STORMWATER CONTROL PLAN

for

HOME 2 SUITES

550 GATEWAY BOULEVARD

SOUTH SAN FRANCISCO, CA

June 16th, 2017

Sri Krishna Enterprises
300 Gateway Boulevard
South San Francisco, CA 94080

prepared by:

Bellecci & Associates
2290 Diamond Blvd., Suite 100
Concord, CA 94520
925-685-4569

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Attachments

This Stormwater Control Plan was prepared using the template dated February 15, 2012.

I. PROJECT DATA

Table 1. Project Data

Project Name/Number	HOME 2 SUITES
Application Submittal Date	June 15th, 2017
Project Location	550 Gateway Boulevard South San Francisco, CA APN 015-023-270
Name of Developer	Sri Krishna Enterprise
Project Phase No.	N/A
Project Type and Description	Hotel
Project Watershed	N/A
Total Project Site Area (acres)	2 acres
Total Area of Land Disturbed (acres)	2 acres
Total New Impervious Surface Area (sq. ft.)	67,790 sf
Total Replaced Impervious Surface Area	0 sf
Total Pre-Project Impervious Surface Area	1,170 sf
Total Post-Project Impervious Surface Area	68,960 sf
50% Rule[*]	Does not apply
Project Density	
Applicable Special Project Categories [Complete even if all treatment is LID]	None
Percent LID and non-LID treatment	100% LID treatment
HMP Compliance [†]	Does not apply

[*50% rule applies if:
Total Replaced Impervious Surface Area > 0.5 x Pre-Project Impervious Surface Area]

[†HMP applies if:
(Total New Impervious Surface Area + Total Replaced Impervious Surface Area) ≥ 1 acre]

II. SETTING

II.A. Project Location and Description

The Gateway Hotel project (APN 015-023-270) is located 250' +/- northeast of Corporate Drive and southeast of Gateway Boulevard in South San Francisco, San Mateo County, California as shown in the vicinity map in Figure 1 below. The proposed project impacts the area of the site approximately 2 acres in size. The project includes construction of 155 rooms - 5 story hotel building, with a parking lot. The proposed project will introduce more than 7,000 sf of impervious surfaces. Therefore, per table 1-1 of the County's Stormwater C.3 Guidebook, this project is required to include treatment measures. The proposed project will create more than 1 acre of impervious area. Therefore, the project is subject to the Hydrograph Modification management (i.e. flow control) requirements of the MRP. Since the project is an HMP exempt area, HMP compliance does not apply for this project.

Figure 1: Vicinity Map

II.B. Existing Site Features and Conditions

The proposed project is 2 acres in size with a quadrilateral shape. The site is bounded by Gateway Boulevard on the northwest side, PG & E towers on the southwest side, and by commercial development. The site is very flat with a 3 feet elevation difference running north to south. Site has several trees along Gateway Boulevard and is vacant. The City of South San Francisco maintains a 36-inch diameter public storm drain system located on Gateway Boulevard. The site currently consists of pervious undeveloped, self-treating open land. The site has no existing hydrologic features, and consists of Type D soil per NRCS web soil survey. Soils in this group have moderately high runoff potential when thoroughly wet and water transmissions through the soil is somewhat restricted.

II.C. Opportunities and Constraints for Stormwater Control

The following are the constraints and opportunities affecting the selection of treatment and flow control facilities for the project.

Roof Drainage: The proposed building architecture does not incorporate a green roof. The proposed building roof will generate runoff and has to be treated by an IMP.

Access Driveway: Site plan proposes asphalt paved driveways for access roads for vehicle circulation within the property. Asphalt paved surface will generate significant runoff, which has to be treated by an IMP.

Landscaping: Site plan proposes extensive landscaping across property and along the areas in front of the building. Landscaping features are a critical components of site design.

Rain Cycle: Period between dry season and rainy season are long enough to make storage of rain water for reuse not feasible. San Francisco Bay Area Rain cycle hinders the opportunities for storage and reuse.

Group D Soil: As per NRCS web soil survey, the property has group D soils having high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted.

Ground Water Table: As per project geotechnical report, prepared by Krazan and Associates, dated November 12, 2007, groundwater table is between 10.75'± – 12.5'± deep.

III. LOW IMPACT DEVELOPMENT DESIGN STRATEGIES

III.A. Optimization of Site Layout

III.A.1. Limitation of development envelope

The site has slope varying from 2.5% slopes and constrained on most sides, allowing for minimal grading and drainage. Innovative measures need to be taken for the site to comply with the San Mateo County C.3 guidelines.

III.A.2. Preservation of natural drainage features

There are no existing natural drainage features which require preservation.

