined animal structures; limiting stored animal waste for off-site use or disposal from being kept on site more than fourteen days; and requiring stored waste to be covered and separated from the ground by impermeable material.
 - Confined animal structures and animal use of the property (including pasture or range areas) are prohibited from being located in lakes, creeks, and streams; within fifty feet of lakes, perennial creeks and streams, and thirty feet of intermittent creeks and streams; in sensitive habitat areas, including riparian corridors and wetlands; within fifty feet of the outward boundary of riparian corridors; within 100 feet of wetlands; on land used for a domestic well or septic tank, or above leach lines; and/or on slopes exceeding 30 percent for structures and 50 percent for animal use.

The County has identified ten confined animal permit facilities located within the Fitzgerald ASBS watershed. Compliance review of confined animal permits by the Planning and Building Department includes a Planning and Building Department site inspection for zoning compliance and an Environmental Health Division site inspection for manure management and drainage compliance. Review and inspection for confined animal facilities in San Mateo County are conducted every three years.

4. The County's Dog Kennel/Cattery Ordinance provides provisions to allow such facilities to operate in the unincorporated County. The County has identified one dog kennel permit facility located within the Fitzgerald ASBS watershed. Compliance review of dog kennel permits by the Planning and Building Department includes a Planning and Building Department site inspection for zoning compliance and an Environmental Health Division site inspection for drainage and health compliance. Annual renewals are required for dog kennel facilities and include a compliance review. The Department will ensure that the existing dog kennel facility and all

future dog kennel facilities within the ASBS watershed have current operation plans on file with the County, including an approved drainage and stormwater management plan and waste management plan, for the permitted facility. Annual renewal will include compliance review and inspection of the approved operating facility. Additionally, the Planning Department will update the Dog Kennel/Cattery Permit Application to identify the requirement for drainage and stormwater management plans and waste management plans.

5. The County's Water Efficient Landscape Ordinance requires applicable projects (including new construction and rehabilitation landscapes by public agencies, private development, and developer-installed for single-family and multi-family residential equal to or greater than 2,500 sq. ft. and new construction landscapes equal to or greater than 5,000 sq. ft. for homeowner-provided and/or homeowner-hired in single-family and multi-family residential projects) to comply with the State's Model Water Efficient Landscape Ordinance. Landscape design compliance includes protection and preservation of native species and natural vegetation, use of water-conserving plant and turf species, use of plants that are disease and pest resistant, and plant adaptability to climate, geologic, and topographical conditions of a project site. Furthermore, irrigation design compliance includes use of sensors that suspend or alter irrigation operation during unfavorable weather conditions, manual shut-off valves, and strategic placement of irrigation heads to minimize runoff and overspray onto non-targeted areas (e.g., hardscapes, roadways or structures).

4.6. County Code of Ordinances

The County has incorporated applicable requirements of the MRP, LCP, and other plans into its Code of Ordinances. Several chapters are particularly relevant to ASBS drainages and the requirements of the Special Protections. For example:

- Chapter 3.64 (Logging Practices) prohibits logging activities that may cause change in the course of streams or erosion of their banks.
- Chapter 4.36 (Water Conservation) is intended to promote reasonable conservation of water in the County. Efficient irrigation techniques required for new developments and open areas and encouraged for agriculture will result in less dry season (i.e., non-stormwater) flow.
- Chapter 4.100 (Stormwater Management and Discharge Control) seeks to eliminate non-stormwater discharges to the MS4; control the discharge to MS4 from spills, dumping or disposal of materials other than stormwater; and reduce pollutants in stormwater discharges to the maximum extent practicable consistent with the requirements of the CWA and MRP (and any amendment, revision or reissuance thereof).
- Chapter 4.107 (Prohibition on the Use of Polystyrene Based Disposable Food Service Ware by Food Vendors) restricts the use of Styrofoam by food vendors based in part on findings that these materials constitute a substantial portion of the litter within the County.
- Chapter 4.114 (Reusable Bags) restricts the use of single-use carryout bags based in part on findings that these bags contribute litter in storm drains, creeks, and the ocean.

4.7. Caltrans Stormwater Management Plan

Runoff from Highway 1, which parallels the coastline in the Fitzgerald ASBS watershed, is permitted by the State Water Board under the NPDES Statewide Storm Water Permit Waste Discharge Requirements for State of California Department of Transportation (Caltrans) (Order No. 2012-0011-DWQ) which became effective on July 1, 2013. The scope of the Caltrans permit is similar to the MRP. Stormwater discharges that are not managed to the maximum extent practicable (MEP) standard are prohibited and the permit specifies a BMP selection and design process developed to meet the MEP standard. Caltrans is also covered under the General Exception to the Ocean Plan and the Caltrans stormwater permit includes all the provisions of the ASBS Special Protections. Caltrans' Storm Water Management Plan (SWMP) describes the procedures and practices used to reduce the discharge of pollutants to storm drainage systems and receiving waters. Caltrans is currently in the process of updating their 2005 SWMP for consistency with the new stormwater permit. The revised SWMP must be submitted to the State Water Board by July 1, 2014. Caltrans' Annual Reports describe inspections, maintenance, monitoring, and other ASBS Special Protections compliance activities conducted within the various ASBS watersheds where Caltrans facilities are located.

4.8. San Mateo County Resource Conservation District

The San Mateo County Resource Conservation District (RCD) assists County agricultural and rural landowners with comprehensive resource planning and conservation including erosion control, water quality and stormwater management. The RCD is a non-regulatory district that provides free and confidential technical assistance to help landowners protect, conserve, and restore natural resources. The RCD is active in protection of water quality in the Fitzgerald ASBS watershed through its participation in the Fitzgerald Marine Reserve Critical Coastal Area Pilot Project and the Proposition 84 grant-funded Fitzgerald ASBS Pollution Reduction Program. These projects are described below in Section 5 of this Draft Compliance Plan.

4.9. Critical Coastal Areas Program

The Critical Coastal Areas (CCA) Program is a non-regulatory program that focuses on implementation of management measures to address existing or potential nonpoint source (NPS) pollution impacts to coastal resources. The CCA Program is a major component of *California's Nonpoint Source Pollution Control Program*. It promotes a collaborative watershed approach by bringing together multiple interest groups. Over 100 CCAs, including the Fitzgerald Marine Reserve, have been identified based on degraded water quality and high resource value. In 2005 the Reserve was selected as one of five Pilot CCAs where state agency staff worked with local stakeholders to test the benefits of developing watershed-based plans and implementing appropriate mitigation measures to address polluted runoff. The lessons learned from the Pilot projects will eventually be applied to all CCAs.

Phase I of the Pilot CCA Program formed a Steering Committee comprised of staff from several state and local agencies, including County DPW, Planning and Building, and Parks to support a dialog among the numerous watershed stakeholders. In addition, San Francisco Estuary Institute (SFEI) and Association of Bay Area Governments (ABAG) were enlisted to assist with technical components of the Pilot Project. Phase I resulted in an *NPS Watershed Assessment for the James V. Fitzgerald Marine Reserve Critical Coastal Area* (California Coastal Commission 2008). Contributing watersheds were described, monitoring data were compiled and summarized, and existing and potential pollutants were identified (see Section 3.1.2).

Another outcome of the Pilot CCA Program was development of the Fitzgerald Historical Ecology report (SFEI 2008). This report compiles historical maps, surveys, aerial photography, and anecdotal narratives to compare past and present landscapes. Knowledge of the historical landscape and how it has changed

over time can help set priorities for future restoration projects. For example, SFEI (2008) found evidence of a wet meadows along the lower reaches of San Vicente Creek, a reach that now consists primarily of willow-dominated riparian communities. Restoration of the wet meadows could improve water quality and reduce flooding.

The Phase I NPS Watershed Assessment describes initial steps that were taken to develop an Action Plan to remediate water quality in the watersheds (California Coastal Commission 2008). A draft inventory of existing management measures was compiled and the San Vicente Creek watershed was identified as a location with relatively extensive existing BMP implementation, largely due to activities at the Moss Beach Ranch Equestrian Center (e.g., livestock exclusion fencing, manure management, vegetated swales, sediment traps). However, much of the information throughout the watershed was derived through interviews and most landowners would not approve public distribution of the information provided, making it difficult to quantify the data. The Steering Committee identified six broad areas that could form the basis of an Action Plan (California Coastal Commission 2008):

1. Water quality monitoring
2. Targeted BMP implementation
3. Targeted Midcoast NPS Outreach Campaign
4. Outreach, input, and support on County watershed policies
5. Technical assistance to landowners and builders for implementation of watershed policies
6. Permit streamlining for restoration projects

Funding was frozen in late 2008 due to budgetary concerns. Although the Action Plan was not prepared, the Fitzgerald Pollution Reduction Program was designed to begin addressing many of the prioritized action areas and activities that were identified by the CCA Steering Committee.

Table 4.1. Existing Programs Addressing Water Quality in the Fitzgerald ASBS

Program	Summary of Sources Controlled / BMPs	Primary Pollutants Addressed
<p>Municipal Regional Stormwater NPDES Permit (MRP)</p> <p>San Mateo Countywide Water Pollution Prevention Program (SMCWPPP)</p>	<p>Municipal operations BMPs</p> <p>Source control at commercial businesses and industrial sites</p> <p>Inspection and follow-up of illicit discharges (e.g., non-stormwater discharges)</p> <p>Construction site BMPs to address sediment, erosion, run-on and run-off control</p> <p>Development site post-construction controls for pollutants and stormwater discharge rates and durations</p> <p>Trash, PCB, copper, mercury, pesticides, and other pollutant controls</p> <p>Public outreach and education</p> <p>Water quality monitoring</p>	<p>Pesticides</p> <p>Metals</p> <p>PAHs</p> <p>Sediment</p> <p>Trash</p> <p>Legacy Organics</p> <p>Other stormwater runoff pollutants</p>
<p>Department of Public Works (DPW) Watershed Protection Program</p>	<p>Permitting and compliance for DPW projects</p> <p>Erosion control design and implementation</p> <p>Development and implementation of Watershed Protection Maintenance Standards for DPW activities</p> <p>Training for County staff</p> <p>Participation in local conservation efforts</p>	<p>Sediment</p> <p>Pesticides</p> <p>Trash</p> <p>Oil & Grease</p>
<p>County Integrated Pest Management Policy</p>	<p>Reduced use of pesticides on property owned or managed by the County to the maximum extent practicable</p>	<p>Pesticides</p>
<p>County Zoning Ordinance Regulations</p>	<p>Prohibit grading activities during wet weather</p> <p>Environmental quality, site design, and water resources criteria</p> <p>No adverse impacts on the quantity or quality of marine and other wildlife</p>	<p>Sediment</p> <p>Pesticides</p> <p>Nutrients</p> <p>Other stormwater runoff pollutants</p>
<p>County Confined Animal Ordinance</p>	<p>Detailed drainage and manure management plans required for approval of confined animal permit</p> <p>Setbacks from lakes, creeks, and streams required for animal structures and pastures</p>	<p>Sediment</p> <p>Nutrients</p> <p>Bacteria</p>

Draft Fitzgerald ASBS Compliance Plan

Program	Summary of Sources Controlled / BMPs	Primary Pollutants Addressed
County Water Efficient Landscape Ordinance	Applicable projects must comply with State’s Model Water Efficient Landscape Ordinance	Non-stormwater discharges
County Stormwater Management and Discharge Control Ordinance (Chapter 4.100)	<p>Prohibits discharges of material other than stormwater into County storm drains unless in compliance with a NPDES permit or a specified exception</p> <p>Requires use of BMPs for any activity or operation which may contribute to stormwater pollution</p> <p>Prohibits littering in streets, storm drains, catch basins, conduits or other drainage structures such that it may become a pollutant</p>	<p>Trash</p> <p>Other stormwater runoff pollutants</p>
Local Coastal Program (LCP)	<p>Runoff containing fertilizers or pesticides must be stored on site and not released to any perennial or intermittent streams, and managed in accordance with U.S. Environmental Protection Agency & Regional Water Board regulations</p> <p>Nonpoint surface runoff control measures</p> <p>Impervious surface zoning standards</p> <p>Buildout and development policies</p> <p>BMPs for new development</p> <p>Erosion and sediment control plans</p> <p>Limited land disturbance and grading restrictions</p> <p>Sensitive species and habitat protections</p>	<p>Fertilizer</p> <p>Pesticides</p> <p>Sediment</p> <p>Other stormwater runoff pollutants</p>
County Environmental Health and RecycleWorks	Education and outreach on topics including green gardening and landscaping, recycling, green business and building, and hazardous waste	Stormwater runoff pollutants
Fitzgerald Marine Reserve Master Plan	<p>Natural resource management</p> <p>Visitor management program</p> <p>Uses and facilities program</p> <p>Water quality improvement program</p>	Stormwater runoff pollutants

Program	Summary of Sources Controlled / BMPs	Primary Pollutants Addressed
<p>Critical Coastal Area Program (CCA)</p> <p>CCA is part of the CA Nonpoint Source Pollution Control Program, administered by the State Water Board and the California Coastal Commission</p>	<p>Pilot project completed for the Fitzgerald Marine Reserve CCA</p> <p>Watershed Assessment completed to identify potential pollution impacts to coastal resources</p> <p>Action Plan was to be developed and implemented to address these impacts and improve water quality; however, the CCA pilot program is currently on hold due to budgetary issues.</p>	<p>Stormwater runoff pollutants</p>
<p>Monterey Bay Sanctuary Citizen Watershed Monitoring Network Snapshot Day and First Flush Monitoring</p>	<p>Water quality monitoring at locations within the Fitzgerald ASBS watershed</p>	<p>pH</p> <p>Temperature, Dissolved oxygen</p> <p>Nutrients</p> <p>Bacteria</p> <p>Metals</p> <p>Suspended sediment</p>
<p>County Environmental Health Recreational Water Quality Program</p>	<p>Bacteria water quality monitoring at locations within the Fitzgerald ASBS watershed</p>	<p>Bacteria</p>
<p>James V. Fitzgerald ASBS Pollution Prevention Program (Proposition 84 Grant-funded)</p>	<p>Storm drain inventory and assessment</p> <p>Microbial source tracking study</p> <p>Implementation of structural BMP retrofits to storm drain infrastructure</p> <p>Retrofit existing parking lot to improve filtration of runoff</p> <p>BMP effectiveness water quality monitoring</p> <p>Public education and outreach</p> <p>Future stormwater pollution reduction planning</p>	<p>Stormwater runoff pollutants</p>

5.0 ADDITIONAL BEST MANAGEMENT PRACTICES IN ASBS WATERSHED

The County will continue to implement the MRP, LCP, Fitzgerald Reserve Master Plan, County Code of Ordinances, and other programs listed in Table 4.1 which require a range of structural and non-structural BMPs, as well as comprehensive monitoring and reporting. In areas that drain to Fitzgerald ASBS, additional BMPs are employed (or planned) to comply with the Special Protections of the Ocean Plan. This section describes the additional BMPs.

The need for additional non-structural and structural BMPs to maintain natural ocean water quality (beyond those described below in this section) will be assessed following review of the results of the monitoring program (Section 6.0). Any additional structural BMPs determined necessary to comply with the Special Protections will become operational by March 2018 (Section 7.0).

5.1. Non-Structural BMPs

Non-structural BMPs involve operational, maintenance, regulatory (e.g., ordinances), studies, or educational activities designed to reduce or eliminate increased flow/volume and pollutant-related impacts of stormwater runoff. Installing new physical structures is not involved.

5.1.1. Inspection Program

The Special Protections require an inspection program with the following minimum inspection frequencies for construction sites, industrial and commercial facilities, and stormwater outfall drains in the ASBS watershed. In most cases, Special Protections inspections are more frequent than those required under the MRP or other programs. The County has updated their various inspection plans to accommodate ASBS requirements.

