

# **Attachment A**

**California Regional Water Quality Control Board  
San Francisco Bay Region**

**Waste Discharge Requirements for**

**Eden Shores Associates I's Eden Shores Commercial Retail Project In The City Of Hayward**

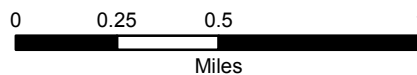
**Alameda County**

**Site Maps and Figures**



Figure 1. Project Area Location Map

Eden Shores  
 Commercial Retail Project  
 Alameda County, California

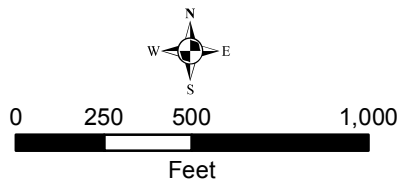


Map Date: September 2014  
 Map By: DC  
 Base Source: ESRI/National Geographic



Figure 2. Eden Shores Business Park Site Containing Eden Shores Commercial Retail Project

Eden Shores Commercial Retail Project  
Alameda County, California



Date: September 2014  
Map By: DC  
Base Source: ESRI Streaming Imagery



Eden Shores  
Commercial Retail  
Project

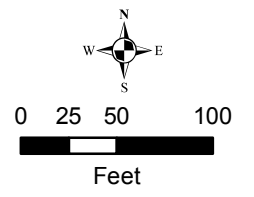
Alameda County,  
California

Figure 3.

Preliminary Corps  
Section 404  
Jurisdiction Map



 Project Area - 5.43 acres  
 Potential Jurisdictional Wetlands - 0.48 acres



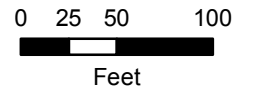
Map Date: September 2014  
Map By: DC  
Base Source: ESRI Streaming Imagery


Eden Shores  
Commercial Retail  
Project

Alameda County,  
California

Figure 4.

Eden Shores  
Commercial Retail  
Impacts to Section  
404 Jurisdiction



	Project Area - 5.43 acres
	Project Impact Area - 5.43 acres
	Impacts to Potential Jurisdictional Wetlands - 0.48 acres

# **Attachment B**

**California Regional Water Quality Control Board  
San Francisco Bay Region**

**Waste Discharge Requirements for**

**Eden Shores Associates I's Eden Shores Commercial Retail Project In The City Of  
Hayward**

**Alameda County**

***Stormwater Quality Management Plan for Eden Shores Retail Site, City of Hayward,  
Alameda County (RSC Engineers, August 15, 2016)***

# STORM WATER MANAGEMENT PLAN

for

## EDEN SHORES RETAIL SITE

City of Hayward, Alameda County, California

**August 15, 2016**

Prepared for:

Steelwave

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Exhibit A – Vicinity Map

Exhibit B – Preliminary Storm Water Management Plans

Exhibit C – Maintenance Plans

Exhibit D – HMP Susceptibility Map



I. INTRODUCTION

Urban storm water runoff is a significant source of pollution to the nation's water. In 1987, congress began to address this issue by requiring municipal storm water programs to obtain National Pollutant Discharge Elimination System (NPDES) permits. This resulted in local requirements for storm runoff from development projects. In 2003, Regional Water Quality Control Board added provision C.3 to the municipalities Storm water NPDES permit to provide guidance to local agencies for implementation of the storm water requirements.

In Alameda County, development projects must comply with NPDES permit issued to the County wide Clean Water Program by the Regional Water Quality Control Board in October 14, 2009. Development projects must implement best management practices (BMPs) and post construction storm water treatment measures to minimize long term water quality impacts using site design and source control measures to keep pollutants out of storm water runoff. Furthermore, changes to the permit requires (starting December 1, 2011) storm water treatment measures will have to be met using low impact development (LID) such as evapotranspiration and/or rain water harvesting and reuse. Where this is infeasible, landscape based treatment such as bio-retention, flow thru planters or rain garden shall be used to meet the permit requirements.

The purpose of this plan is to provide selection, preliminary design and guidance for the operation and maintenance of post construction storm water treatment measures to meet the C.3 provision and permit requirements to the maximum extent practicable for the storm runoff generated from the impervious surfaces for the proposed project.

II. PROJECT INFORMATION

**A. Size and Location**

The project site is approximately 5.8 +/- acres and is located at the northwest corner of Hesperian Boulevard and Eden Shores Boulevard in the city of Hayward, Alameda County. A vicinity map (Exhibit A) is included in Appendix for reference.

**B. Existing Condition**

The project site is vacant currently and is bordered to the east and southwest by public streets. An existing "big box" retail establishment (Costco) is to the north. The topography is currently flat with a very gentle slope towards Eden Shores Boulevard.

**C. Project Description**

The proposed project is a retail/commercial development and consists of approximately 35,500 +/- sf of retail space with four (4) stand-alone buildings and a parking lot with approximately 277 parking spaces. Proposed open space/landscape areas are introduced in the parking lot and adjacent to the proposed buildings.

**D. Pollutants of Concern**

Pollutants of concern include oil, grease, sediments, pesticides, fertilizer, and trash. The post construction storm water treatment measures should be designed to remove these pollutants prior to entering into the underground storm drains.

**E. Site Design of Water Quality**

**1. Site Design Measures**

Site design measures are site planning techniques to help reduce storm water pollutants and reduce impervious surfaces of development sites. The following site design measures could be implemented:

- reduce impervious surfaces
- use landscaping as a drainage feature
- minimize storm water runoff by directing roof runoff to LID treatment areas
- direct runoff from impervious surfaces to LID treatment areas

**2. Source Controls**

Source controls prevent potential pollutant sources from contacting rainfall and storm water. Source control measures consist of structural or operational “good housekeeping” practices. The following source control measures could be implemented:

- Roofed trash enclosure and grease interceptor.
- Pest resistant landscaping.
- Select planting materials to site specific characteristics such as soil type, climate, prevailing wind, sunlight, or rainfall to ensure successful establishment.
- Regular sweeping of the parking lot, sidewalk, or paved areas to minimize accumulation of litter or debris.
- Routine inspection and cleaning of storm water inlet
- Storm drain inlets clearly marked “no dumping – drains to bay”.
- Proper maintenance of landscaping with minimal pesticide and fertilizer use.
- Project CC&R’s or education materials to inform tenants and/or building owners that no person shall dispose of, or permit the disposal, directly or indirectly of vehicle fluids, hazardous materials or rinsed water from tools, equipment, or trash cans into storm drains.
- Regularly mow grass in bio-retention areas and remove clippings from the site.
- Adopt Maintenance and Operations Agreement, Deed Covenant, or similar legally binding instrument that provides for long-term adequacy and operation of any structural storm water treatment measures. The instrument shall, at a minimum, prohibit specific activities and include facility operating and maintenance procedures and practices.