III.A.3. Setbacks from creeks, wetlands, and riparian habitats

There are no nearby creeks, wetlands and/or riparian habitats, which require a setback within or surrounding the site's boundaries.

III.A.4. Minimization of imperviousness

The site utilizes landscaped areas, to minimize the effects of the impervious surfaces through treatment and retention methods. This is a high density development that maximizes the use of the site. The site is a densely infill site, which maximizes the use of the existing streets and roads for access. Three bio-retention areas are designed onsite to retain and treat runoff.

III.A.5. Use of drainage as a design element

The improvements will be designed to drain to the water quality basin which is designed to be a bioretention facility.

III.B. Dispersal of Runoff to Pervious Areas

The majority of the site's impervious surfaces are conventional roofs that will generate quick runoff. The roof drains will be directed to splash blocks (or rocks) within the bioretention facilities either directly below the roof overhangs or with a sidewalk underdrain to the bioretention facilities. These facilities are designed to treat the runoff through filtration, decrease the time of concentration via evapotranspiration and percolation through engineered soil, and discharge the treated runoff into the storm drain system. Due to the potential lack of runoff infiltration with the underlying soil and the ample amounts of areas set aside for vegetation, the bioretention facility is the best type of IMP to employ with these existing conditions. See the detail on the Storm Water Control Plan exhibit for more information.

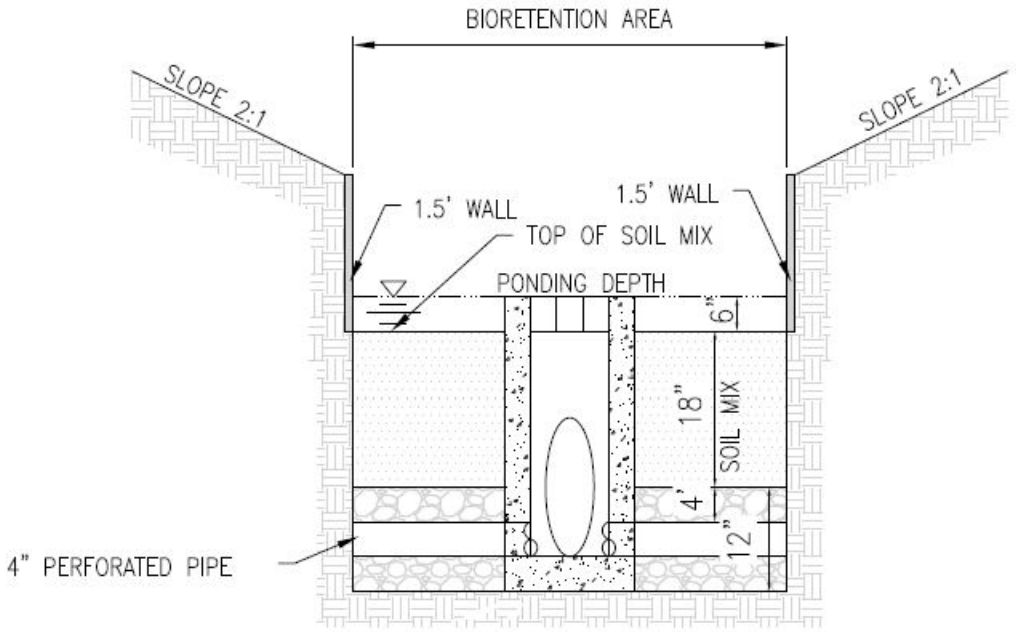
III.C. Feasibility Assessment of Harvesting and Use for Treatment and Flow-Control

Adoption of Order R2-2015-0049, effective January 1, 2016 eliminated the requirement to demonstrate infeasibility for full capture. Flow control is not required as the project is located in HMP exempt areas of the county.

III.D. Integrated Management Practices

Bioretention facilities detain runoff in a surface reservoir, filter the runoff through plants roots and a biologically active soil mix, and then infiltrate it into the ground. When native soils are less permeable, an underdrain conveys treated runoff that does not infiltrate to a storm drain or to surface drainage. Three bioretention basins will be constructed to treat the runoff from rooftops of the building, access drive ways, etc.