- **Construction sites** – *weekly during rainy season*. Inspections for compliance with the Special Protections, MRP Provision C.6, and County Stormwater Management and Discharge Control Ordinances are conducted at construction sites in the ASBS watershed prior to land disturbance, weekly during the rainy season, and following active construction. Violations must be corrected before the next rain event or within 10 business days after discovery. These requirements are established in the County's Stormwater ERP for the Municipal Stormwater Program (revised May 17, 2013).
- **Industrial facilities** - *monthly during the rainy season*. Industrial facilities in the ASBS watershed are inspected by the County consistent with the Special Protections. The County has added a new category of inspection frequencies to the Industrial and Commercial Business Inspection Plan for ASBS sites.
- **Commercial facilities** – *twice during the rainy season*. This category includes restaurants, of which there are several in the Fitzgerald ASBS watershed. Commercial facilities in the ASBS watershed are inspected by the County consistent with the Special Protections. The County has added a new category of inspection frequencies to the Industrial and Commercial Business Inspection Plan for ASBS sites.
- **Stormwater outfall drains equal to or greater than 18 inches in diameter** – *twice annually, prior to and during the rainy season*. Five of the stormwater discharge outfalls for which the County is fully or partially responsible exceed 18 inches in diameter (FIT012, FIT015, FIT028, FITNEW1, and FITNEW2). The DPW Roads Division conducts inspections at these five discharge outfalls

and removes trash and other anthropogenic debris according to the Special Protections. Currently, County DPW staff assigned to ASBS compliance track ASBS outfall inspection needs and inform Roads Division staff via email communication. Consistent with the MRP and the County's Collection Screening Program, the DPW Roads Division also performs collection system screening consistent with MRP Provision C.5.e. A minimum of one screening point per square mile is inspected annually during the dry season for illicit discharge detection and elimination. ASBS discharge inspections and the collection system screening inspections are documented on the SMCWPPP Collection System Screening Forms. Additionally, catch basins, v-ditches, curbs, and pipes, including those located in the ASBS watershed, are typically inspected and cleaned as needed prior to the start of the rainy season and during significant storm events.

All above inspections are documented in the County's MRP Annual Report.

5.1.2. Microbial Source Tracking

A Microbial Source Tracking (MST) study was conducted as part of the Proposition 84 Fitzgerald Pollution Prevention Program. The main goal of the MST study was to provide information about the primary sources of fecal contamination within the ASBS watershed and to assist with the selection of appropriate non-structural and structural BMPs to reduce fecal pollution. MST monitoring was conducted during wet and dry conditions between January and October 2012 at stations in Martini, Kanoff, Montara, Dean/Sunshine Valley, and San Vicente Creeks. Water samples were collected by SFEI and analyzed for fecal indicator bacteria. University of California, Davis (UCD) conducted genetic analysis of host-associated *Bacteroidales* on samples from water, sediment, and biofilm matrices to assess the contribution of human, bovine, dog, and horse sources to fecal contamination. Fecal indicator bacteria monitoring confirmed year-round exceedances of WQOs with lower concentrations measured during the dry season. The genetic analysis suggested a greater contribution of warm-blooded animals in the wet season compared to first flush and dry season samples, with dog-associated *Bacteroidales* the most frequently detected host marker. Uncharacterized fecal sources, such as wildlife or other domestic animals appear to be the primary source of fecal pollution during the dry season. The MST study recommended further monitoring and investigation of bovine, septic system, and sanitary sewer sources. Recommended BMPs include outreach programs to address dog waste and septic system maintenance, and implementation of horse manure controls. (SFEI and UCD 2013).

The County plans to coordinate with the RCD to meet the recommendations of the MST study by developing an enhanced pet and horse waste public information and outreach effort. Several options are currently under consideration (see also Section 5.1.3):

- "Pre-Rain Pet Waste Alerts" – The RCD would disseminate area-wide alerts before wet weather events with educational materials and to remind pet owners to clean up waste in their yards.
- "Get Out of Manure Free Program" – The RCD would provide individualized education for landowners with small numbers of horses and livestock regarding water quality and options for manure management. RCD would help schedule of dumpster service from Recology for manure hauling to properties signed up with the Program.

5.1.3. Public Outreach and Education

In order to comply with the Special Protections, the County began a targeted education and outreach program for the Fitzgerald ASBS watershed aimed at pollution reduction. The targeted education and outreach is part of the Fitzgerald Pollution Reduction Program, which was initiated with Proposition 84 grant funding. Completed tasks under the Fitzgerald Pollution Reduction Program as well as planned

efforts for the future are summarized below. As part of the Proposition 84 grant-funded work, County DPW and Environmental Health created a website dedicated to the Fitzgerald Pollution Reduction Program at www.smchealth.org/asbs. Links to this website are prominently posted on other County websites addressing stormwater runoff, such as the SMCWPPP website at www.flowstobay.org. Since 2012, the County has published three annual newsletters describing various aspects of the Fitzgerald Reserve, ASBS, watershed, regulatory setting, and the Fitzgerald Pollution Reduction Program, as well as measures that local residents and businesses can take to eliminate non-stormwater discharges and reduce pollutants in stormwater runoff. Specific topics include:

- General stormwater education
- Bacteria impairments of local waters and potential sources
- Non-chemical pest control options
- Awareness of copper in architectural features
- Low impact development (LID) techniques such as permeable pavements, rain gardens, vegetated swales, and rain barrels

Annual newsletters are posted on the website and distributed electronically and via hardcopy to key stakeholder groups. Hardcopies are also left at select locations in the ASBS watershed such as coffee shops and the post office to increase awareness. The first three issues of the Fitzgerald Special Edition Newsletter are included as Appendix A. Dependent on future funding, the County may continue with production of the annual newsletters.

In an effort to reduce bacteria and nutrient sources, through the Fitzgerald Pollution Reduction Program, the County generated a pet waste flyer for distribution through the Summer 2013 issue of the Fitzgerald Special Edition Newsletter that is tied to the SMCWPPP Team Effort campaign. The flyer included a link to the Team Effort landing page, <http://www.flowstobay.org/teameffort>. On that site there is also a link to the 10-page “Horse Owners Guide to Water Quality” produced by the Council of Bay Area Resource Conservation Districts. A link to the flyer was provided on the SMCWPPP Team Effort page. SMCWPPP also addresses pet waste on their Facebook page (@flowstobay) and conducted a giveaway of dog bag dispensers through Facebook.

In an effort to ensure that residents and business owners in the ASBS watershed were aware of resources related to pollution prevention, the County developed a second flyer that was distributed through the Summer 2014 issue of the Fitzgerald Special Edition Newsletter. The flyer provided useful web links for pollution prevention resources and provided a list of tips for measures that could be taken at home or business. The flyer also referred readers to the SMCWPPP Team Effort landing page. As part of the Proposition 84 Fitzgerald Pollution Reduction Program, the County and SFEI hosted a Low Impact Development Workshop on August 25, 2012, entitled “Protecting Coastal Watersheds: with Focus on Residential Low-Impact Development.” The workshop covered topics including rain gardens and bioswales, pervious pavement, irrigation and pesticide use, rainwater harvesting, and permits and requirements. The presentations are available on the Fitzgerald Pollution Reduction Program website - <http://smchealth.org/asbs>. The County, in collaboration with the RCD, plans to continue to promote residential LID in the ASBS watershed.

As part of the Proposition 84 Fitzgerald Pollution Reduction Program, the County contracted with the RCD to encourage voluntary conservation on public/private properties through technical assistance and financial incentive programs for landowners to install BMPs to improve water quality to the ASBS. In

2013 and 2014, the RCD conducted sustainable landscaping assessments at residential properties throughout the ASBS watershed. LID BMP and landscape plans were then prepared for nine properties based on the assessment results. The overall objective of the proposed LID plans is to improve water quality to the Fitzgerald ASBS by reducing pollutant sources from the upland watershed areas. The LID project plans were specifically designed to reduce priority pollutants (i.e., fecal coliform from pet waste, pesticides, metals, and other vehicle and household derived pollutants) by capturing, storing, infiltrating, treating, and/or redirecting stormwater. Designs include combinations of rainwater catchment systems; vegetated swales; rain gardens; replacing driveways with permeable pavement; strategies to direct flow to vegetated areas; and roof installments over compost, confined animal structures, and chicken coop areas. The BMPs are expected to improve stormwater drainage and associated erosion issues due to impervious surfaces, steep slopes, and hard clay pan soils within the watershed. The plans included designs, construction specifications, landscaping plans, and erosion control plans which will be provided to the landowners. The goal is that following implementation by the landowner, the projects will serve as demonstration sites for the community both through site visibility and by community leadership provided by participating landowners.

As recommended by the Proposition 84-funded microbial source tracking (MST) study conducted as part of the Fitzgerald ASBS Pollution Reduction Program in 2012 (see Section 5.2.1), the County plans to coordinate with SMCWPPP, the RCD, and possibly BASMAA to develop an enhanced pet waste public information and outreach effort. Potential activities may include disseminating area-wide notifications (i.e., email alerts) to pick up backyard pet waste before wet weather events, conducting local school programs, and initiating a pledge effort. These efforts would inform residents about how waste enters waterways, how contamination can result in beach closures and threaten human health and wildlife, and remind people to clean up waste in their yards and where dogs are walked. These activities would result in increased awareness and will be prompts for direct action.

The County plans to coordinate with the RCD on development of an enhanced outreach effort to provide information to residents with livestock on ways to reduce potential water quality impacts related to animal feces. The effort may include technical assistance about BMPs (e.g. installing roofs over chicken coops) and development of site-specific manure management plans for residents or property managers. Outreach efforts may also include “get out of manure free” days to help reduce manure loads in the ASBS watershed. Outreach is a needed step to achieve sustained, long-term reductions in pollutant sources through behavioral and structural changes in manure management.

5.1.4. Non-Stormwater Discharge Elimination

Consistent with MRP Provision C.5 (Illicit Discharge Detection and Elimination), the County prohibits most non-stormwater discharges. County and SMCWPPP activities addressing this provision are described above in Section 4.1. Non-stormwater sources that are exempted from the discharge prohibition by MRP Provision C.15 are similar to those allowed under the Special Protections. County and SMCWPPP public outreach and education programs also target non-stormwater discharges. The County implements enhanced non-stormwater discharge elimination measures in the ASBS watershed. Related public outreach and education programs such as the annual Fitzgerald Special Edition Newsletters are described above in Section 5.1.2.

- Car washing: The Planning and Building Department will use its development review process to identify and require new/replaced hardscaped areas that could be used for car washing (e.g., driveways) to pipe/drain to adequately-sized vegetative areas or other on-site treatment facilities prior to discharge to any County storm drain system. Discharge to the sanitary sewer is prohibited (MWSD Code Section 3-7.100). The Department, as part of its public

information/assistance service, will rely on staff to distribute literature and provide education at the public assistance counter about the concern of car wash discharges to the ASBS and requirement for alternative means of car washing and/or car wash discharge within the ASBS watershed. Alternative means of car washing to be encouraged by the Department includes use of commercial car wash facilities and use of as little detergents as necessary (for on-site car washing activities). These measures are identified as encouraged by the Department rather than required since effective enforcement by the County would be infeasible.

- Swimming pools/hot tubs: The Planning and Building Department uses its development review process to prohibit the discharge from new/replaced/demo pools and hot tubs to storm drains. The majority of the Fitzgerald ASBS watershed is served by MWSD. MWSD allows pool discharge to the sanitary sewer system subject to the requirements in Section 3-8.800 of the MWSD Code (no permit required). Therefore, the Planning and Building Department imposes conditions of approval and/or requires under building permit review that pools and hot tubs within the ASBS watershed discharge to the sanitary sewer system. Alternatively, for properties that are served by private septic systems, pool or hot tub discharge is required to be dechlorinated and slowly discharged to landscaped areas (determined adequate to support the volume).
- Landscape Irrigation: The Planning and Building Department uses its development review process to require the use of drought tolerant and native vegetation and to prohibit fertilizer and pesticide use through conditions of approval within the ASBS watershed. The Department, as part of its public information/assistance service, relies on staff to educate citizens at the public assistance counter about the concerns of polluted irrigation water and other chemical discharge to the ASBS. The Department also implements the State of California Model Water Efficient Landscape Ordinance (effective January 1, 2010) which seeks to promote the conservation and efficient use of water. The Department requires compliance with the Ordinance for applicable projects as defined in Section 490.1 of the Ordinance. Pursuant to the Ordinance, landscape plans are required to be designed to protect and preserve native species and natural vegetation, use water-conserving plant and turf species, and use plants that are disease and pest resistant and adaptable to climate, geologic, and topographical conditions of a project site. Furthermore, irrigation design compliance includes use of sensors that suspend or alter irrigation operation during unfavorable weather conditions, manual shut-off valves, and strategic placement of irrigation heads to minimize runoff and overspray onto non-targeted areas (e.g., hardscapes, roadways or structures). Staff are trained to review landscape plans as part of development proposals for use of native, drought tolerant species (as regulated by other Planning policies and regulations). Staff will also be trained to review irrigation plans to ensure irrigation designs are efficient and effective.

5.1.5. Development Review

MRP Provision C.3 requires appropriate source control, site design, and stormwater treatment measures be incorporated into new development and redevelopment projects. Compliance with this Provision is accomplished primarily through the implementation of LID techniques required through the County Planning and Building Department's development review process. During this process, project applicants are required to complete a C.3/C.6 Development Review Checklist to determine the applicability of source control, site design, and stormwater treatment measures, based on the proposed project scope. Enhanced on-site source control, BMPs, and stormwater treatment are required at the planning approval, building permit, and construction phases for project sites within the Fitzgerald ASBS watershed to prohibit waste discharge into the ASBS and/or limit discharge in accordance with the

Special Protections. The Planning Department uses the planning permit review process as an opportunity to evaluate potential water quality effects and identify appropriate mitigation measures during environmental reviews and to impose conditions of approval that will minimize and/or eliminate potential water quality impacts, including into the Fitzgerald ASBS. All development within the ASBS watershed is reviewed to ensure compliance with the County's drainage policies and that any sources for pollution are treated appropriately on-site to minimize/eliminate source pollution to the County's storm drain system and subsequently to the Fitzgerald ASBS. All new point source discharges to the ASBS are prohibited and all non-stormwater discharges to a County storm drain are prohibited. DPW conducts routine inspections throughout construction for proper installation and construction of stormwater treatment measures for C.3 regulated project sites. Recordation of an Operations and Maintenance Agreement between the County and project applicant is required prior to final construction inspection for C.3 regulated sites to address the long-term operation and maintenance of stormwater treatment measures. The following is a step-by-step summary of the Planning and Building Permit Review process:

Summary of Planning and Building Permit Review Process

Planning applications for private construction within the ASBS watershed require a preliminary drainage plan for review and approval that identifies drainage patterns, onsite source controls and site design measures, and stormwater treatment measures as applicable to the project scope. Planning and DPW review these plans for compliance with the MRP, ASBS Special Protections, BMPs and other applicable land use regulations (General Plan, Local Coastal Program, Zoning Ordinance, Grading Ordinance, Confined Animal Ordinance). Conditions of approval are added to project decisions as necessary to ensure compliance. The building permit review process also includes review by the Planning and DPW to ensure construction plans are in compliance with any planning approval and conditions of approval and the MRP, ASBS Special Protections, BMPs, and other applicable land use regulations.

5.2. Structural BMPs

Structural BMPs involve the installation of engineering solutions to the physical treatment or infiltration of runoff. The Special Protections require that "BMPs to control storm water runoff discharges (at the end-of-pipe) during a design storm shall be designed to achieve on average the following target levels:

- (1) Table B Instantaneous Maximum Water Quality Objectives in Chapter II of the Ocean Plan; or
- (2) A 90% reduction in pollutant loading during storm events, for the applicant's total discharges."

New development and redevelopment projects in the Fitzgerald ASBS watershed implement the structural BMPs required by MRP Provision C.3. The MRP emphasizes the use of LID principles in project planning, including rain barrels and cisterns, green roofs, permeable pavement, preserving undeveloped open space, and biotreatment through rain gardens, bioretention units, bioswales, and planter/tree boxes. If stormwater runoff cannot be eliminated through the use of LID, stormwater treatment systems are required and must be sized according to the same design storm referenced in the Special Protections.

Additional structural BMPs are being implemented in the Fitzgerald ASBS watershed through the Fitzgerald Pollution Reduction Program. This program is described in detail below.