### **3. Storm Water Treatment Measures**

Storm water treatment measures are landscape based engineered treatment system to remove pollutants from storm water using natural process such as infiltration, ponding, flow-thru, or sedimentation. Storm water treatment measures must be sized to comply with provision C.3 and the Alameda County C.3 Storm Water Technical Guidance. The proposed project will generate impervious surfaces that would be required to be treated using landscaped base C.3 treatment measures. Selection, preliminary design and calculations of the proposed C.3 storm water treatment measures are outlined in more details in Sections III and IV below.

### **4. Hydromodification Management Measures**

Hydromodification Management (HM) measures include site design and source control measures that promote infiltration or minimize change in the rate and flow of runoff, when compared to pre-development condition, and to minimize downstream channel sediment and erosion. Based on the Alameda County wide Clean Water Program HMP susceptibility map, the project site is exempt from HM due because the site is tidally influenced. As a result, HM is not included as a part of this project. A copy of the HM susceptibility map is included in the Appendix (Exhibit D) for reference.

## **III. C.3 STORM WATER TREATMENT EVALUATION**

### **A. Site Constraints and Opportunities**

1. The low permeability and high clay content of the site soil combined with potentially high ground water table make it undesirable to promote infiltration.
2. The proposed project is a small in-fill site with physical constraints and existing improvements limiting use of sediment basins.
3. Due to nature of this development, a large portion of the site will be occupied by impervious surfaces generated by the proposed buildings, parking lots and sidewalk. The new impervious surfaces will need to be treated prior to discharging into the underground storm drains.
4. Open space and landscaped areas between buildings and in parking lots could be utilized for treatment areas to meet the C.3 requirements.

### **B. C.3 Storm Water Treatment Measures Selection**

Given the constraints and opportunities of the proposed site and the goal of LID to reduce storm water runoff and mimic a site's pre-development hydrology, bio-retention in open space (landscaped areas) is selected to treat and reduce storm water pollutants from entering into the underground storm drains.

## 1. Bio-retention

Bio-retention functions as soil and plant based filtration that removes pollutants through a variety of physical, biological, and chemical process. These facilities consist of a layer of cobble stone (mulch is not recommend), planted landscape (grass, shrub or trees), sandy loam soil (with a minimum percolation rate of 5 inches/hour and a maximum percolation rate of 10 inches/hour), drain rock and under drains. The storm water runoff from impervious surface is directed and passed through the bio-retention areas and distributed evenly along a ponding area. Storm water runoff will percolate through the sandy loam treatment soil and eventually captured by the under drains and discharged into the underground storm drains. A detail of the bio-retention is on the preliminary storm water plan included in the Appendix (Exhibit B).

#### IV. C.3 STORM WATER TREATMENT MEASURES DESIGN AND CALCULATIONS

The storm water treatment measures should be sized to treat storm water runoff from relatively small impervious surfaces. The project site is divided into a number of Drainage Management Areas (DMA's) based on site topography and drainage patterns. Individual DMA's are defined and shown on the Preliminary Storm Water Management Plan (Exhibit B) included in the Appendix for reference. Runoff from each DMA is captured and conveyed to the individual treatment area by "sheet flow" across the impervious surface/ finished open space areas. For instance, runoff generated predominantly from the parking lot, DMA #3, will generally sheet flow across the asphalt pavement and drain into the bio-retention area and thru the bio-treatment soil mix. During a peak flow storm event when the runoff volume exceeds the treatment capacity, storm runoff will be "bypassed" to the overflow pipes/inlets and discharged into the underground storm drains. The remaining DMA's function similarly to DMA #3 where storm runoff is generally captured and treated with the bio-retention areas.

Runoff from the proposed building generally flows into the bio-retention treatment areas adjacent to the building. For instance, DMA #7 for "Shop B" building is captured and conveyed to the treatment area north of the building. Similarly, peak flow runoff will "overflow" into the overflow inlet within the bio-retention.

The C.3 provision of the Municipal Regional Storm Water Permit (MRP) specifies three alternatives for hydrology sizing: Flow Based, Volume Based, or Combination Flow and Volume Based. For the purposes of sizing the bio-retention area for this project, the combination flow and volume based (4% method) is used, in which the surface area of the treatment measure is designed to be 4% of the "effective impervious surface." If areas of landscaping or pervious paving contribute runoff to the treatment measure, the area of these pervious surfaces is multiplied by a factor of 0.1 and added to the "impervious area" to obtain the amount of "effective impervious area."

Based on the criteria noted above and the MRP C.3 provision requirements, surface area of the treatment measure for each DMA is calculated and tabulated on Table 1 as shown on the Preliminary Storm Water Plan, (Exhibit B – 1 of 2).

As shown in Table 1 (Exhibit B – 1 of 2), bio-retention areas provide sufficient treatment area for runoff generated from the proposed effective impervious areas. In addition, each bio-retention is designed to provide a minimum of 6” ponding before the runoff infiltrates the treatment soil as recommended by the C.3 guidebook.

V. OPERATION AND MAINTENANCE

Maintenance is essential for assuring the storm water treatment measures function effectively and do not cause flooding, provide habitat for mosquitos or otherwise become a nuisance. The owner of the proposed retail center will be responsible for providing adequate funding to maintain these post-construction storm water treatment measures. An Operation and Maintenance (O&M) Agreement will be executed by the owner with the City at project approval stage accepting responsibility for maintenance as well as ensuring access to the City, Water Board, Alameda County Mosquito Abatement District or Vector Control District for routine inspection. A Deed Covenant, which provides for long-term adequacy of any stormwater control, is included in the Appendix (Exhibit C) for reference.

Maintenance plans outlining routine activities and frequency of the maintenance are included in the Appendix for reference.