Figure 2: Bio-retention Facility



BIORETENTION AREA SECTION

NOT TO SCALE

IV. DOCUMENTATION OF DRAINAGE DESIGN

IV.A. Descriptions of each Drainage Management Area

IV.A.1. Table of Drainage Management Areas

Table 2. Drainage Management Areas (DMAs)

DMA NAME	SURFACE TYPE			TOTAL AREA (sf)	DRAINS TO	IMP TYPE	MIN. IMP SIZE (sf)	PROP. IMP SIZE (sf)
	Roof (sf)	Asphalt Concrete (sf)	Landscaping (sf)					
DMA 1	0	3,474	634	4,108	IMP 1	Bio-retention	141	137
DMA 2	19,388	42,185	11,777	73,350	IMP 2	Bio-retention	2,510	2,606
DMA 3	0	2,743	400	3,143	IMP 3	Bio-retention	111	97
DMA 4	0	254	248	502	-	Self-Treating	-	-
DMA 5	0	1,170	0	1,170	-	Offsite		
DMA 6	0	0	4,850	4,850	-	Self-Treating	-	-
TOTAL	19,388	49,826	17,909	87,123				

IV.A.2. Drainage Management Area Descriptions

DMA 1, totaling 4,108 square feet, asphalt concrete area of 3,474 sf, landscaped area of 634 sf that drains to IMP 1, a bioretention facility. See attached stormwater control plan for location.

DMA 2, totaling 73,350 square feet, conventional roof area of 19,388, asphalt concrete area of 42,185 sf, landscaped area of 11,777 sf that drains to IMP 2, a bioretention facility. See attached stormwater control plan for location.

DMA 3, totaling 3,143 square feet, asphalt concrete area of 2,743 sf, landscaped area of 400 sf that drains to IMP 3, a bioretention facility. See attached stormwater control plan for location.

DMA 4, totaling 502 square feet, asphalt concrete area of 254 sf, landscaped area of 248 sf that drains to IMP 1, a bioretention facility. See attached stormwater control plan for location.

DMA 5, totaling 1,170 square feet of asphalt concrete, located offsite the project. See attached stormwater control plan for location.

DMA 6, totaling 4,850 square feet of landscape area, a self-treating facility. See attached stormwater control plan for location.

IV.B. Tabulation and Sizing Calculations

IV.B.1. Information Summary for IMP Design

Table 3. Summary Information for IMP Design

Total Project Area (Square Feet)	87,120
Mean Annual Precipitation	20 in
IMPs Designed For:	Treatment only

IV.B.2. Self-Treating Areas

Table 4. Self-Treating Areas

DMA 4 and DMA 6.

IV.B.3. Self-Retaining Areas

Table 5. Self-Retaining Areas

None

IV.B.4. Areas Draining to Self-Retaining Areas

Table 6. Areas Draining to Self-Retaining Areas

None

V. SOURCE CONTROL MEASURES

V.A. Site activities and potential sources of pollutants

Pollutants that accompany traditional residential and limited agriculture facilities can be expected at this Site, such as pesticides or other unwanted pollutants draining into the on-site storm drain inlets without being pre-treated.

V.B. Source Control Table

Table 7. Sources and Source Control Measures

Potential source of runoff pollutants	Permanent source control BMP's	Operational source control BMP's
On-Site Storm Drain Inlets.	Inlets that could be accessed from sidewalks and driveways will be marked with a "**No Dumping—Drains to Bay**" or similar message.	Inlet markings will be inspected annually and replaced or renewed, as needed.

		Swales and related structures and features will be inspected and maintained as specified in the BMP Operation and Maintenance Plan (to be developed and submitted for approval.)
Interior Floor Drains and elevator shaft sump pumps.	In the event that interior floor drains and/or elevator shaft sump pumps will be installed, they are to be plumbed to the sanitary sewer.	Drains will be regularly inspected and maintained to prevent blockages and overflow.
Interior Parking Garages.	In the event that floor drain will be installed in the enclosed parking garages, they are to be plumbed to the sanitary sewer.	Drains will be regularly inspected and maintained to prevent blockages and overflow.
Need for Future Indoor and Structural Pest Control.	Standard building design minimizes potential needs for future pest control.	Buyers will receive integrated pest management information.
Landscape/Outside Pesticide Use.	Any native trees, shrubs, and ground cover on the site will be preserved to the maximum extent possible. Landscaping will be designed to minimize irrigation and runoff, to promote surface infiltration, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. Plants that are tolerant to saturated soil conditions will be used for landscaped Self-Retaining and Self-Treating areas. Where possible, pest-resistant plants will be selected, especially for locations adjacent to hardscape. Plants will be selected appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions to insure successful establishment.	Buyers will receive integrated pest management (IPM) information. All open space landscaping is to be maintained by a professional landscaping contractor. All landscaping will be maintained using the minimum amount of pesticides possible.
Pools, spas, ponds, decorative fountains, and other water features.	Public pools must be plumbed to the sanitary sewer; connection will be made according to the County Department of Environmental Health Guidelines and any other local requirements.	All applicable BMP operations, as stated in Fact Sheet SC-72, "Fountain and Pool Maintenance," in the CASQA Stormwater Quality Handbooks found at www.cabmphandbooks.com, will be followed. Water hardness and pH will be managed to minimize copper pipe corrosion. No copper-based algaecides will be used. All water will be discharged into the sanitary sewer system. Backflow will be prevented by maintaining an "air gap" between the discharge line and sewer line. Drip pans or buckets will