5.2.1. Proposition 84 Fitzgerald ASBS Pollution Reduction Program

The County and its grant partners at SMCWPPP; UCD; SFEI; and the RCD received a Proposition 84 Grant from the State of California to implement the multi-phased Fitzgerald Pollution Reduction Program. The purpose of the Proposition 84 Grant Program, administered by the State Water Board, is to implement

surface water quality improvement and source control projects to address potential discharges identified within ASBS watersheds. The Pollution Reduction Program contains several key elements which taken together are designed to help protect Beneficial Uses, improve water quality at public beaches and the ASBS, achieve the water quality objectives outlined in the Ocean Plan, comply with the Special Protections, and work towards de-listing the Reserve and San Vicente Creek for coliform bacteria. The project elements and their current status are listed in Table 5.1. Additional details for key elements are provided in the subsections below.

Table 5.1. Fitzgerald Pollution Reduction Program Elements and Status

Element	Status
1) Design, review, and implement pilot storm drain BMPs at multiple locations, including ASBS high threat discharge points.	Structural BMPs installed at 7 locations in 2011 and monitored in 2012 and 2013. See Table 5.2 and Figure 5.1 for BMP locations.
2) Storm drain inventory and assessment, identification of problem areas for erosion, litter, flooding, etc., and prioritization list of BMP and drainage improvement projects.	Completed February 2013. Identified hydraulic deficiencies and nine prioritized sites for BMP implementation (BKF 2013).
3) Pathogen source tracking/MST study in Montara, Dean, and San Vicente Creek watersheds.	Completed February 2013. Dog waste identified as primary contributor to fecal pollution during the wet season.
4) Agency and public outreach and education to communicate the significance of the natural resources of the ASBS (public workshops, surveys, outreach materials).	Website (www.smchealth.org/asbs) developed in 2011. LID workshop held in August 2012. Public Survey conducted in 2012. Annual newsletters published in 2012, 2013, and 2014 (Appendix A). Sustainable landscaping assessments and BMP plans prepared for residential properties by RCD in 2013 and 2014.
5) Phase 2 storm drain BMP implementation following evaluation of pilot BMPs, storm drain inventory and assessment, and MST study.	Phase 2 structural BMPs installed at 14 locations in 2013 and 2014 and the Reserve green parking lot retrofit in 2014. See Table 5.2 and Figure 5.1 for County BMP locations.
6) Structural BMP water quality monitoring to measure pollutant load reduction and project benefits.	Pilot BMP evaluation completed, showing that vegetated swales were most effective at removing target pollutants (SFEI 2013). Phase 2 evaluation to be completed in Spring 2015.
7) Future Planning, including development of a BMP Operation and Maintenance Plan; a plan for continuation of the Pollution Reduction Program, including future BMP implementation based on pollution load reduction forecasts generated from models developed by SFEI and calibrated with data from the current study; and assessment of County policies based on information gained from this program.	To be completed by March 2015.

Pilot Storm Drain BMPs

In the fall of 2011, the County conducted a pilot program to integrate several types of structural BMPs (including LID-type practices) into existing storm drain infrastructure at seven locations within the Fitzgerald ASBS watershed. The pilot BMPs included 1) native grass sod swales, 2) vegetated swales with under-drain systems, 3) flume filter storm drain inserts, and 4) a catch basin replacement vault with Stormwater Management StormFilter® cartridges. Pilot BMPs and locations are listed in Table 5.2.

During two storm events in March and April 2012, six of the BMPs were evaluated for performance (effluent water quality and pollutant removal) using a paired sampling approach with one water sample collected at the inflow of the treatment area and the other collected at the outflow. At three sites samples were analyzed for a comprehensive suite of urban runoff constituents including metals, PAHs, pyrethroid pesticides, suspended sediment, nutrients, and fecal indicator bacteria. The remaining three sites were sampled for conventional water quality parameters (conductivity, dissolved oxygen, pH, temperature, turbidity) and suspended sediment concentration only as a surrogate for other pollutants. SFEI (2013) reported results of the monitoring and concluded that BMPs were generally effective at reducing pollutant concentrations. Removal efficiencies varied depending on site specific and drainage area characteristics. SFEI (2013) noted that the flume filter inserts clogged quickly with leaf litter and sediment resulting in stormwater bypassing the BMPs and high maintenance needs. Although effective when functioning properly, flume filter inserts were not recommended for Phase 2 of the Program.

Using lessons learned from monitoring, implementation, and maintenance of the Pilot BMPs and the MST study, Phase 2 includes fifteen BMPs, with installation in 2013 and 2014. Grassy and vegetated swales will be installed at thirteen sites within the ASBS watershed and adjacent Kanoff Creek watershed. Phase 2 also includes a green street retrofit project involving the installation of two bioretention facilities and educational signs along Carlos Street in Moss beach. Phase 2 also included funding to implement portions of the Reserve Green Parking Lot Demonstration Project (near FIT025) that was originally envisioned in the Master Plan for the Reserve (Brady/LSA 2002). After several iterations, the County approved a design in 2014. The design includes construction of a trench drain to capture runoff from the parking lot which will then be routed to a bioretention basin to filter runoff before discharging to San Vicente Creek and the ASBS as well as an education sign. Construction is planned for fall 2014.

Phase 2 County BMP locations are listed in Table 5.2 and mapped in Figure 5.1. Performance monitoring of the Phase 2 County BMPs was conducted in 2013 and 2014 by SFEI. The monitoring report is in production as of September 2014 and will be summarized in the Final ASBS Compliance Plan to be submitted in September 2015.

Table 5.2. Fitzgerald Pollution Reduction Program Pilot and Phase 2 BMPs Installed by the County

ASBS ID	Site Name	Approx. Drainage Area	Pilot BMP	Pilot Comments	Proposed Phase 2 BMP
FIT002	Seacliff Ct.	<1 ac	Flume filter storm drain insert	Frequent maintenance due to roadside ditch erosion	120-ft grassy swale with grade checks
FIT003	7th St.	12.8 ac	Grassy swale	Only north drainage treated	Replace vegetation at Phase I BMP; construct 100-ft vegetated swale in south drainage; drainage controls
N/A	Main St.	10 ac	--	--	100-ft grassy swale
FIT006	11th St.	<1 ac	--	--	50-ft grassy swale; drainage controls
FIT008	14th St. N	--	--	--	115-ft grassy swale
FIT009	14th St. S	--	Flume filter storm drain insert	Frequent maintenance due to clogging	--
FIT015	Juliana Avenue	2.5 ac	Vegetated swale	Lower drainage not captured and treated	50-ft grassy swale in secondary ditch to treat lower drainage area
FIT024	Beach St.	<0.5 ac	--	--	70-ft grassy swale
FIT025	FMR Parking Lot	--	--	--	Trench drain and bioretention basin
Near FIT025	North Lake St. (San Vicente Creek)	1.4 ac	Catch basin vault with StormFilter cartridges	--	--
FIT027	Cypress & Beach Way	0.5 ac	Vegetated swale	Lower drainage area not captured and treated	40-ft grassy swale to treat lower drainage area
FIT029	Ocean Blvd & Bernal Ave	5 ac	Grassy swale	Swale damaged by parking & foot traffic	Replace & regrade grassy swale with 100-ft & 70-ft vegetated swales; add signage & fencing to prevent future trampling
FITNEW1	Carlos St. (in Wienke Way watershed)	0.6 ac	--	--	2 bioretention facilities
FITNEW1	Wienke Way	30 ac	--	--	100-ft vegetated swale
Kanoff Creek	4th St. (Kanoff Creek)	0.5 ac	--	--	105-ft grassy swale
Kanoff Creek	Farallone @ 4th St.	10 ac	--	--	130-ft vegetated swale
Kanoff Creek	Farallone @ 3rd St.		--	--	215-ft vegetated swale
Kanoff Creek	Farallone @ 2nd St.		--	--	90-ft vegetated swale; drainage infrastructure improvements

Notes: ac = acre, ft = feet

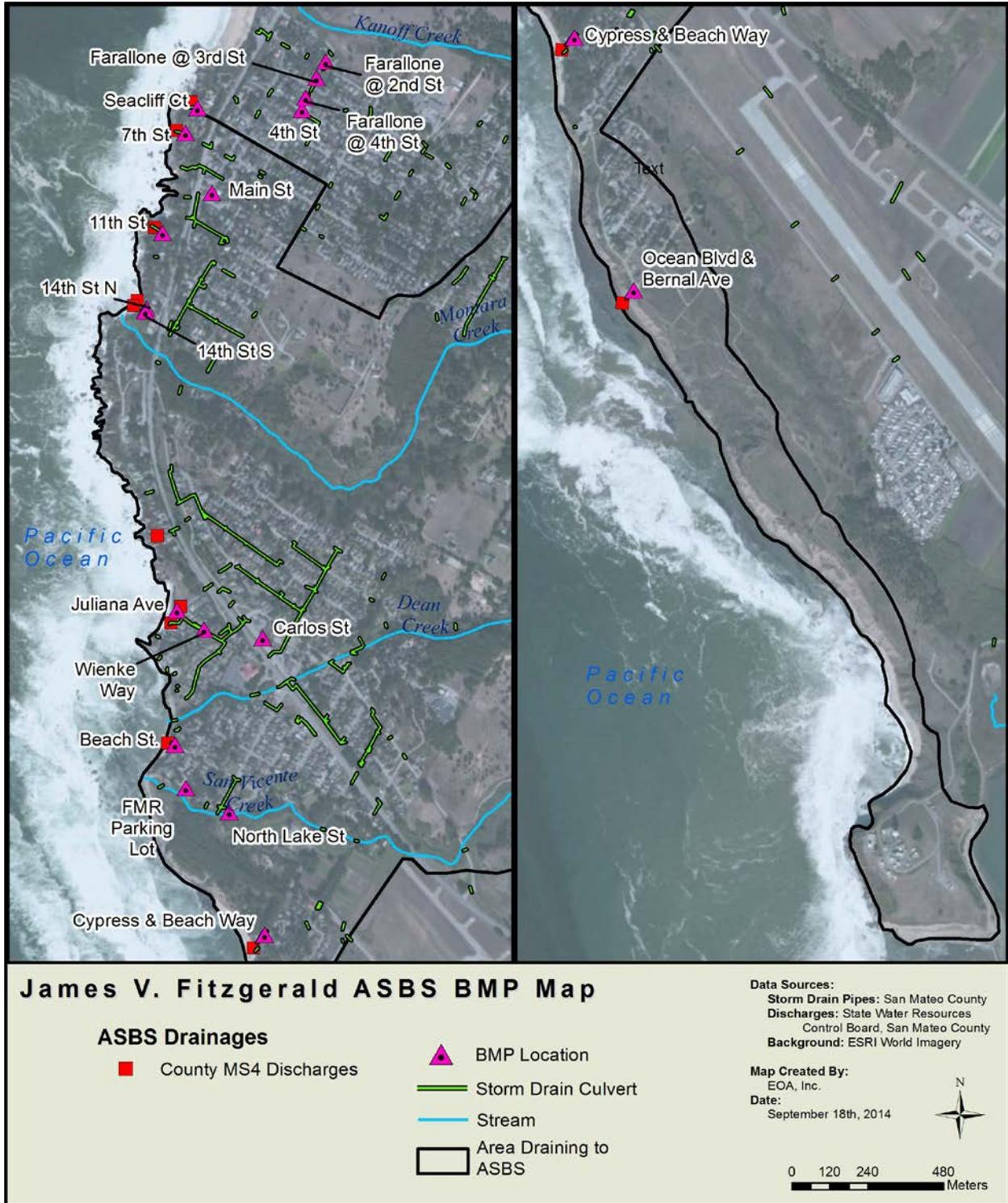


Figure 5.1. Phase 2 BMP Locations at County Storm Drains, Fitzgerald Pollution Reduction Program

6.0 MONITORING

Water quality monitoring within the Fitzgerald ASBS and its watershed is conducted under several types of programs. Monitoring of discharges and receiving water required under the Special Protections is described below in Section 6.1. Monitoring designed to show the effectiveness of BMPs installed through the Fitzgerald Pollution Reduction Program is described above in Section 5.2.1.

6.1. Central Coast ASBS Regional Monitoring Program

The ASBS Special Protections contain monitoring requirements for identified discharges to ASBS. These mandatory requirements include the Core Discharge Monitoring Program and the Ocean Receiving Water and Reference Area Monitoring Program. In order to meet the monitoring requirements, the County has joined the Central Coast ASBS Regional Monitoring Program (CCRMP). This program involves gathering and analyzing the monitoring data required by the Special Protections for identified discharge outfalls (over 18 inches in diameter) and receiving waters.

The CCRMP was developed through discussions with staff from State and Regional Water Boards and ASBS responsible parties extending from Marin County to Big Sur, including the County. Applied Marine Sciences (AMS) was selected to direct and perform the scientific monitoring needs of the CCRMP members, including field and follow-up analytical and statistical work. The initial monitoring program entails collecting water samples before and during three storms from the discharge and receiving waters in each of two years. Samples are analyzed for a comprehensive suite of constituents, including toxicity, per Special Protections requirements. The CCRMP includes five outfalls that discharge to the Fitzgerald ASBS:

- FIT012 – 24-inch concrete ditch near Maritime Walk;
- FIT015 – 1 to 2-foot wide earthen ditch below 12-inch CMP near Juliana Avenue;
- FIT028 – 48-inch concrete gutter below 15-inch PVC near Moss Beach Distillery Restaurant;
- FITNEW1 – 36-inch RCP near Wienke Way (listed as FIT016 in CCRMP Scope of Work); and
- FITNEW2 – 24-inch AC road swale draining at Madrone Avenue draining to bluff gully on private property (listed as FIT029 in CCRMP Scope of Work).

Receiving water is monitored in the surf zone at the point of contact between runoff from the 36-inch RCP near Wienke Way and the Pacific Ocean. Two reference sites for the Fitzgerald ASBS were selected as part of the CCRMP. They were selected based on watershed characteristics with greater than 90 percent open space and no listed water quality impairments (AMS 2014). The reference site sampling locations are in the surf zone at the mouth of the Tunitas Creek and Gazos Creek watersheds in San Mateo County.

The CCRMP developed a Quality Assurance Project Plan (QAPP; AMS 2014), a set of standard operating procedures (AMS 2013), and has completed sampling from three storms at the outfall and receiving water locations during water year² 2014. The required second storm season monitoring will be conducted during water year 2015. Water quality and biological results collected over two years of the

² A “water year” begins on October 1 and concludes on September 30 of the named year. For example, water year 2014 (WY2014) will begin on October 1, 2013, and continue through midnight on September 30, 2014.

CCRMP program will be analyzed to evaluate the relative health of the ASBS. These efforts are also meant to identify any potential urban storm water discharges that may be impacting the health of the ASBS. A final report describing the results of the CCRMP monitoring will be completed in summer 2015.

If, based upon the results of the CCRMP monitoring, it is determined that stormwater runoff from the County's identified discharges is causing or contributing to an alteration of natural ocean water quality in the ASBS, the County will report to the Regional Water Board within thirty days. This report will identify which constituents were indicated and what BMPs are being implemented or planned to address the alteration of natural water quality. Such a report would also trigger an update of the County's ASBS Compliance Plan within thirty days.

6.1.1. Process for Exceedances

The process for evaluating whether alterations of natural ocean water quality in the Fitzgerald ASBS are the result of discharges from the County ASBS drainage points is still in development. If exceedances of Ocean Plan WQOs are observed at outfall stations, it does not necessarily imply that natural ocean water quality will be altered. Nor would observed alterations in natural ocean water quality necessarily be caused by discharges from the land-based watershed. Dilution processes are an important consideration as well as ocean influences that may not be detected at the reference stations. The challenges in establishing these types of links will be considered as the regional natural water quality process and standards are defined.

7.0 COMPLIANCE AND IMPLEMENTATION SCHEDULE

The County's ASBS Special Protections implementation schedule is included as Table 7.1.