EXHIBIT A  
VICINITY MAP



**SITE  
LOCATION**

**Eden Shores**

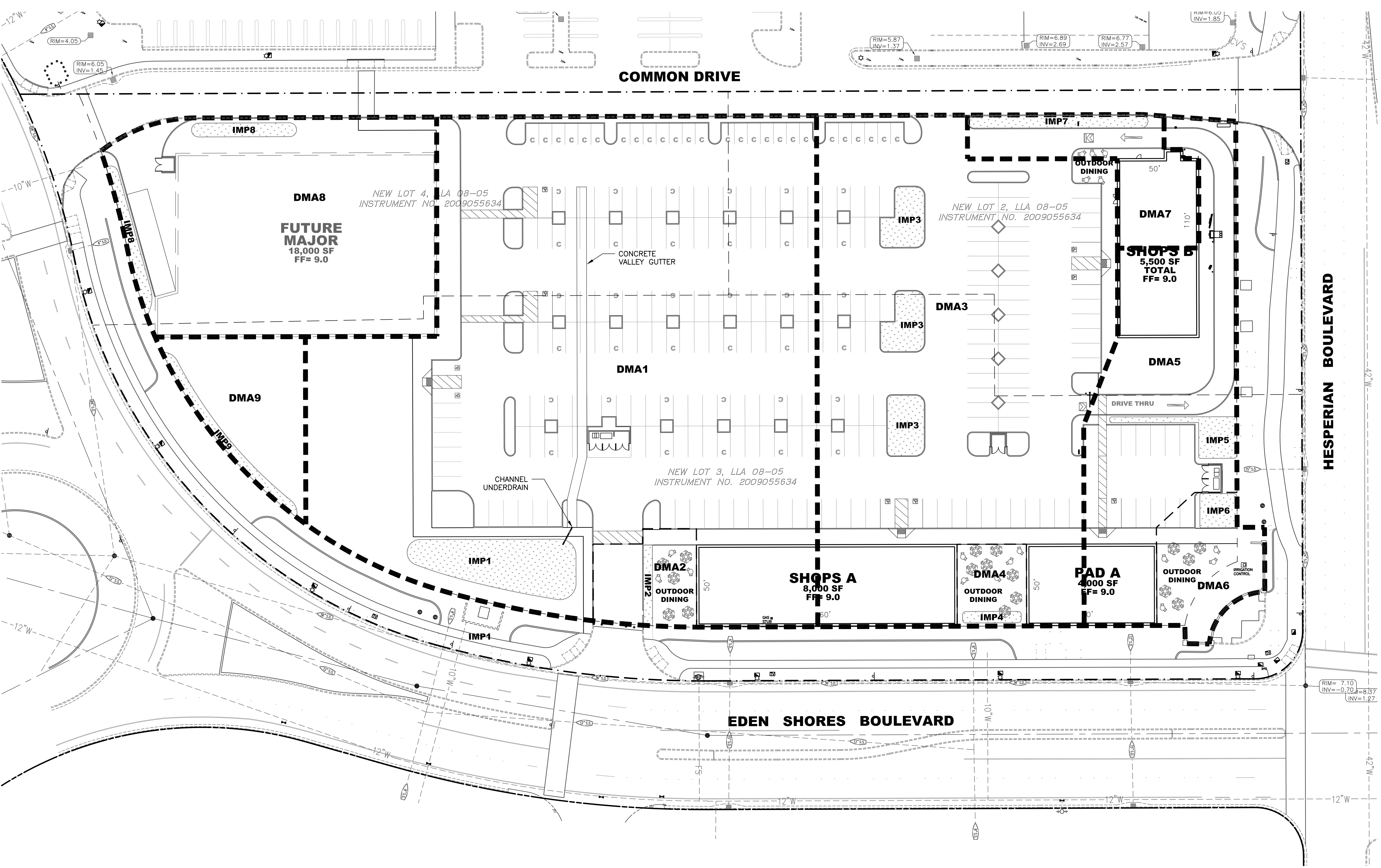
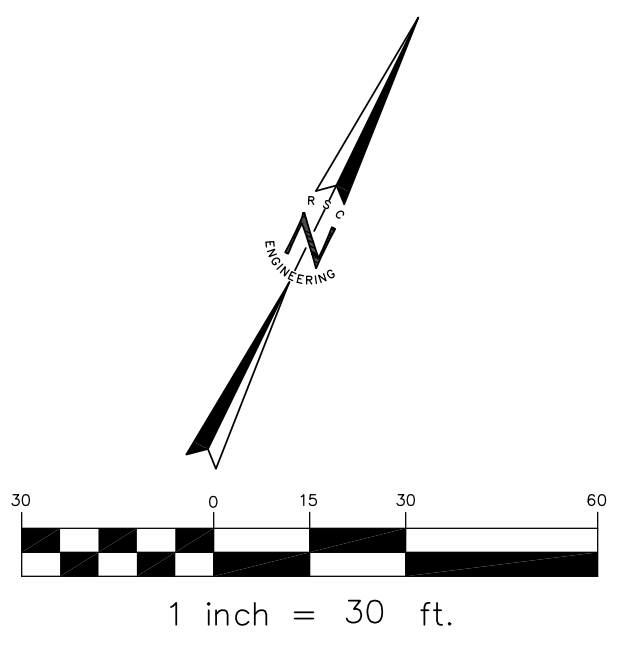
**RSC ENGINEERING**  
 2250 Douglas Blvd., Suite 150  
 Roseville, CA 95661  
 Ph: 916.788.2884 Fax: 916.788.4408