Table 7.1. San Mateo County ASBS Special Protections Implementation Schedule

Element	Deadline	Remarks
Prohibit all non-authorized non-stormwater discharges and trash.	Mar. 20, 2012	Completed consistent with MRP (Section 4.1) and County Code of Ordinances (Section 4.5). Additional ASBS-specific non-stormwater discharge elimination measures targeting car washing, swimming pool releases, and landscape irrigation are described in Section 5.1.3.
Implement non-structural BMPs including inspection program.	Sep. 20, 2013	Completed and ongoing consistent with MRP (Section 4.1) and this Draft Compliance Plan. <ul style="list-style-type: none"> The construction, industrial, commercial, and storm drain outfall inspection program is described in Section 5.1.1. Other non-structural BMPs include ASBS-targeted public outreach and education (Section 5.1.2) and development review (Section 5.1.4). The Fitzgerald Pollution Reduction Program also includes future public outreach measures to be implemented that will target pet and livestock (horse) owners (see Section 5.2.1).
Submit Draft Compliance Plan to State and Regional Water Boards.	Sep. 20, 2014	Completed with submittal of this Draft Compliance Plan
Submit Final Compliance Plan to State and Regional Water Boards.	Sep. 20, 2015	Contingent upon receipt of comments from Regional Water Board
Any additional structural BMPs determined necessary to comply with Special Protections are operational.	Mar. 20, 2018	Fitzgerald Pollution Reduction Program BMP implementation ongoing through November 2014 (see Section 5.2.1 for details): <ul style="list-style-type: none"> Pilot BMPs installed at seven locations in 2011 and monitored for effectiveness in 2012. Phase 2 BMPs installed at fifteen locations in 2013 and 2014.
Discharges from Fitzgerald ASBS watershed do not alter natural ocean water quality in ASBS.	Mar. 20, 2018	Reference and receiving water quality will be characterized as part of CCRMP monitoring planned for water years 2014 and 2015. The need for additional non-structural and structural BMPs to maintain natural ocean water quality will be assessed following review of monitoring data.

8.0 REFERENCES

- Applied Marine Sciences (AMS). (2013). Standard Operating Procedures. The Central Coast Areas of Special Biological Significance Regional Monitoring Program and Reference Site Monitoring. Prepared for Monterey Regional Water Pollution Control Agency. Version 1.1. May 2013.
- Applied Marine Sciences (AMS). (2014). Quality Assurance Project Plan. The Central Coast Areas of Special Biological Significance Regional Monitoring Program and Reference Site Monitoring. Prepared for Monterey Regional Water Pollution Control Agency. Version 1.3. March 2014.
- BKF Engineers (2013). Midcoast Storm Drain Inventory and Assessment Project Drainage Report. Prepared for County of San Mateo. February 2013.
- Brady/LSA. (2002). Fitzgerald Marin Reserve Master Plan (Final Draft). Prepared for San Mateo County, Division of Parks and Recreation. May 2002.
- California Coastal Commission. (2008). Nonpoint Source Watershed Assessment: James Fitzgerald Marine Reserve Critical Coastal Area. December 2008.
- County of San Mateo (County). (2012). Baseline Trash Load and Short-Term Trash Load Reduction Plan. February 2012.
- County of San Mateo (County). (2014). Long-Term Trash Load Reduction Plan and Assessment Strategy. February 2014.
- Harding Lawson and Associates. (1993). James V. Fitzgerald Marine Reserve Baseline and Carrying Capacity Study. Prepared for the County of San Mateo, Department of Environmental Services. Redwood City, California.
- San Francisco Estuary Institute (SFEI). (2008). An Introduction to the Historical Ecology of the Fitzgerald Marin Reserve CCA: A Tool for Developing an Action Plan for the Critical Coastal Areas Program. May 2008.
- San Francisco Estuary Institute (SFEI). (2012). Final James V. Fitzgerald Area of Special Biological Significance Pollution Reduction Program, Pilot BMP Summary Report. Grant Identification Number 10-402-550. March 2013.
- San Francisco Estuary Institute (SFEI). (2012). Environmental Monitoring Project Plan for James V. Fitzgerald Area of Special Biological Significance Pollution Reduction Program. Grant Identification Number 10-402-550. May 2012.
- San Francisco Estuary Institute and University of California, Davis (SFEI and UCD). (2013). James V. Fitzgerald Area of Special Biological Significance Pollution Reduction Program, Microbial Source Tracking Study Summary Reports. Grant Identification Number 10-402-550. February 2013.
- San Francisco Regional Water Quality Control Board (Regional Water Board). (2010). San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan).
- San Mateo Countywide Stormwater Pollution Program. 2002. Characterization of Imperviousness and Creek Channel Modifications for Seventeen Watersheds in San Mateo County. January 2002.

Southern California Coastal Water Research Project (SCCWRP). (2003). Summation of Findings. Natural Water Quality Committee 2006-2009. Prepared for the State Water Board.

Southern California Coastal Water Research Project (SCCWRP). (2010). Final Report: Discharges into State Water Quality Protection Areas. Technical Report 625. September 2010.

State Water Resources Control Board (State Water Board). (1979). California Marine Waters Areas of Special Biological Significance Reconnaissance Survey Report. James V. Fitzgerald Marine Reserve, San Mateo County. Surveillance and Monitoring Section. Water Quality Monitoring Report No. 79-12.

State Water Resources Control Board, Ocean Unit, Division of Water Quality (State Water Board). (2006). Status Report – Areas of Special Biological Significance. August 2006.

State Water Resources Control Board (State Water Board). (2009). California Ocean Plan. Water Quality Control Plan. Ocean Waters of California. Sacramento, CA.

State Water Resources Control Board (State Water Board). (2012). Program Final Environmental Impact Report, SCH# 2011012042, Exception to the California Ocean Plan for Areas of Special Biological Significance Waste Discharge Prohibition for Storm Water and Nonpoint Source Discharges, with Special Protections.

Tenera Environmental. (2004). James V. Fitzgerald Marine Reserve: Resource Assessment. Prepared for San Mateo County Environmental Services Agency.

Tenera Environmental. (2007). Marine Resource Description: Pillar Point Storm Water Outfall in the James V. Fitzgerald ASBS. Prepared for the US Air Force and Tetra Tech, Inc.

Wilson, R.C., and Keefer, D.K. (1985). Predicting areal limits of earthquake-induced landsliding. USGS Professional Paper 1360.

Appendix A

Fitzgerald Special Edition Newsletters

Fitzgerald Special Edition



PROTECTING THE MARINE RESERVE TOGETHER

S U M M E R 2 0 1 2

LEARN MORE ONLINE:

- See maps of the Reserve, the ASBS, and the pilot projects
- View photos of the Reserve and the incredible sea life there, plus before-during-and-after shots of swale construction
- Read about the Reserve's history
- Find links to more great resources online, local groups, and upcoming events

For all this and more, visit

www.smchealth.org/asbs

INSIDE THIS ISSUE:

Protections	2
Survey link	2
Pollution Reduction	2
Alphabet Soup	3
Vegetated Swales	3
Kids' Corner	4
Events	4

Partnering to Protect a Special Area

Have you visited the James V. Fitzgerald Marine Reserve (Reserve), and felt the ocean breeze, listened to the surf, or enjoyed looking at the birds, seals, tidepool creatures, and surrounding landscape?

It's an area worth protecting; and several different legal structures are in place to help do that (see page 3 article).

The Reserve includes 370 acres of intertidal and subtidal marine habitat below the high tide line and 32 acres of upland coastal bluffs with elevations up to 100 feet. San Mateo County Parks manages the Reserve area beginning 3 miles south from Point Montara to the south end of Pillar Point and 1,000 feet west into the ocean from the mean high tide line. The Department

of Fish and Game has authority below the mean high tide line.

The State Water Resources Control Board oversees the larger Area of Biological Significance (ASBS) that the Reserve fits within.

Because everyday upstream activities may affect the incredible diversity of life within the ASBS, the County is now

partnering with UC Davis, San Francisco Estuary Institute, and the San Mateo County Resource Conservation District on the Fitzgerald ASBS Pollution Reduction Program. Projects through 2015 will focus on keeping stormwater draining to the Reserve from nearby properties as clean as possible.

We need your help too.



Pollution Prevention Tips

If you visit, live, or work in Moss Beach or Montara, you can help protect the Reserve. How?

By remembering that everything that touches the ground can wash down storm drains to the ocean.

Tips:

- Garden with non-toxic pesticides and fertilizers
- Take your car to a commercial car wash
- Dispose of motor oil, paint and other chemicals properly
- Keep all dirt from construction projects on your property
- Pick up litter
- Pick up after your pet

Visit www.flowstobay.org for more!

Funding for this project has been provided in full or in part through an agreement with the State Water Resources Control Board. The contents of this document do not necessarily reflect the views and policies of the State Water Resources Control Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

How is this Special Area Protected?



Different sets of laws and regulations protect the Fitzgerald Marine Reserve and may affect you even when you aren't at the beach.

On the Shoreline

- Only visit the Reserve between sunrise and sunset
- Don't camp, set fires, or smoke
- No dogs or pets on the beach

- No collecting! Leave pails and nets at home, and shells and other keepsakes on the beach.
- No fishing
- Don't disturb plants or animals
- Don't turn over rocks—the creatures underneath are delicate
- Walk around tidepools, not through them
- Keep 300 feet from harbor seals
- Leave no trace behind

In Your Neighborhood

If you live upstream from the Reserve, there are steps you can take to make sure that rain, landscape irrigation, or car washing from your property does not impact the Reserve.

Visit www.flowstobay.org or www.smchealth.org/asbs for more!

Take a quick survey about the Reserve and enter to win prizes!

www.smchealth.org/asbs

Fitzgerald Pollution Reduction Program

Grant funding for this program is being provided by the State Water Resources Control Board. Three projects have already begun: stormwater management pilots, a storm drain inventory, and microbial source tracking study.

What Filters Best?

A variety of best management practices (BMPs) for stormwater are being installed and tested at ten locations near the Reserve. Vegetated swales and water filter devices are in place now, with a green parking lot makeover planned at

the Reserve.

Which Storm Drains?

A Storm Drain Inventory and Assessment was recently conducted by BKF Engineers, a local engineering firm. The study involved detailed GPS/GIS mapping and hydraulic modeling of the County storm drain system.

The goal of the study was to identify priority locations within the Reserve and ASBS watershed for installation of storm water filtration BMPs to remove pollutants from storm water and to identify

storm drain locations that are prone to flooding. The report was completed in May 2012 and will be used to help the County select BMP locations for the second phase of the grant.

What's the Source?

For the Microbial Source Tracking (MST) study, researchers from UC Davis will collect water samples from Martini, Kanoff, Montara, Dean/Sunshine Valley, and San Vicente Creeks. Genetic analysis will help to identify potential sources of fecal contamination (human, dog, bird, cow, or horse).



What Do All those Letters Stand For?

The James V. Fitzgerald Marine Reserve is an ASBS, part of an MPA, and part of a MS too! So?

ASBS stands for **Area of Special Biological Significance**. There are 34 ocean areas along the California coastline designated as an ASBS, which are monitored and maintained for water quality by the [State Water Resources Control Board](#). ASBS cover much of the length of California's coastal waters. They support an unusual variety of aquatic life, and often host unique

individual species. ASBS are basic building blocks for a sustainable, resilient coastal environment and economy.

MPA stands for **Marine Protected Area**. California maintains three kinds of MPAs: state marine reserves, state marine parks and state marine conservation areas. They are designated specifically to protect aquatic life, and often are associated with ASBS. MPAs are designated by the [California Department of Fish & Game](#) and the [California Department of Parks and Recreation](#).

Marine Sanctuaries (MS) are federally designated areas similar to national parks. They often cover vast areas and offer another layer of special protection for the aquatic life and water within their boundaries. They are managed by the [National Oceanic and Atmospheric Administration \(NOAA\)](#). There are four National Marine Sanctuaries off the coast of California. They often are associated with ASBS.

For the full list of native species used in the swales and more photos of all four sites, visit www.smchealth.org/asbs

Vegetated Swales - Beauty in Action

Problem: when water runs off of streets, parking lots and sidewalks quickly, it carries all sorts of pollutants to the nearby creeks and ocean with it, and can cause erosion as well.

Solution? Create a shallow ditch filled with native plants, called a vegetated swale. The swale will slow down and partially absorb the flow of stormwater, and remove pollutants before they reach the open waters nearby.

As part of the Fitzgerald ASBS Pollution Reduction Program, the County is testing different ways of constructing vegetated swales at four locations in Montara and Moss Beach.

Ocean Boulevard

The County contracted with Blue Sky Designs to design and install a vegetated swale. In the fall of 2011, gravel, dirt, and non-native plants were replaced with native

Before



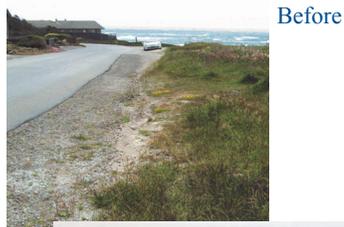
After

grass sod.

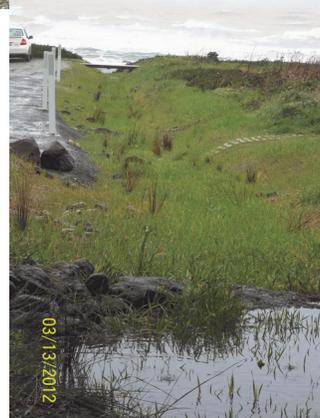
By this spring, the swale was lush and green, blending in beautifully and doing its work as a filter.

Juliana Avenue

The County contracted with Go Native to design and install a swale using an under drain system, permeable pavers, and a mix of native plants including grasses and wetland species.



Before



During re-construction

At work on a rainy March day

Kids' Corner

Spotlight on Harbor Seals

Word Search

H	A	U	L	O	U	T	Z	A	W
B	R	O	T	J	H	U	E	X	A
M	P	I	M	V	C	F	V	K	T
A	N	Q	S	E	A	L	G	W	E
M	H	X	W	B	L	I	T	S	R
M	Y	P	I	U	D	P	U	P	I
A	O	Z	M	G	Y	P	T	O	L
L	F	O	R	A	G	E	F	T	Q
C	E	S	D	N	J	R	K	S	X
S	A	L	M	O	N	W	R	F	M



Seals catching some rays

FUN FACTS

How big are they?
From 4 to 6 feet long, and up to 310 pounds

What do they eat?
Rockfish, cod, herring, flounder, and salmon

Where do they sleep?
They can sleep under water (coming up for air every 30 minutes); but they like to doze in safe spots on land, called haulouts.

Can you find these?

Seal, flipper, pup, forage, water, haulout, salmon, swim, spots, mammal



Quick Quiz

What should I do if I find a seal pup alone at the Fitzgerald Marine Reserve, or on any beach?

- A. Take it home
- B. Sing it a song
- C. Keep your distance
- D. Take a photo

For the right answer, check the bottom of this page

2012 Coastside Events

Half Moon Bay July 4th Parade

Dress as your favorite tidepool creature!
with [Friends of Fitzgerald Reserve](#)

Coastal Cleanup Day Sept 15

Pitch in to pick up litter at Mirada Surf or another Coastside beach.
Visit [flowstobay.org](#) for full details

Pumpkin Festival Parade Oct 13

Dress as your favorite tidepool creature!
with [Friends of Fitzgerald Reserve](#)

Stewardship Work Parties

First Saturdays and third Wednesdays, May through August.
Organized by [Coastside Land Trust](#)



Rangers unlock tidepool secrets

Workshop August 25

Protecting Coastal Watersheds

(Residential low impact development — LID)
Cypress Meadows 10 am - 1pm
343 Cypress Avenue, Moss Beach

Five focus areas:

1. Bioswales and Rain Gardens
2. Pervious Pavements and Permeable Pavers
3. Irrigation and Pesticide Use
4. Rainwater Harvesting and Gray Water Reuse
5. LID Features for Small Projects and MRP Requirements

Check online for additional events in your area
[www.smchealth.org/asbs](#)

Quiz Answer: C - stay back! Its mother is off finding food; and it needs to rest.

Fitzgerald Special Edition



PROTECTING THE MARINE RESERVE TOGETHER

S U M M E R 2 0 1 3

LEARN MORE ONLINE:

- See maps of the Reserve, the ASBS, and the pilot projects
- View photos of the Reserve and the incredible sea life there, plus before-during-and-after shots of swale construction
- Read about the Reserve's history
- Find links to more great resources online, local groups, and upcoming events

For all this and more, visit

www.smchealth.org/asbs

INSIDE THIS ISSUE:

Historical Ecology	2
Pollution Reduction Updates	2
Microbial Source Tracking	3
Help for Homeowners	3
Your Garden Score	3
Kids' Corner	4
Events	4

What's in the Water?

During the 2012-2013 rainy season, rainwater runoff from properties and streets in Montara and Moss Beach was sampled to determine the quality of stormwater draining to the Fitzgerald Marine Reserve (Reserve) and to assess the effectiveness of Best Management Practices (BMPs) designed to remove pollutants from the stormwater runoff.

This effort is part of a larger project called the *James V. Fitzgerald Area of Special Biological Significance Pollution Reduction Program* (Fitzgerald Project) that is led by the County of San Mateo, in collaboration with the San Mateo County Resource Conservation District (RCD) and the San Francisco Estuary Institute (SFEI).

A total of 82 samples were collected from six pilot BMP locations in Montara and Moss Beach where roadside ditches have been converted to vegetated swales, and where storm drain

filtration devices have been installed. Based on water quality testing results prior to treatment, pollutants of concern include metals (copper, lead, nickel, zinc), polycyclic aromatic hydrocarbons (PAHs), permethrin pesticides, sediment, and fecal indicator bacteria (FIB).

Where do these pollutants come from?

Many of these pollutants are related to vehicles and combustion. For example, copper from brake pads and zinc from tire wear can end up in stormwater. PAHs from fuel burning (i.e., engine combustion, wood), diesel particulates, fluid leaks from cars, and the breakdown of the roadway surfaces can also end up in the storm drain system.

Elevated levels of FIB, such as *E. coli*, a bacteria found in feces from humans, pets, and



wildlife, can leak from septic lines or wash off from yards.

Other pollutants such as sediment can result from erosion due to bare soil that is exposed to rainfall during the winter (i.e., from improper grading & construction practices, trails, rural roads). Contaminants can also come from building materials (i.e., roofs and gutters) and household products used in the yard.

Read more in this issue to find out how you can help and what the County is doing to reduce stormwater pollution.

Antsy? Get Better Pest Control

Water quality monitoring results revealed elevated levels of permethrin in stormwater at several of the sampled BMP locations. Permethrin is a type of pyrethroid pesticide that is found in many of the leading bug sprays sold at nursery or hardware stores for control of common pests such as ants,

cockroaches, grubs, termites, and wasps. These products can be highly toxic to aquatic organisms, cats, and beneficial insects that naturally keep pest populations under control.

Fortunately, there are effective alternatives to these chemicals and products. For ant control, learn more at:



Common pest control products

www.GotAntsGetSerious.org

For other pests, visit:

www.flowstobay.org/pestcontrol

Funding for this project has been provided in full or in part through an agreement with the State Water Resources Control Board. The contents of this document do not necessarily reflect the views and policies of the State Water Resources Control Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

Fitzgerald 100+ Years Ago: Historical Ecology

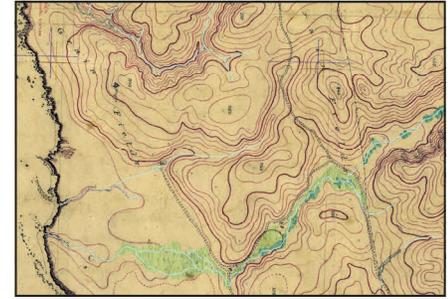
What if we could see the Fitzgerald Marine Reserve (Reserve) as it existed a decade ago? A century ago?

Understanding the historical landscape and how it has changed over time can help address many of the challenges associated with managing and planning for the future of local watersheds. The study of how the system functioned often reveals ways to restore native habitats within our developed landscape to create a healthy

ecosystem with both wildlife and recreational benefits.

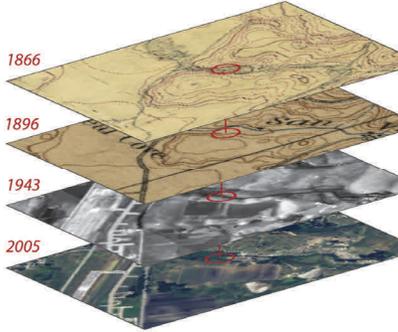
Because local scientists have been visiting the Reserve for over 100 years, we have good documentation of changes since 1911. And other sources let us look back even further, to times when only native inhabitants used the Reserve area resources.

Visit the San Francisco Estuary Institute's project online at



San Vicente creek in 1866. Freshwater marsh (light green) merges into willow riparian forest (dark green) along the creek.

www.sfei.org/node/1368 and learn how their research can be used to set priorities for the Reserve area's preservation and restoration.



Photos courtesy of [San Francisco Estuary Institute](http://SanFranciscoEstuaryInstitute.org)

www.smchealth.org/asbs

Updates: Pollution Reduction Program

Since the pilot phase of the Fitzgerald Project began in June 2011, the County has installed four vegetated swales and three storm drain filtration devices to filter out pollutants in roadside drainages before they reach the Reserve.

Two vegetated swale designs were implemented. One design involved the use of a native grass sod for biofiltration. The other design involved an under-drain system coupled with permeable pavers, rock weirs, and a mixed palette of native plants including grasses and wetland species.

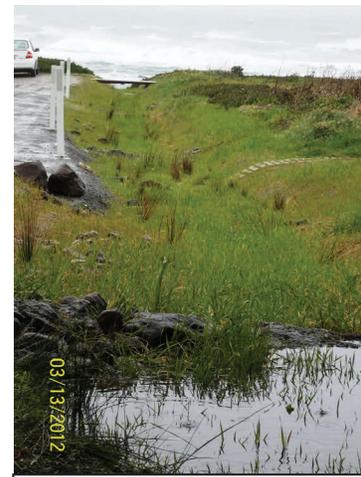
The filtration devices included two designs, a box unit filled with granular filter material and a catch basin replacement vault with filtering cartridges. For more photos of these BMPs, visit www.smchealth.org/asbs

Water quality monitoring by SFEI showed that the vegetated swales reduced pollutant levels

by 30% to 100%, depending on the type of pollutant and site characteristics. The filtration devices were also effective at removing pollutants but were generally more costly due to the need for increased maintenance such as sediment removal and filter replacement.

In August 2012, the County hosted a residential low impact development (LID) workshop. Topics included bioswales, rain gardens, pervious pavements and permeable pavers, irrigation and pesticide use, and rainwater harvesting.

The County is now preparing for Phase 2 of the Fitzgerald Project where additional roadside ditches in Montara and Moss Beach will be converted to vegetated swales designed to help remove pollutants from stormwater runoff. County planning efforts are continuing to retrofit the Reserve parking lot in order to treat runoff before it



Vegetated swale, Moss Beach

enters San Vicente Creek and the Reserve.

Phase 2 of the project will also involve work by the RCD on private and open space properties throughout the ASBS watershed (Read more on Page 3).

Visit www.smchealth.org/asbs for a list of Phase 2 sites and to view presentations from the LID workshop.



Flume filter box, 14th Street, Montara

What's the Source of that Bacteria?

Have you ever noticed a sign at the Fitzgerald Marine Reserve near San Vicente Creek warning visitors that creek water and beaches are contaminated and may not be suitable for swimming or other contact recreation?

Did you know that San Vicente Creek and the Reserve are listed by the Regional Water Quality Control Board as impaired due to coliform bacteria?

With the help of scientists from UC Davis and SFEI, the County is looking into the sources of the bacteria. Genetic analysis was performed to determine the prevalence of a universal *Bacteroidales* genetic marker and host-specific genetic markers from human-, bovine-, dog-, and horse-associated *Bacteroidales*.

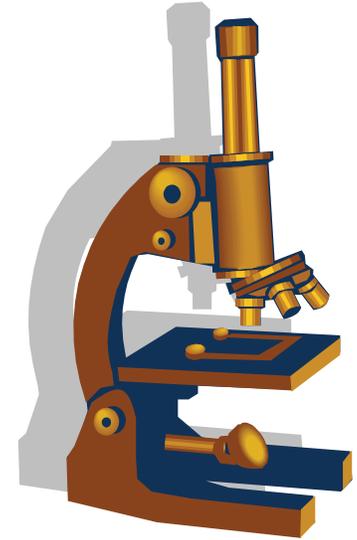
This evolving watershed management tool, called Microbial Source Tracking (MST), is used to help determine potential sources of fecal contamination in our waterways. MST based on genetic analysis of *Bacteroidales* (a specific type of fecal bacteria) is considered a state-of-the-art methodology, and UC Davis is at the fore-

front in the development and use of it.

For this study, UC Davis scientists collected a total of 58 samples (water, sediment, and biofilm on plants) from Martini, Kanoff, Montara, Dean/Sunshine Valley, and San Vicente Creeks just upstream of the confluence with the Pacific Ocean. SFEI researchers collected additional samples at multiple sites within the same five watersheds and tested them for the standard fecal indicator bacteria (FIB) – coliform bacteria, *E. coli*, and *Enterococcus*.

The MST results showed that FIB levels were highest during the rainy season. Results also confirmed the presence of fecal contamination in the tested creeks from human, dog, bovine, and horse sources.

Of the four markers that were tested, dog appears to be the most prevalent source during the rainy season. There may be other more significant sources of fecal pollution present that were not characterized as part of this study, such as wildlife or other domestic animals, but more research is needed. For the full report, visit www.smchealth.org/asbs.



What You Can Do to Help

- Pick up after your pets. Pet feces left in the backyard during rain can lead to increased fecal bacteria counts in our creeks and ocean.
- Make sure your sewer laterals and septic systems are working properly and do not have cracks or leaks.

Free Technical Assistance to Homeowners

The San Mateo County Resource Conservation District (RCD) works with landowners to achieve conservation through voluntary actions. The RCD provides free and confidential technical assistance to private and public landowners and currently has a grant to help fund improvements that benefit the Fitzgerald ASBS watershed.

RCD CAN:

- Help residents interested in landscaping with native plants or harvesting rainwater
- Help residents with manure management
- Raise awareness about the importance of cleaning up dog waste and help organize clean-ups
- Help residents improve drainage to minimize runoff of water contaminated by common household pollutants (e.g. pet waste, pesticides, metals)
- Help landowners improve rural roads or trails so there is less sediment or pollutant runoff entering the Fitzgerald ASBS

If you live in the Fitzgerald ASBS watershed (nearly all of Moss Beach and Montara) and are interested in talking with the RCD about potential projects on your property, please contact Irina Kogan by email: irina@sanmateorcd.org or phone 650-712-7765 x107.



How Does Your Garden Score?

- ◆ Building healthy soil
- ◆ Reducing waste in the garden
- ◆ Conserving water
- ◆ Creating wildlife habitat (for birds and pollinators)
- ◆ Protecting local watersheds and the ocean
- ◆ Contributing to a healthy community
- ◆ Saving energy

The RCD will provide FREE backyard habitat/garden assessments to homeowners. Some funds will also be available to help implement improvements!

Contact Chelsea Moller by email: Chelsea@sanmateorcd.org or phone 650-712-7765 x105.

Kids' Corner

Spotlight on Tide Pool Critters

Connect the Critter



Draw a line from the name of the tidepool creature to its picture.

Starfish



Sea lemon



Sunburst anemone



Kelp scallop



Ostrich-feather hydroid

Hermit crab



Red barnacles



Harbor seal pup



Find these critters and more online at www.fitzgeraldreserve.org (and thank [Friends of Fitzgerald Reserve](#) for the photos)

Quick Quiz

You can protect these tidepools critters by:

- A. Washing your car at the carwash
- B. Always putting litter in the trash can
- C. Cleaning up after your dog
- D. Controlling bugs without pesticides

For the right answer, check the bottom of this page

2013 Coastside Events

Coastal Cleanup Day Sept 21

Pitch in to pick up litter at Mirada Surf or another Coastside beach.

Visit flowstobay.org for full details

Volunteering at the Reserve

Friends of Fitzgerald trains volunteers to help out at the tidepools. For details,

visit www.fitzgeraldreserve.org

or

Partner with a park ranger to help educate visitors. Visit the County Parks volunteer page for more details.

www.smcgov.org/parks

Coastside Cleanup Days and Educational Events

Organized by Coastside Land Trust

Visit www.coastsidelandtrust.org for details.



First Flush

Late September/ early October

Volunteers sample local storm drains during the first big rain of the winter season.

Contact the RCD for more information and to sign up. (650-712-7765)

Check online for additional events in your area
www.smchealth.org/asbs

Quiz Answer: All of these are good choices for water quality protection.

Protecting the Marine Reserve Together



Get the Scoop on Pet Poop



I would never leave a mess on the beach. I trained my owner right.

You scoop up after your dog on walks, right?
Excellent!

Don't forget to scoop up after pets in your yard, too.



Clean up on the trail, in the barn, and in the paddock. I have a reputation to maintain.

Why?

- ◆ Pet waste is like raw sewage.
- ◆ It contains fecal coliform bacteria and other disease-causing organisms such as salmonella, roundworms and giardia.
- ◆ When it rains, bacteria and organisms in pet waste are carried by runoff to storm drains and creeks that flow to the beach and ocean.
- ◆ High quantities of these bacteria and organisms contaminate water used by swimmers, surfers, boaters, and sea life.
- ◆ Testing of Coastside creeks and beaches during storms has indicated high levels of bacteria.



Me? A threat to harbor seals? OK, I'll use the litterbox.



Help keep the Coastside safe and clean for everyone to enjoy!

Clean Water. Healthy Community. It's a Team Effort.

Together, we've banned plastic bags and polystyrene, installed over 800 trash capture devices in storm drains, and cleaned more than 30 hotspots. 1,000's of friends and neighbors joined in cleanups at our beaches, parks, and neighborhoods, collecting over 30,000 lbs of trash in 2012 alone!

Together, our efforts made a significant dent in the amount of trash on our streets, in our communities and in the environment, but more work is needed. Join us in this Team Effort!



Fitzgerald Special Edition



PROTECTING THE MARINE RESERVE TOGETHER

SUMMER 2014

LEARN MORE ONLINE:

- See maps of the Reserve, the ASBS, and the pilot projects
- View photos of the Reserve and the incredible sea life there, plus before-during-and-after shots of swale construction
- Read about the Reserve's history
- Find links to more great resources online, local groups, and upcoming events

For all this and more, visit

www.smchealth.org/asbs

INSIDE THIS ISSUE:

RCD Projects 2

Program Updates 3

Coastside Events 3

Kids' Corner 4

Preventing Pollution at Home

Did you know that there are actions you can take at home to prevent stormwater pollution? Common activities like car washing, yard care, and pest control can result in polluted stormwater, which may impact special areas like the Fitzgerald Marine Reserve. Recent water quality monitoring results in the MidCoast area showed elevated levels of pollutants such as fecal coliform bacteria, permethrin pesticides, and metals like copper, lead, nickel, and zinc. Below are a few ways you can help prevent stormwater pollution.

Go the Extra Yard. Clean water starts in your backyard. Many common insecticides like wasp or ant sprays have harmful ingredients, such as permethrin, which are very toxic in

the aquatic environment. Try using less pesticides and fertilizers, or switch to less toxic products. Even pet waste from backyards impacts stormwater when runoff from these areas enters the storm drains or creeks and increases levels of fecal bacteria. Always clean up after your pets and dispose of the waste in the garbage.

Only Rain in the Storm Drain. Did you know that vehicles are a common source of pollutants? Fluid leaks from your vehicle are carried by rainwater from your driveway into the storm drain. Be sure to inspect for leaks regularly. Copper dust from brake pads accumulates on your wheels, and when it rains, the dust and other pollutants wash off of your car. However, higher



concentrations are released when cars are washed and scrubbed with water under higher pressure. If you wash your car in the driveway, these pollutants and soap wash into the storm drain. Taking your car to a commercial car wash ensures that wash water is captured and treated through the sanitary sewer system.

Please see the Team Effort Insert for more tips, coastside hardware stores that carry less-toxic products, car wash coupon info, and more!

Copper: The Untold Story

Most of us appreciate the natural beauty of copper in the form of jewelry, artwork, and other decorative applications. One of those applications is architecture. It is often used for roofs, flashing, rain gutters, and downspouts because of its beauty and durability.