**EDEN SHORES - RETAIL CENTER**  
**NWC EDEN SHORES BLVD. & HESPERIAN BLVD.**  
**HAYWARD, CA 94545**

**VICINITY MAP**

EXHIBIT B  
PRELIMINARY STORM WATER PLAN





NO.	DATE	DESCRIPTION	BY	DATE



**RSC ENGINEERING**  
2250 Douglas Blvd. Suite 150  
Dublin, CA 94568  
Ph: 916.788.2854 Fax: 916.788.4408

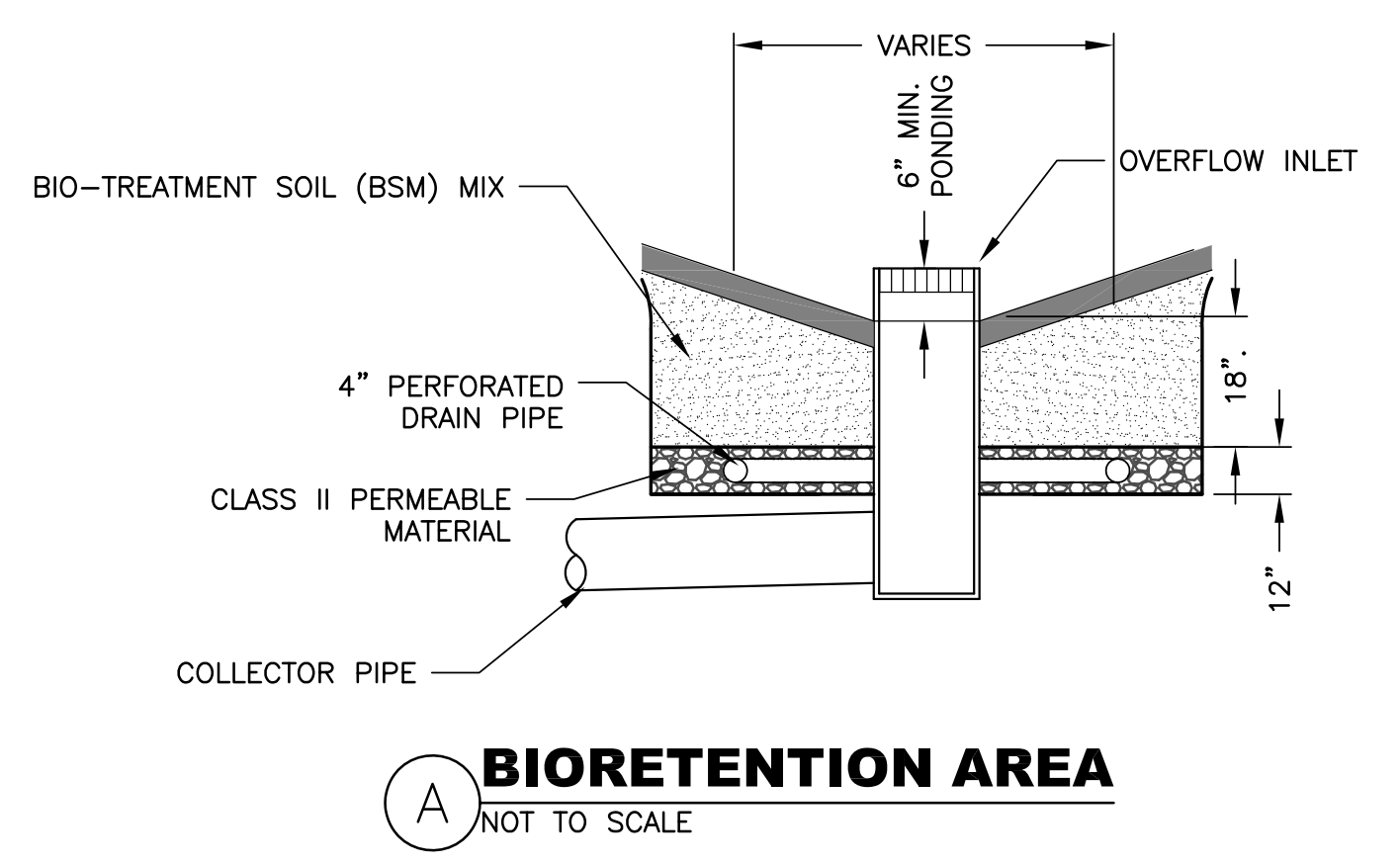
PROJECT NO: 068-002  
DRAWN BY: RSC Eng  
CHECKED BY: RSC Eng  
DESIGNED BY: RSC Eng

**EDEN SHORES  
RETAIL CENTER**  
NWC EDEN SHORES BLVD. & HESPERIAN BLVD.  
HAYWARD, CA 94545

**TABLE 1**

DMA	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	TOTAL AREA (SF)	EFFECTIVE IMPERVIOUS AREA (SF)	BIO-RETENTION AREA REQUIRED (SF)	BIO-RETENTION AREA PROVIDED (SF)
1	69,788	9,725	79,513	70,761	2,830	2,851
2	3,190	271	3,461	3,217	129	271
3	45,332	4,013	49,346	45,734	1,829	2,431
4	1,893	249	2,142	1,918	77	249
5	13,346	5,164	18,510	13,863	555	787
6	3,980	550	4,530	4,035	161	479
7	5,004	1,064	6,068	5,111	204	818
8	21,635	3,917	25,552	22,027	881	1,147
9	5,537	753	6,290	5,612	224	753

**NOTES:**  
THE CALCULATIONS ARE BASED ON THE ALAMEDA COUNTYWIDE CLEAN WATER PROGRAM, C.3 STORMWATER TECHNICAL GUIDANCE, DATED APRIL 11, 2016, AND THE FOLLOWING CRITERIA:  
a. 0.2 INCHES/HOUR RAINFALL INTENSITY ON 100% IMPERVIOUS AREA  
b. SOIL FOR TREATMENT MEDIUM WITH A 5 INCHES/HOUR INFILTRATION RATE  
c. A TREATMENT MEDIUM OF 0.04 SIZING FACTOR FOR BIORETENTION AREAS  
  
SIZING FACTOR OF 0.04 NOTED ABOVE IS CALCULATED BASED ON THE FOLLOWING CRITERIA:  
a. SIZING FACTOR = (0.2 IN/HR)/(5 IN/HR) = 0.04  
b. PERVIOUS AREAS DRAINING TO THE TREATMENT MEASURE ARE MULTIPLIED A FACTOR OF 0.1 TO OBTAIN THE AMOUNT OF "EFFECTIVE IMPERVIOUS AREA."



**LEGEND**

	PROPOSED BIO-RETENTION LOCATION
	DRAINAGE SHED LINE
<b>DMA1</b>	DRAINAGE SHED NUMBER
<b>IMP1</b>	CORRESPONDING WATER QUALITY UNIT (BIO-RETENTION)

SHEET TITLE  
**PRELIMINARY  
STORMWATER  
PLAN**

SHEET NO.  
**EXHIBIT B**  
1 OF 2

DATE: AUGUST 15, 2016

DRAWING: P:\068-002\Engineering\Stormwater\068002\_20160815.dwg  
DATE: AUGUST 15, 2016  
TIME: 10:28 AM  
PLOT: P:\068-002\Engineering\Stormwater\068002\_20160815.dwg

**Specification of soils for Biotreatment or Bioretention Facilities**

Soils for biotreatment or bioretention areas shall meet two objectives:

- Be sufficiently permeable to infiltrate runoff at a minimum rate of 5" per hour during the life of the facility, and
- Have sufficient moisture retention to support healthy vegetation.

Achieving both objectives with an engineered soil mix requires careful specification of soil gradations and a substantial component of organic material (typically compost).

Local soil products suppliers have expressed interest in developing "brand-name" mixes that meet these specifications. At their sole discretion, municipal construction inspectors may choose to accept test results and certification for a "brand-name" mix from a soil supplier.