Copper is naturally occurring in the earth, but high concentrations in water can be toxic to aquatic life. When used for architectural features, it is often patinated to produce a desired color. Patination involves acids that, when applied



and rinsed, can end up in the storm drain and increase copper levels in water. While copper does not rust, it does corrode, creating by-products such as copper oxide, sulfides, and copper dust that are released as rain water passes over the surface of the architectural features.

The best way to prevent

copper pollution is to choose another material for your project. If you must use copper, try these best management practices to prevent pollution: 1) purchase copper materials that have been patinated at the factory, 2) if patinating or washing onsite, collect rinse water and off-haul for proper disposal, or direct rinse water to landscaping and block off nearby storm drains, or 3) apply a coating to prevent corrosion.

Please see the Team Effort Insert for more ways to prevent copper pollution.

RCD Projects: Keeping the LID On

When rain falls in an undeveloped area, the ground will soak up much of it. Runoff from saturated earth flows downhill in the form of a creek or stream, leading to other water bodies such as lakes, bays, and oceans. When water soaks into the ground, it is naturally filtered by the soil, and pollutants generally break down in the process.

When rain falls onto the hard surfaces of streets, driveways, patios, and rooftops, it picks up pollutants in its path such as backyard pet waste, motor oil from leaking vehicles, copper from vehicle brakes, household and garden pesticides and herbicides, metals from roofing and gutter materials, and street litter. Runoff from these hardscapes flows to roadside gutters and storm drains. The storm drains collect this polluted rainwater and carry it directly into our creeks, oceans, and the Fitzgerald Area of Special Biological Significance (ASBS), where it can negatively impact aquatic life and water quality. It can also lead to erosion, localized flooding, reduced groundwater levels, and local beach closures. What can be done to prevent this?

Low Impact Development (LID) is a technique now being used for new and redevelopment projects that utilizes nature to manage stormwater and prevent pollution at the source. LID ranges from small scale backyard projects to larger municipal development and retrofit projects where streets are redesigned to capture and naturally treat stormwater. Examples of LID techniques include using permeable pavements and paving stones, rain gardens, rain barrels, grassy swales, and native and drought tolerant plants.

There are two primary LID treatment approaches. The first involves capturing all of the stormwater on-site and allowing for evaporation, infiltration, and/or rainwater harvesting. The second approach involves treatment where stormwater is slowed and filtered by plants and bio filtration

soils to remove pollutants before some or all of the water enters the storm drain system. This approach often involves the use of an under drain system beneath the soils to deliver the treated water to the storm drain system.

You can implement LID at home without having to rebuild or remodel your house! Installing a rain barrel is



a good example. These are specially designed barrels placed underneath the downspouts of your house to capture rainwater from your roof. A hose can be attached so you can use it to water your yard! Another example of LID is a rain garden – a planted area of your yard where water either accumulates or slowly passes on its



way to the storm drain. Rain gardens allow the water to collect and percolate through special bio filtration soils that help filter out pollutants. And of course, if you are building a new house or remodeling an existing one, consider LID techniques in the process, such as a new driveway or walkways with paving stones that allow

water to soak into the ground. Some of these techniques are now being required by planning and building departments, so it is good to learn about them before developing your plans.

As part of the ASBS Pollution Reduction Program, San Mateo County Resource Conservation District (RCD) and Natural Resources Conservation Service (NRCS) staff visited residents in Montara and Moss Beach over the past year to provide free technical assistance and make recommendations for LID practices on each property. The goal is to achieve sustainability and improve water quality. On-site technical assistance involved landowners and RCD/NRCS staff identifying concerns such as erosion, poor drainage, or the presence of pollutants, and landowners being provided with customized strategies to address those issues.

From these site assessments and recommendations, properties were selected to have engineered designs developed. The designs for each property were recently completed and include LID combinations of rainwater catchment systems, vegetated swales, rain gardens, replacing driveways with permeable pavement, and strategies to direct flow to vegetated areas. Construction and planting of these LID projects is planned for early Fall 2014. These sites will demonstrate how private landowners can improve water quality in the ASBS watershed.

For more information on LID and related resources, see the following link: www.sanmateorcd.org/LID.html. If you are interested in implementing LID strategies, helping conserve water, and protecting water quality in your watershed, contact Brittani Bohle with the RCD at Brittani@sanmateorcd.org or at 650-712-7765 ext. 104. The RCD provides ongoing, free and confidential technical assistance for public and private landowners to achieve conservation.

See the Team Effort insert for more information, and help keep the LID on water pollution!

Updates: Pollution Reduction Program



Phase 2 of the Fitzgerald ASBS Pollution Reduction Program is underway! The grant-funded project began in 2011 with the County's installation and testing of pilot storm drain best management practices including roadside vegetated swales and storm drain filtration devices throughout Montara and Moss Beach. Based on the water quality monitoring results, the vegetated swales were effective at reducing pollutants, and they provide a greener, more natural approach to stormwater treatment. So, with financial assistance from the State Water Resources Control Board, the County is

installing more. Three roadside vegetated swales were installed in 2013, and eleven more will be installed this summer and fall. Green stormwater treat-



ment features will also be constructed at Fitzgerald Marine Reserve parking lot and along Carlos Street in Moss Beach. Visit <http://smchealth.org/asbs> for more information and updates on the Fitzgerald ASBS Pollution Reduction Program.



Top left: A vegetated swale on Wienke Way in Moss Beach, before the project. Center: Workers installing vegetated swale. Above: The completed project.

2014 Coastside Events

Ongoing watershed hikes

www.openspace.org

Pacifica Beach Cleanups

www.pacificbeachcoalition.org

First Flush

Late September/ early October

Volunteers sample local storm drains during the first big rain of the winter season.

Contact the RCD for more information and to sign up. (650)712-7765

Coastal Cleanup Day **Sept 20**

Pitch in to pick up litter at Mirada Surf or another Coastside beach.

Visit www.flowstobay.org/ccd for full details

Coastside Cleanup Days and Educational Events

Organized by Coastside Land Trust

Visit www.coastsidelandtrust.org for details.



Volunteering at the Reserve

Friends of Fitzgerald trains volunteers to help out at the tide pools. For details,

visit www.fitzgeraldreserve.org

or

Partner with a park ranger to help educate visitors. Visit the County Parks volunteer page for more details.

www.parks.smcgov.org

Kids' Corner

Banana Slugs invade local school!

The 21st annual Oceans Week titled, "Tidepools: Marine Magic in Our Own Back Yard" took place at Farallone View Elementary School in Montara during the week of May 19th. The event was sponsored by the Friends of Farallone View Parent Teacher Organization who partnered with the County of San Mateo's Parks Department and the Department of Public Works, the San Mateo Countywide Water Pollution Prevention Program, and other local organizations to design activities to teach students about tidal ecosystems and pollution prevention.

The event kicked off with an assembly entitled "We All Live Downstream" presented by the Banana Slug String Band. The assembly was an interactive performance involving music, singing, and dancing on the topics of storm drains, recycling, and keeping water clean. The band has performed in schools all over the County for the last several years and was thrilled to be part of Oceans Week for a second time. Check out the band and their songs at www.bananaslugstringband.com.

Fitzgerald Marine Reserve Park Ranger Cala helped lead a school-wide assembly where his video "A Universe in a Tide Pool" was screened, and he shared his passion for tidal creatures.

Log on and check out the video at: parks.smcgov.org/fitzgerald-marine-reserve

Students also participated in the school's "Be Seen Keepin' It Clean Event." As part of a homework assignment, approximately 220 students, with the help of family members, collected about 250 bags of litter from neighborhoods, beaches, creeks, and parks from Half Moon Bay to Montara. As a result, students protected ecosystems by preventing litter from entering the local waterways and ocean. The San Mateo County Office of Education Safe Routes to Schools Program and the County of San Mateo RecycleWorks Program provided support and incentives to students for participating in this Earth-friendly event. In addition, Recology of the Coast provided the school with a recycling truck demonstration for the transitional kindergarten, kindergarten, and first grade classes.

Other events included tide pool field trips and a tide pool learning lab. On the last day of tide pooling, students observed THREE octopuses! During the lab, students made a pledge to "Protect the Marine Reserve Together" by taking steps to prevent pollution such as always cleaning up after their pets and never littering. Visit

smchealth.org/asbs to take the pledge too. The Department of Public Works also sponsored a tide pool drawing contest. All of the artwork was great! See below for a few of our favorites.

Educating the next generation about pollution prevention is critical to the success of future efforts. *Keep up the good work Farallone View Elementary!*

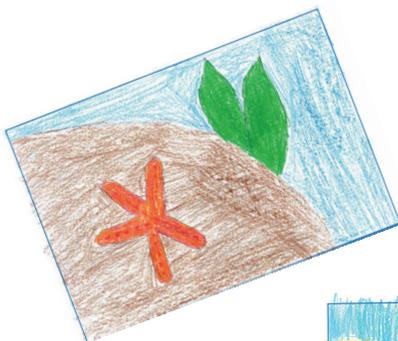


The Banana Slug String Band performs "We All Live Upstream" at a local school

Want to learn about the Fitzgerald Marine Reserve?

Visit:

<http://parks.smcgov.org/fitzgerald-marine-reserve>



Samples from the Tide pool Drawing Contest!



Water quality affects everyone – humans, pets, livestock, and wildlife. That’s why it’s so important for everyone to make an effort to maintain good water quality. Federal, state, and local government agencies have regulations in place to protect water quality, as well as programs and grants to educate and encourage people to use best practices at home and work. Government programs also fund municipal improvements geared toward stormwater management, but government can only do so much. It is up to residents and businesses to help the effort by using best practices daily to prevent water pollution.

What’s the Problem with Runoff?

Many people don’t realize that when it rains, polluted stormwater flows into storm drains and directly to the creeks and ocean without filtering or treatment. Many things we do can negatively impact the cleanliness of stormwater runoff, including common activities you might not expect. This is why stormwater is a significant ongoing source of pollution in our water bodies.



Clean Water. Healthy Community. It's a Team Effort.



Infrastructure Solutions

Local county and city governments are implementing new techniques in urban planning to capture and treat stormwater runoff. These techniques use natural processes to filter polluted water and allow it to recharge groundwater. Examples of this can be seen in the “San Mateo County Sustainable Green Streets and Parking Lots Design Guidebook,” in which rain gardens and bio retention areas are used to manage stormwater runoff from streets



stormwater because pavement constitutes as much as 70 percent of the impervious surfaces in an urban area that prevent water from soaking into the soil. Innovative use of these design approaches can enhance pedestrian and bicycle access and

and parking lots. These are important opportunities for managing



safety, calm traffic, add urban green space and wildlife habitat, enhance neighborhood livability, increase community and property values, help deepen connections to the natural environment, and control localized flooding. Green street and parking lot projects have been constructed in Brisbane, Burlingame, Daly City, San Bruno, San Carlos, Montara, Moss Beach, and San Mateo, and more are in the works.

What You Can Do

There are opportunities every day to take action when it comes to protecting water quality, from cleaning up pet waste, to washing the car more responsibly (see back). It may not seem like much, but the more people who make the effort, the more the pollution will be prevented at the source. This helps save government funds for other improvements, and results in a cleaner overall environment. Modeling behavior for your children and making others aware of pollutant sources, water quality problems, and solutions makes a big difference. Use your voting power to approve funding for green initiatives. Use your buying dollar to support products and services that are eco-friendly. Taking action in little ways helps a bigger cause. For more information, or to sign up for the Team Effort e-newsletter, go to www.flowstobay.org or call (650) 372-6200.

Protecting the Marine Reserve Together

Where to Find

Want to learn more about water pollution prevention? Check out these locations and websites, or call San Mateo County Environmental Health at (650) 372-6200.

Household Hazardous Waste

- Properly dispose of household chemicals: www.flowstobay.org/toxic

Projects and Programs

- Water quality sampling: www.smchealth.org/environ/beaches
- Fitzgerald ASBS water quality sampling: www.smchealth.org/asbs
- Green streets and parking lots: www.flowstobay.org/greenstreets
- Recycling, waste reduction, and other sustainability programs: www.recycleworks.org/

Best Practices

- Bay Friendly Landscaping Guide: www.Bayfriendly.org
- Car wash discount coupon: email pollutionprevention@smcgov.org
- Automotive care: www.flowstobay.org/autocare
- Water conservation and gardening classes: www.bawsca.org

Get Involved

- Online Calendar of Events: www.flowstobay.org/calendar
- Team Effort newsletter: email pollutionprevention@smcgov.org
- Kids activities related to stormwater: www.flowstobay.org/kids

Low Impact Development (LID)

- LID fact sheets: Architectural copper, rain barrels, rain gardens, permeable pavers: www.flowstobay.org/newdevelopment
- Resource Conservation District LID information: www.sanmateorcd.org/LID.html
- Fitzgerald ASBS LID workshop presentations: www.smchealth.org/asbs

Pest Management

- Less toxic pest control in the home and garden: www.ourwaterourworld.org, Ant control: www.gotants.org
 - Participating Our Water Our World (OWOW) Coastside stores that sell less toxic gardening products: Hassett Hardware, Half Moon Bay; El Granada Hardware, El Granada; Linda Mar Ace Hardware, Pacifica
- Go to www.flowstobay.org/pestcontrol for a complete list of OWOW participating stores in San Mateo County.



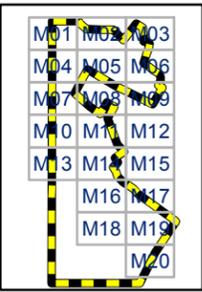
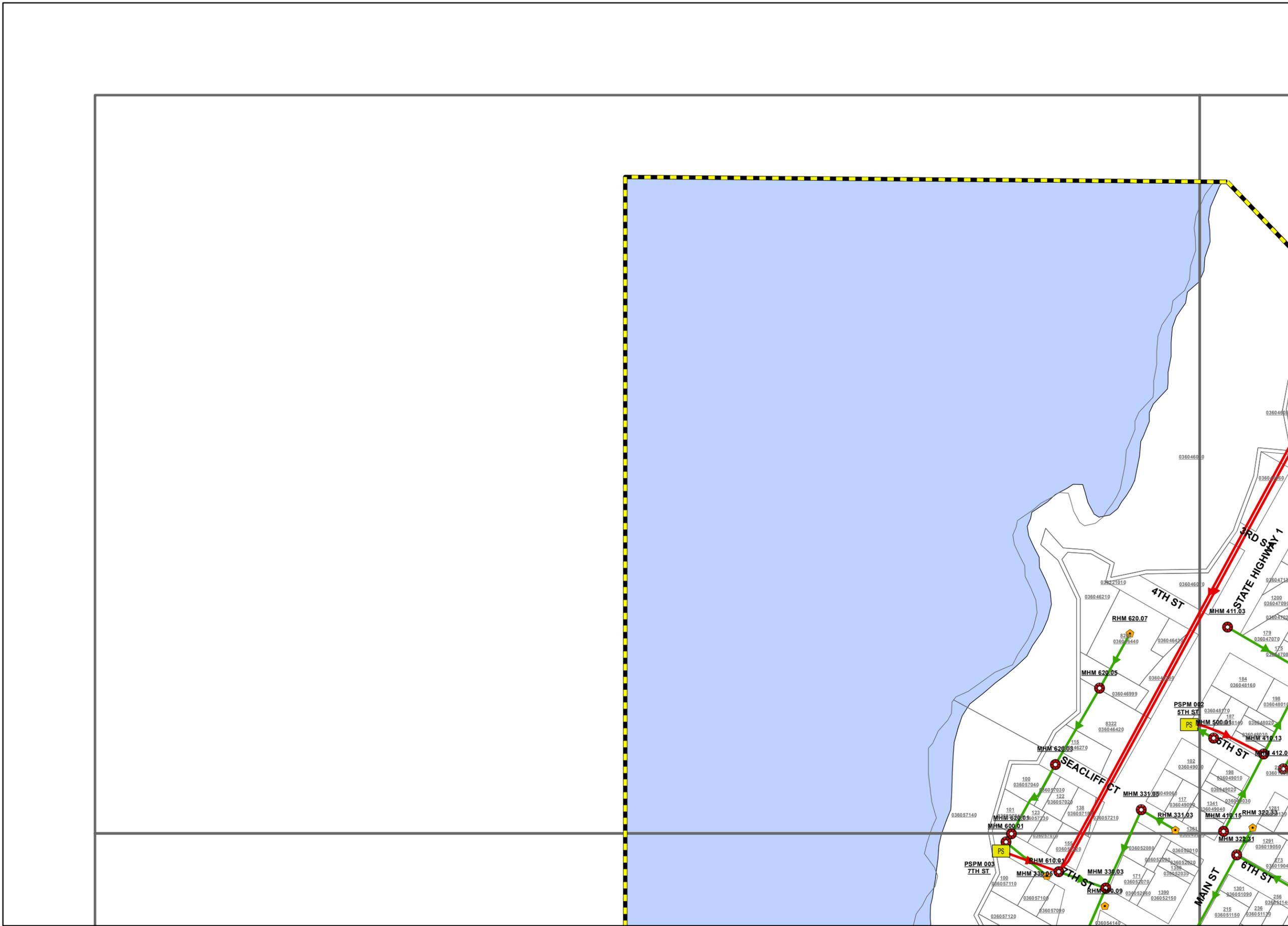
What You Can Do....

Here is a list of things you can do at your home or business to help protect and improve water quality. Choose just one or do them all!

- Pick up pet waste
- Use less toxic gardening products
- Install low-flow sprinkler lines
- Plant native plants that use less water
- Wash your car at a car wash
- Recycle used motor oil and filters
- Maintain your car to prevent leaks
- Dispose of household chemicals properly
- Keep the lid on your trash can at all times
- Pick up litter whenever you see it
- Participate in a cleanup event
- Make your own household cleaners
- Bring your own bag to the store
- Purchase products in bulk, using less packaging
- Make full use of curbside recycling
- Recycle batteries or purchase rechargeables
- Teach your children and friends
- Install rain barrels on your downspouts
- Install rain gardens on your property
- Report illegal dumping to your local authority
- Learn about your watershed and where it drains to at <http://museumca.org/creeks/>

Appendix B

Map of Montara Sanitary District Sewer System



1 inch = 250 feet

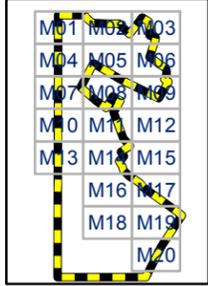
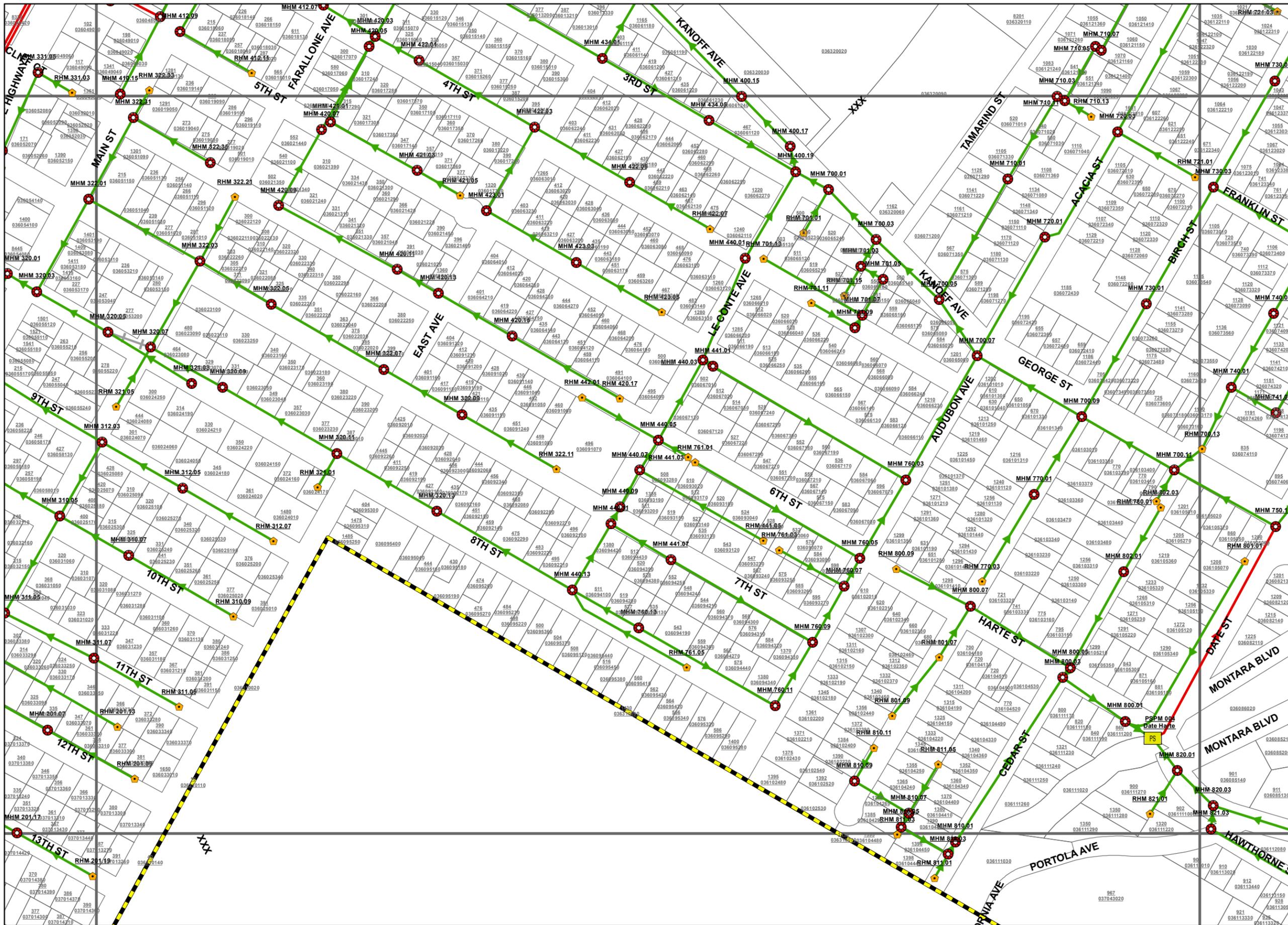
SANITARY SEWER SYSTEM

MONTARA SANITARY DISTRICT

SAN MATEO COUNTY, CALIFORNIA



Printed
Date: 4/17/2014

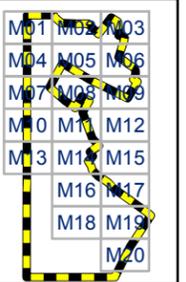
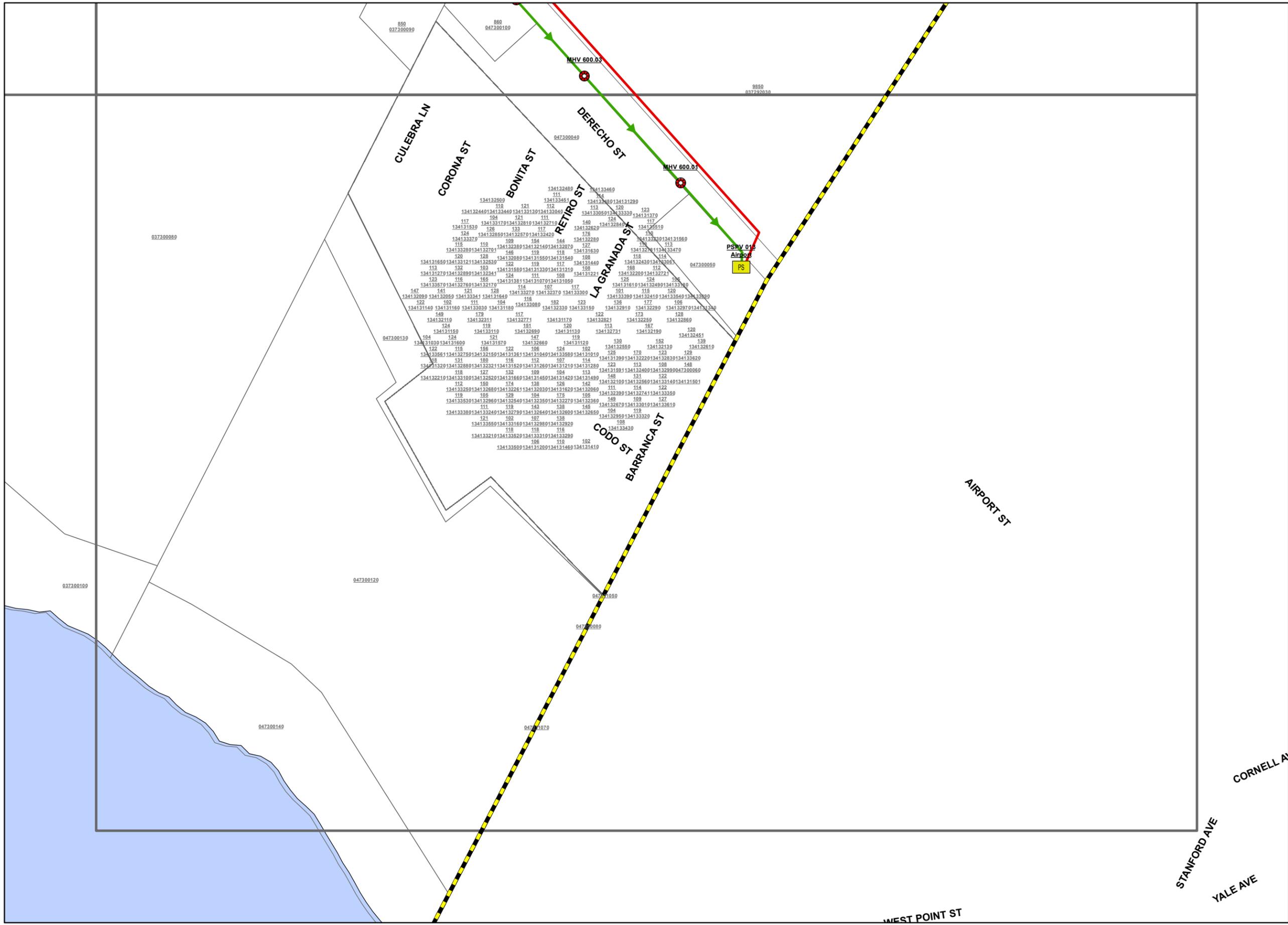


1 inch = 250 feet

SANITARY SEWER SYSTEM

MONTARA SANITARY DISTRICT
SAN MATEO COUNTY, CALIFORNIA



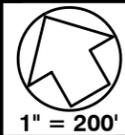


1 inch = 250 feet

SANITARY SEWER SYSTEM
MONTARA SANITARY DISTRICT
 SAN MATEO COUNTY, CALIFORNIA

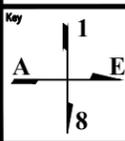


X:\Info\Montara SD Base Mapping\Montara SD System Maps\Montara System Mapping Layout: A5 Jul 09, 2012 1:50:4

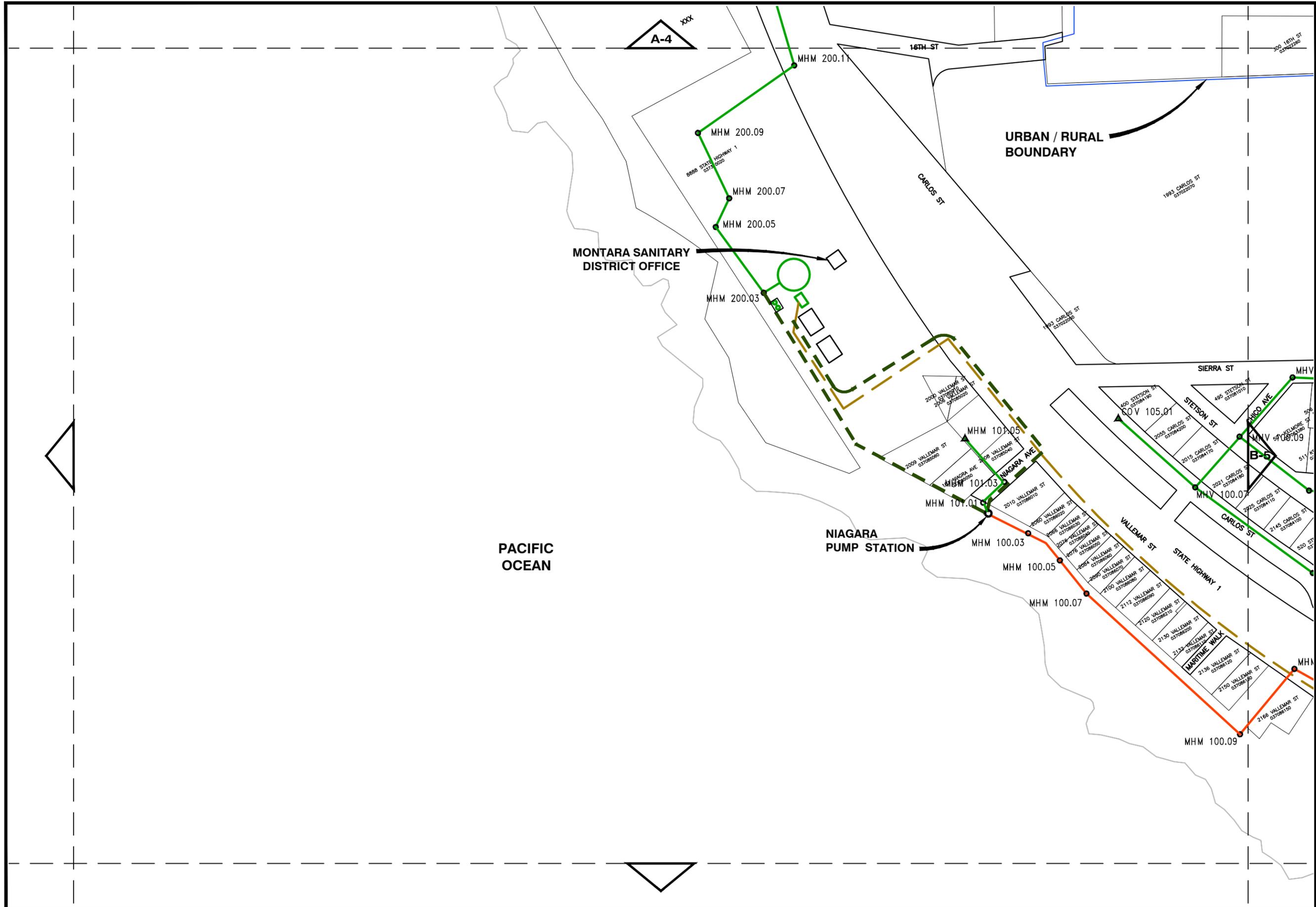


SANITARY SEWER SYSTEM

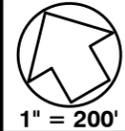
MONTARA SANITARY DISTRICT
San Mateo County, California



Drawing No. **A-5**



4"-6" — 8" — 10" — 12" — 13"-24" — Private Sewer - - - MSD Force Main - - - SAM Force Main - - -