Tests must be conducted within 120 days prior to the delivery date of the bioretention soil to the project site.

Batch-specific test results and certification shall be required for projects installing more than 100 cubic yards of bioretention soil.

**SOIL SPECIFICATIONS**

Bioretention soils shall meet the following criteria. "Applicant" refers to the entity proposing the soil mixture for approval by a Permittee.

1. General Requirements – Bioretention soil shall:
  - a. Achieve a long-term, in-place infiltration rate of at least 5 inches per hour.
  - b. Support vigorous plant growth.
  - c. Consist of the following mixture of fine sand and compost, measured on a volume basis:
    - 60%-70% Sand
    - 30%-40% Compost
2. Submittal Requirements – The applicant shall submit to the Permittee for approval:
  - a. A minimum one-gallon size sample of mixed bioretention soil.
  - b. Certification from the soil supplier or an accredited laboratory that the Bioretention Soil meets the requirements of this guideline specification.
  - c. Grain size analysis results of the fine sand component performed in accordance with ASTM D 422, Standard Test Method for Particle Size Analysis of Soils or Caltrans Test Method (CTM) C202.
  - d. Quality analysis results for compost performed in accordance with Seal of Testing Assurance (STA) standards, as specified in 4.
  - e. Organic content test results of mixed Bioretention Soil. Organic content test shall be performed in accordance with Testing Methods for the Examination of Compost and Composting (TMECC) 05.07A, "Loss-On-Ignition Organic Matter Method".
  - f. Grain size analysis results of compost component performed in accordance with ASTM D 422, Standard Test Method for Particle Size Analysis of Soils.
  - g. A description of the equipment and methods used to mix the sand and compost to produce Bioretention Soil.

- a. Compost Quality Analysis by Laboratory – Before delivery of the soil, the supplier shall submit a copy of lab analysis performed by a laboratory that is enrolled in the US Composting Council's Compost Analysis Proficiency (CAP) program and using approved Test Methods for the Examination of Composting and Compost (TMECC). The lab report shall verify:
  - (1) Organic Matter Content: 35% - 75% by dry wt.
  - (2) Carbon and Nitrogen Ratio: C:N < 25:1 and C:N > 15:1
  - (3) Maturity/Stability: Any one of the following is required to indicate stability:
    - (i) Oxygen Test < 1.3 O<sub>2</sub>/unit TS /hr
    - (ii) Specific oxy. Test < 1.5 O<sub>2</sub> / unit BVS /hr
    - (iii) Respiration test < 8 mg CO<sub>2</sub>-C /g OM / day
    - (iv) Dewar test < 20 Temp. rise (°C) e.
    - (v) Solvita® > 5 Index value
  - (4) Toxicity: Any one of the following measures is sufficient to indicate non-toxicity.
    - (i) NH<sub>4</sub><sup>+</sup> : NO<sub>3</sub>-N < 3
    - (ii) Ammonium < 500 ppm, dry basis
    - (iii) Seed Germination > 80 % of control
    - (iv) Plant Trials > 80% of control
    - (v) Solvita® = 5 Index value
  - (5) Nutrient Content: provide analysis detailing nutrient content including N-P-K, Ca, Na, Mg, S, and B.
    - (i) Total Nitrogen content 0.9% or above preferred.
    - (ii) Boron: Total shall be <80 ppm;
  - (6) Salinity: Must be reported; < 6.0 mmhos/cm
  - (7) pH shall be between 6.2 and 8.2 May vary with plant species.
- b. Compost Quality Analysis by Compost Supplier – Before delivery of the compost to the soil supplier the Compost Supplier shall verify the following:
  - (1) Feedstock materials shall be specified and include one or more of the following: landscaping/yard trimmings, grass clippings, food scraps, and agricultural crop residues.
  - (2) Maturity/Stability: shall have a dark brown color and a soil-like odor. Compost exhibiting a sour or putrid smell or containing recognizable grass or leaves, or is hot (120F) upon delivery or rewetting is not acceptable.
  - (3) Weed seed/pathogen destruction: provide proof of process to further reduce pathogens (PFRP). For example, turned windrows must reach min. 55C for 15 days with at least 5 turnings during that period.
- c. Compost for Bioretention Soil Texture – Compost for bioretention soils shall be analyzed by an accredited lab using #200, 1/4 inch, 1/2 inch, and 1 inch sieves (ASTM D 422 or as approved by municipality), and meet the following gradation:

Sieve Size	Percent Passing (by weight)	
	Min	Max
1/2 inch	97	100
No. 200	2	5

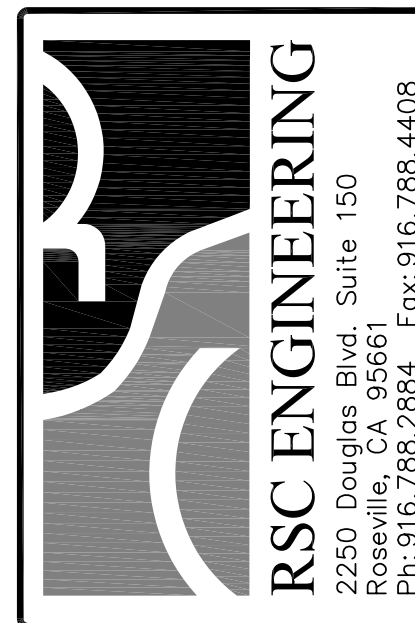
- (3) Certification from an accredited geotechnical testing laboratory that the Bioretention Soil has an infiltration rate between 5 and 12 inches per hour as tested according to Section 1.b.(2)(ii).
- (4) Organic content test results of mixed Bioretention Soil. Organic content test shall be performed in accordance with Testing Methods for the Examination of Compost and Composting (TMECC) 05.07A, "Loss-On-Ignition Organic Matter Method".
- (5) Grain size analysis results of mixed bioretention soil performed in accordance with ASTM D 422, Standard Test Method for Particle Size Analysis of Soils.
- (6) A description of the equipment and methods used to mix the sand and compost to produce Bioretention Soil.
- (7) The name of the testing laboratory(s) and the following information:
  - (i) Contact person(s)
  - (ii) Address(s)
  - (iii) Phone contact(s)
  - (iv) E-mail address(s)
  - (v) Qualifications of laboratory(s), and personnel including date of current certification by STA, ASTM, or approved equal.
- b. Bioretention Soil
  - (1) Bioretention Soil Texture: Bioretention Soils shall be analyzed by an accredited lab using #200, and 1/2" inch sieves (ASTM D 422 or as approved by municipality), and meet the following gradation:
 

Sieve Size	Percent Passing (by weight)	
	Min	Max
1/2 inch	97	100
No. 200	2	5
  - (2) Bioretention Soil Permeability testing: Bioretention Soils shall be analyzed by an accredited geotechnical lab for the following tests:
    - (i) Moisture – density relationships (compaction tests) shall be conducted on bioretention soil. Bioretention soil for the permeability test shall be compacted to 85 to 90 percent of the maximum dry density (ASTM D1557).
    - (ii) Constant head permeability testing in accordance with ASTM D2434 shall be conducted on a minimum of two samples with a 6-inch mold and vacuum saturation.