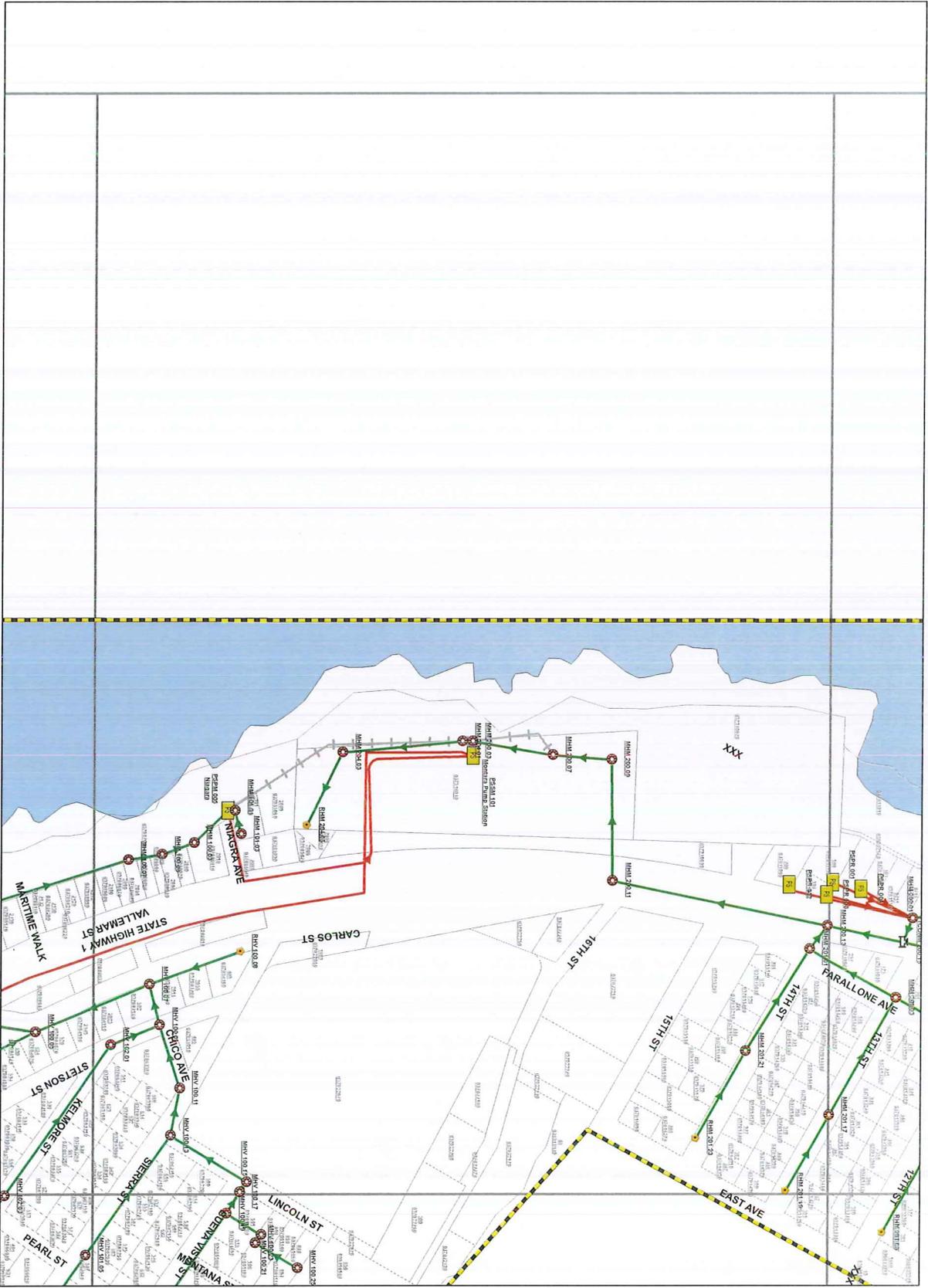
SANITARY SEWER SYSTEM

MONTARA SANITARY DISTRICT
San Mateo County, California



— 4"-6"
 — 8"
 — 10"
 — 12"
 — 13"-24"
 - - - Private Sewer
 - - - MSD Force Main
 - - - SAM Force Main

Xref: Montara SD Base Mapping
M:\Map Projects\Montara SD System Maps\Montara System Mapping Layout: BS Jul 06, 2012 13:05



NOTE
 Rate Engineering
 Printed
 Date: 4/17/2014



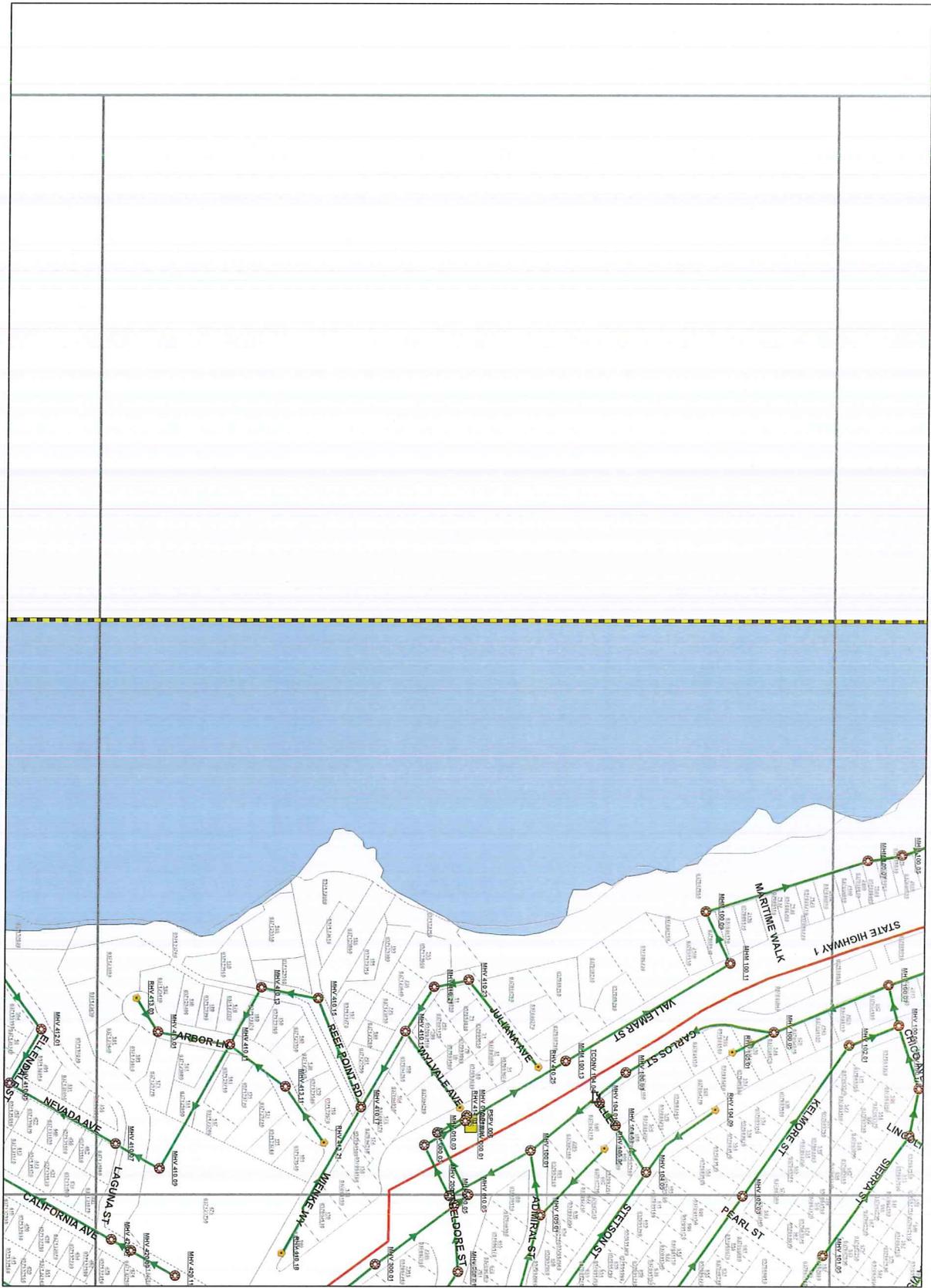
SANITARY SEWER SYSTEM

MONTARA SANITARY DISTRICT
 SAN MATEO COUNTY, CALIFORNIA

1 inch = 250 feet



M07	M08	M09	M10
M11	M12	M13	M14
M15	M16	M17	M18
M19	M20		





SANITARY SEWER SYSTEM
 MONTARA SANITARY DISTRICT
 SAN MATEO COUNTY, CALIFORNIA

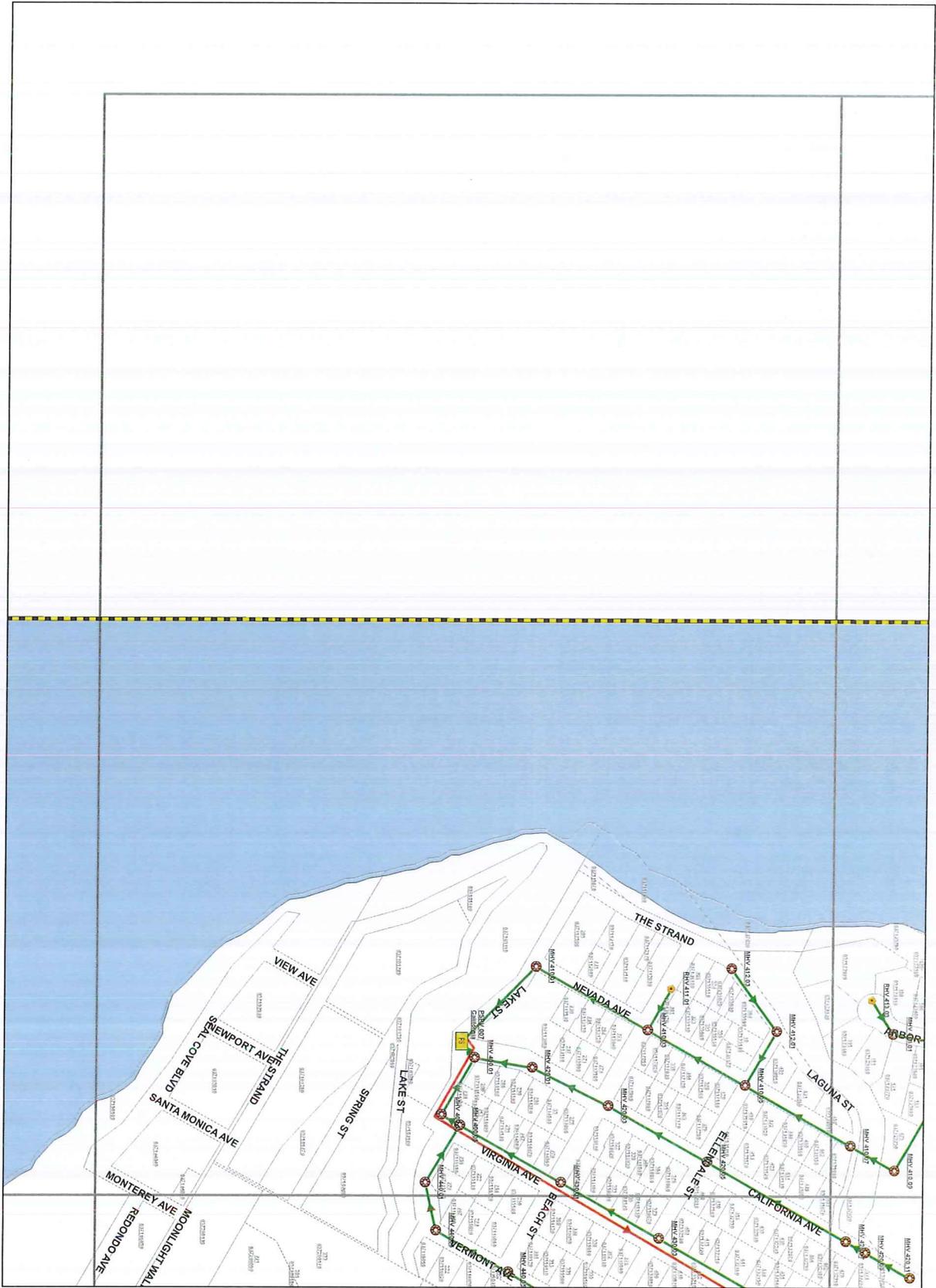
1 inch = 250 feet



M01	M02	M03
M04	M05	M06
M07	M08	M09
M10	M11	M12
M13	M14	M15
M16	M17	M18
M19	M20	



Printed
Date: 4/17/2014



NUTE
 Nate Engineering
 Printed
 Date: 4/17/2014

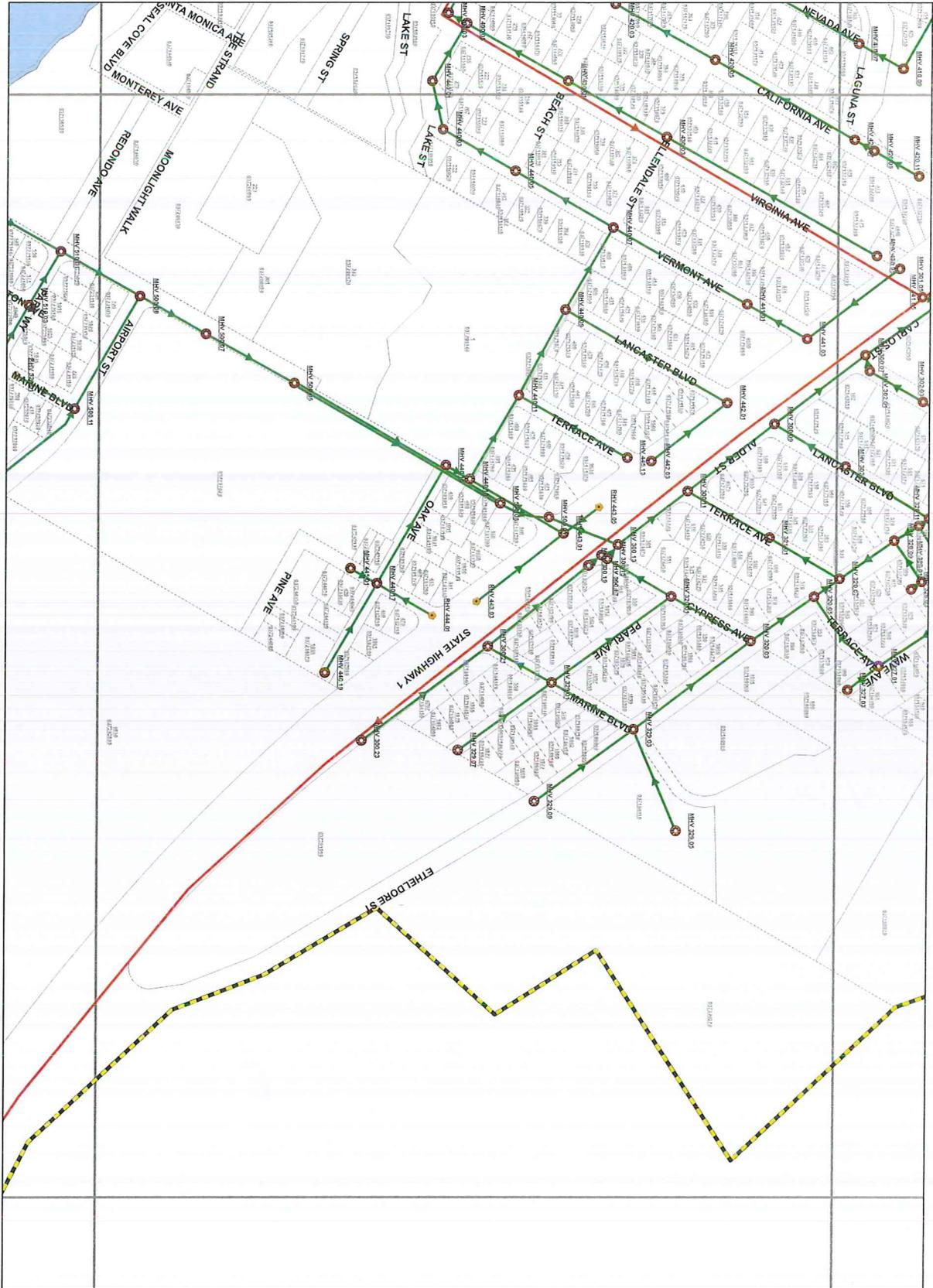


SANITARY SEWER SYSTEM
 MONTARA SANITARY DISTRICT
 SAN MATEO COUNTY, CALIFORNIA

1 inch = 250 feet



M01	M02	M03
M04	M05	M06
M07	M08	M09
M10	M11	M12
M13	M14	M15
M16	M17	
M18	M19	
M20		



SANITARY SEWER SYSTEM

MONTARA SANITARY DISTRICT
 SAN MATEO COUNTY, CALIFORNIA

1 inch = 250 feet



M01	M02	M03
M04	M05	M06
M07	M08	M09
M10	M11	M12
M13	M14	M15
M16	M17	M18
M19	M20	



NOTE
 Rute Engineering
 Printed
 Date: 4/17/2014



SANITARY SEWER SYSTEM

MONTARA SANITARY DISTRICT
 SAN MATEO COUNTY, CALIFORNIA

1 inch = 250 feet



M01	M02	M03
M04	M05	M06
M07	M08	M09
M10	M11	M12
M13	M14	M15
M16	M17	M18
M19	M20	