**MULCH FOR BIORETENTION FACILITIES**

Three inches of mulch is recommended for the purpose of retaining moisture, preventing erosion and minimizing weed growth. Projects subject to the State's Model Water Efficiency Landscaping Ordinance (or comparable local ordinance) will be required to provide at least three inches of mulch. Aged mulch, also called compost mulch, reduces the ability of weeds to establish, keeps soil moist, and replenishes soil nutrients. Aged mulch can be obtained through soil suppliers or directly from commercial recycling yards. It is recommended to apply 1" to 2" of composted mulch, once a year, preferably in June following weeding.

DATE	BY	DATE	DESCRIPTION



PROJECT NO:	068-002
DRAWN BY:	RSC Eng
CHECKED BY:	RSC Eng
DESIGNED BY:	RSC Eng

**EDEN SHORES RETAIL CENTER**  
**NWC EDEN SHORES BLVD. & HESPERIAN BLVD.**  
**HAYWARD, CA 94545**

SHEET TITLE  
**PRELIMINARY STORMWATER PLAN**

SHEET NO.  
**EXHIBIT B**  
2 OF 2

DATE: AUGUST 15, 2016

- h. Provide the name of the testing laboratory(s) and the following information:
  - (1) Contact person(s)
  - (2) Address(s)
  - (3) Phone contact(s)
  - (4) E-mail address(s)
  - (5) Qualifications of laboratory(s), and personnel including date of current certification by USCC, ASTM, Caltrans, or approved equal
3. Sand for Bioretention Soil
  - a. Sand shall be free of wood, waste, coating such as clay, stone dust, carbonate, etc., or any other deleterious material. All aggregate passing the No. 200 sieve size shall be nonplastic.
  - b. Sand for Bioretention Soils shall be analyzed by an accredited lab using #200, #100, #40 or #50, #30, #16, #8, #4, and 3/8 inch sieves (ASTM D 422, CTM 202 or as approved by municipality), and meet the following gradation:

Sieve Size	Percent Passing (by weight)	
	Min	Max
3/8 inch	100	100
No. 4	90	100
No. 8	70	100
No. 16	40	95
No. 30	15	70
No. 40 or No.50	5	55
No. 100	0	15
No. 200	0	5

Note: all sands complying with ASTM C33 for fine aggregate comply with the above gradation requirements.

4. Composted Material  
Compost shall be a well decomposed, stable, weed free organic matter source derived from waste materials including yard debris, wood wastes or other organic materials not including manure or biosolids meeting the standards developed by the US Composting Council (USCC). The product shall be certified through the USCC Seal of Testing Assurance (STA) Program (a compost testing and information disclosure program).

- d. Bulk density shall be between 500 and 1100 dry lbs/cubic yard
- e. Moisture content shall be between 30% - 55% of dry solids.
- f. Inerts – compost shall be relatively free of inert ingredients, including glass, plastic and paper, < 1 % by weight or volume.
- g. Select Pathogens – Salmonella <3 MPN/4grams of TS, or Coliform Bacteria <10000 MPN/gram.
- h. Trace Contaminants Metals (Lead, Mercury, Etc.) – Product must meet US EPA, 40 CFR 503 regulations.
- i. Compost Testing – The compost supplier will test all compost products within 120 calendar days prior to application. Samples will be taken using the STA sample collection protocol. (The sample collection protocol can be obtained from the U.S. Composting Council, 4250 Veterans Memorial Highway, Suite 275, Holbrook, NY 11741 Phone: 631-737-4931, www.compostingcouncil.org). The sample shall be sent to an independent STA Program approved lab. The compost supplier will pay for the test.

**VERIFICATION OF ALTERNATIVE BIORETENTION SOIL MIXES**

Bioretention soils not meeting the above criteria shall be evaluated on a case by case basis. Alternative bioretention soil shall meet the following specification: "Soils for bioretention facilities shall be sufficiently permeable to infiltrate runoff at a minimum rate of 5 inches per hour during the life of the facility, and provide sufficient retention of moisture and nutrients to support healthy vegetation."

The following steps shall be followed by municipalities to verify that alternative soil mixes meet the specification:

1. General Requirements – Bioretention soil shall achieve a long-term, in-place infiltration rate of at least 5 inches per hour. Bioretention soil shall also support vigorous plant growth. The applicant refers to the entity proposing the soil mixture for approval.
  - a. Submittals – The applicant must submit to the municipality for approval:
    - (1) A minimum one-gallon size sample of mixed bioretention soil.
    - (2) Certification from the soil supplier or an accredited laboratory that the Bioretention Soil meets the requirements of this guideline specification.

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 Date: 8/15/16  
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 Date: 8/15/16  
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EXHIBIT C  
MAINTENANCE PLANS  
&  
**DEED COVENANT**

## Maintenance Plan

### Routine Maintenance Activities

The maintenance objectives for the landscaped storm water treatment include keeping up the pollutant removal efficiency of the channel by maintaining a dense, healthy vegetated cover. Routine maintenance activities, and the frequency at which they will be conducted, are shown in the table below.

<b>Routine Maintenance Activities for Landscape Based Treatment Areas</b>		
<b>No.</b>	<b>Maintenance Task</b>	<b>Frequency of Task</b>
1	Remove obstructions, debris and trash from the treatment measure and dispose of properly.	Minimum 3 times/year. <sup>1</sup>
2	Inspect the treatment measure to ensure that it drains between storms and within five days after rainfall.	Minimum 3 times/year. <sup>1</sup>
3	Inspect downspouts, curb cuts, overflow pipes, inflow pipes, outflow pipes, and/or bubble ups to ensure flow to the treatment measure is unimpeded. Remove debris and repair damaged pipes. Check splash blocks or rocks and repair, replace and replenish as necessary.	Minimum 3 times/year. <sup>1</sup>
4	Inspect inlets for channeling, ruts and holes, soil exposure or other evidence of erosion.	Minimum 3 times/year. <sup>1</sup>
5	Clear obstructions and remove sediment accumulating near inlets when it builds up to 2 inches at any spot, or if it covers vegetation. Dispose of sediment properly.	Minimum 3 times/year. <sup>1</sup>
6	Inspect concrete lined measures to ensure that box is structurally sound (no cracks or leaks). Repair as necessary.	Annually
7	Evaluate health of vegetation. Remove and replace all dead and diseased vegetation. Replace with vegetation with similar growth requirements. List the plants to be used in the treatment area here, or attach a separate sheet:	Monthly
8	Maintain vegetation and the irrigation system. Irrigate vegetation when necessary. Mow, prune and/or weed to keep the treatment measure neat and orderly in appearance. Remove any invasive vegetation and/or weeds. Treat vegetation using preventative and low-toxic methods (Integrated Pest Management).	Monthly

Routine Maintenance Activities for Landscape Based Treatment Areas		
No.	Maintenance Task	Frequency of Task
9	Check that mulch, cobble, and/or treatment soil <sup>2</sup> are at the appropriate depth/s (per design specifications) and replenish when necessary.	Minimum 3 times/year. <sup>1</sup>
10	Inspect the treatment measure using the inspection checklist provided in Exhibit D.	Minimum 3 times/year. <sup>1</sup>

Check the appropriate landscaped based measures that are located at this site:

- Bioretention Area                       Flow-Through Planter  
 Tree Well Filter                               Vegetated Swale

**Inspections:** The Landscaped Based Inspection and Maintenance Checklist provided shall be used to conduct inspections, identify needed maintenance, and record maintenance that is conducted.

**Mosquito Abatement:** Standing water shall not remain in the treatment measures for more than five days, to prevent mosquito generation. Should any mosquito issues arise, contact the Alameda County Mosquito Abatement District (ACMAD), as needed for assistance. Mosquito larvicides shall be applied only when absolutely necessary, as indicated by the ACMAD and then only by a licensed professional or contractor. Contact information for ACMAD follows: Alameda County Mosquito Abatement District, 23187 Connecticut St., Hayward, CA 94545, Phone: (510) 783-7747.

<sup>1</sup> The 3 minimum times/year are as follows: 1) before wet season, 2) after rain events >1" or greater, and 3) after the wet season.

<sup>2</sup> Soil used shall meet the specifications included in the most recent version of Alameda Countywide Clean Water Program's C.3 Storm Water Technical Guidance Manual (accessible at <http://fremont.gov/stormwaterdevelopment>). Provide a laboratory analysis, from an approved testing laboratory, to the City to confirm that the soils provided meet the above requirement.

## Landscape Based Inspection and Maintenance Checklist

Property Address: \_\_\_\_\_ Property Owner: \_\_\_\_\_

Treatment Measure No.: \_\_\_\_\_ Date of Inspection: \_\_\_\_\_ Inspector(s): \_\_\_\_\_

Type of Inspection:  Monthly  Pre-Wet Season  After heavy runoff (1" or greater)  
 End of Wet Season  Other: \_\_\_\_\_

Type of Treatment Measure:  Bioretention Area  Flow-Through Planter  Tree Well Filter  Vegetated Swale

Defect	Conditions When Maintenance Is Needed	Maintenance Needed (Y/N)	Comments*	Results Expected When Maintenance is Performed
1. Trash and Debris Accumulation	Trash and debris accumulated in the treatment measure.			Treatment measure is free of trash and debris.
2. Standing Water	When water stands in the treatment measure between storms and does not drain within 5 days after rainfall. Conditions within treatment measure provide mosquito breeding habitat.			No standing water after 5 days of rain event.
3. Storm water Intermediaries	Downspouts, curb cuts, overflow pipes, inflow pipes, outflow pipes, and/or bubble ups are damaged and/or clogged with sediment and/or debris. Splash blocks or rocks are damaged or missing.			All storm water intermediaries are cleaned and repaired. Treatment measure flows as intended per design specifications.
4. Erosion	Treatment measure has channels, ruts or holes, and/or soil exposure due to erosion.			There is no evidence of channeling, ruts and holes, soil exposure or other evidence of erosion.

Landscaped Base Inspection and Maintenance Checklist

Date of Inspection \_\_\_\_\_

Property Address: \_\_\_\_\_

Treatment Measure No.: \_\_\_\_\_

Defect	Conditions When Maintenance Is Needed	Maintenance Needed (Y/N)	Comments*	Results Expected When Maintenance is Performed
5. Sediment Accumulation on Vegetation	Sediment accumulating near and/or in inlets is built up to 2 inches at any spot, or it covers vegetation.			When finished, treatment measure should be level from side to side and drain freely toward outlet. There should be no areas of standing water once inflow has ceased and sediment is disposed of properly.
6. Structural integrity	Concrete lined measure has cracks and/or leaks.			Cracks and leaks are repaired and the treatment measure is structurally sound.
7. Vegetation Health	Vegetation is either dead or diseased. Growth of planted vegetation is poor because sunlight does not reach the treatment measure.			Vegetation is healthy and receives proper amount of sunlight. Dying or diseased vegetation have been properly removed and replaced with vegetation having similar growth requirements.
8. Vegetation Maintenance	Vegetation isn't being properly irrigated. When the planted vegetation becomes excessively tall, when invasive vegetation and/or weeds start to take over.			Vegetation is irrigated & mowed/trimmed when necessary. There is no sign of invasive vegetation and/or weeds.
9. Mulch, cobble, and/or treatment soil	Mulch, cobble, and/or treatment soil is missing or patchy in appearance.			Mulch, cobble, and/or treatment soil meet design specifications.
10. Miscellaneous	Any condition not covered above that needs attention in order for the treatment measure to function as designed.			Treatment measure operates per the design specifications.

**Storm water Treatment Measures Operation and Maintenance**

**Inspection Report to the**

\_\_\_\_\_, Alameda County, California

This report and attached inspection checklists document the inspection and maintenance conducted for the identified storm water treatment measures (STMs) and flow duration controls (FDCs) subject to the Maintenance Agreement between the City and the property owner during the annual reporting period indicated below.

**I. Property Information:**

Property Address or APN: \_\_\_\_\_

Property Owner: \_\_\_\_\_

**II. Contact Information:**

Name of person to contact regarding this report: \_\_\_\_\_

Phone number of contact person: \_\_\_\_\_ Email: \_\_\_\_\_

Address to which correspondence regarding this report should be directed:

\_\_\_\_\_  
\_\_\_\_\_

**III. Reporting Period:**

This report, with the attached completed inspection checklists, documents the inspections and maintenance of the identified treatment measures during the time period from January 1 to December 31 annually.

**IV. Storm Water Treatment Measure and Flow Duration Control Information:**

The following STMs and FDCs are located on the property identified above and are subject to the Maintenance Agreement:

Number of each type of STM or FDC	Type of STM or FDC	Location of STMs & FDCs on the Property



**V. Sediment Removal**

Total amount of accumulated sediment removed from the storm water treatment measure(s) during the reporting period: \_\_\_\_\_ cubic yards.

The sediment was removed and disposed as follows: \_\_\_\_\_

\_\_\_\_\_

**VI. Inspector Information:**

The inspections documented in the attached inspection checklists were conducted by the following inspector(s):

Inspector Name and Title	Inspector's Employer and Address

**VII. Statement of STM and FDC Condition**

Based on the inspections documented in the attached checklists, are the STMs and FDCs identified in this report present, functional and being maintained as required by the Maintenance Plan? (Check yes or no.)

\_\_\_ YES      \_\_\_ NO

**If "NO", describe problem, proposed solution and schedule of correction:**

**VIII. Certification:**

I hereby certify, under penalty of perjury, that the information presented in this report and attachments is true and complete:

\_\_\_\_\_  
Signature of Property Owner or Other Responsible Party

\_\_\_\_\_  
Date

\_\_\_\_\_  
Type or Print Name

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Address

Phone number: \_\_\_\_\_ Email: \_\_\_\_\_

EXHIBIT D  
HMP SUSCEPTIBILITY INDEX & MAP


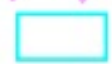
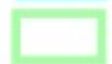

# Exhibit D:

## HMP susceptibility map










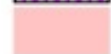


Alameda Countywide  
Clean Water Program  
November 13, 2006

### LEGEND (see text also)

-  Major highways
-  Major watersheds
-  County boundary
-  Streets

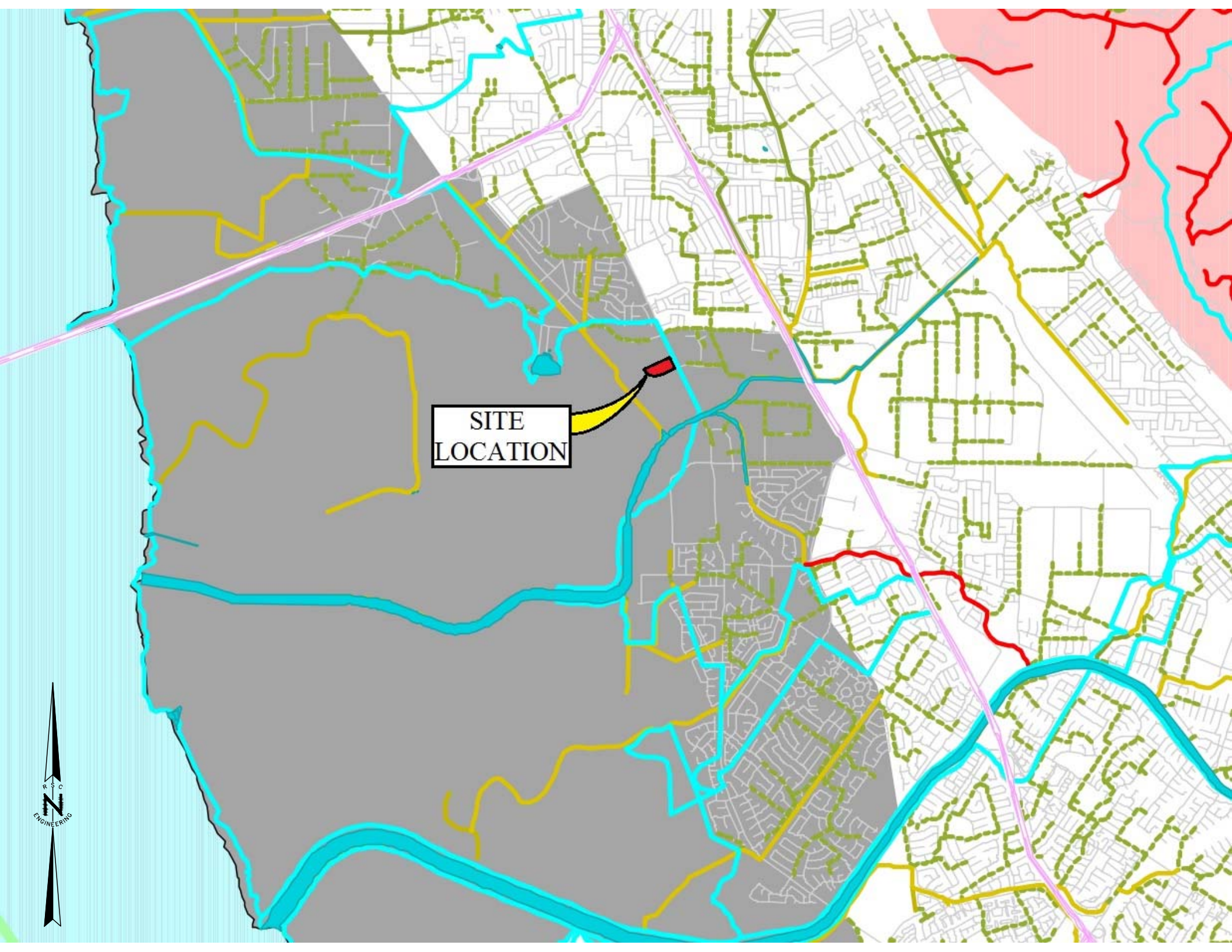
#### Channel type

-  Natural creek or stream (susceptible)
-  Earthen channel or connector
-  Engineered channel - materials unknown
-  Engineered channel - concrete
-  Enclosed pipe or culvert

-  Special consideration - San Lorenzo & Alameda Creeks
-  Special consideration - Codornices Creek
-  Hill or high slope region (susceptible)
-  Tidally influenced / depositional - exempt
-  Not included in HMP

#### Data sources:

Alameda County Flood Control and Water Conservation District; ACCWP;  
Zone 7 Water Agency; U.S. Census Bureau; U.S. Geological Survey;  
William Lettis Associates (Oakland Museum creek and watershed mapping project);  
Balance Hydrologics and EIP Associates (Proposed test of the approach for the  
ACCWP HMM Preliminary Map, July 2003)



SITE  
LOCATION