		be provided below drain pipe connections to catch leaks. Filters should be cleaned in an area where runoff flows to the sanitary sewer or remains on soil area that does not lead to the storm drain system. All filters and hazardous material shall properly be disposed of.
Refuse Areas—Dumpster Storage	The storage facility for the dumpster will consist of a concrete pad, graded with a drainage inlet leading to the sanitary sewer system to prevent infiltration to the storm drain and surrounding soil. Berms will prevent run-on and runoff from the concrete pad. A structure, consisting of walls, latching doors, and a roof, will prevent rain runoff and unwanted intruders from accessing the dumpsters. Signs will be posted on or near the dumpsters and trash receptacles with the words "**Do not dump hazardous materials here**" or similar. Trash receptacles will be placed in common meeting areas and locations where litter is most probable to occur.	All material to be stored in dumpster until onsite pickup occurs will be bagged and sealed to prevent leaks and loose debris. Dumpsters will remain covered at all times. All trash receptacles will be inspected annually for holes and cracks to prevent leaks and loose debris. Damaged trash receptacles will be repaired or replaced immediately. Trash receptacles will remain covered at all times. Litter will be picked-up daily and spills cleaned immediately. Spill control materials will be available on site at all times.
Vehicle and Equipment Cleaning		Onsite car washing will be prohibited.
Vehicle Maintenance		Onsite vehicle maintenance or repair will be prohibited.
Fire Sprinkler Test	Fire sprinkler test valves will be equipped with a means to divert test water to the sanitary sewer.	
Rooftop Equipment	Rooftop mounted equipment will be covered to prevent pollutants from contaminating the runoff.	
Roofing, Gutters and Trim	Roofing, gutters, and trims made of copper or unprotected metals that may leach into runoff will be avoided.	
Plazas, Sidewalks, and Parking Lots		Plazas, sidewalks, and parking lots will be swept regularly to prevent the accumulation of litter and debris. Debris from pressure washing will be collected and washwater containing any cleaning agent or degreaser will be discharged to the sanitary sewer to prevent entry into the storm drain system.

VI. STORMWATER FACILITY MAINTENANCE

VI.A. Ownership and Responsibility for Maintenance in Perpetuity

All stormwater treatment facilities in this plan will be maintained by the owner. The owner accepts full responsibility for interim operation and maintenance of the facilities until such time as this responsibility is formally transferred to a subsequent owner.

VI.B. Summary of Maintenance Requirements for Each Stormwater Facility

- Examine downspouts from rooftops or sheet flow from paving to ensure that flow to the porous pavement is unimpeded. Remove any debris and repair any damaged pipes. Check splash blocks or rocks and repair, replace, or replenish as necessary.
- Examine the overflow pipe to make sure it can safely convey excess flows to a storm drain. Repair or replace any damaged or disconnected piping.
- Check the underdrain piping to make sure it is intact and unobstructed.
- Check that the soil is at the appropriate depth to allow a reservoir above the soil surface and is sufficient to effectively filter stormwater. Remove any accumulation of sediment, litter, and debris. Till or replace soil as necessary. Confirm that soil is not clogging and that the planter will drain within 3-4 hours after a storm event.
- Determine whether the vegetation is dense and healthy. Replace dead plants. Prune or remove any overgrown plants or shrubs that may interfere with planter operation. Clean up fallen leaves or debris and replenish mulch. Remove any nuisance or invasive vegetation.

VII. CONSTRUCTION PLAN C.3 CHECKLIST

Table 8. Construction Plan C.3 Checklist

Stormwater Control Plan Page #	BMP Description	See Plan Sheet #s
5	The bioretention facilities will be designed to treat runoff and decrease the time of concentration before discharging to the storm drain system.	
7-9 (Source Control Table)	On-site drain inlets to be marked with "No Dumping" message.	
7-9 (Source Control Table)	Preservation (if any) of native trees, shrubs or ground cover.	
7-9 (Source Control Table)	Plant selection to minimize irrigation and use of fertilizer and pesticides—pest-resistant.	
7-9 (Source Control Table)	Storage structure for the dumpster and concrete pad graded with inlet connected to the SS systems.	
7-9 (Source Control Table)	Enclosures for all rooftop mounted equipment to prevent pollutant contamination of runoff.	
7-9 (Source Control Table)	Roofing, gutters, or trim made of copper or unprotected metals that may leach into the runoff will not be permitted.	

VIII. CERTIFICATIONS

The selection, sizing, and preliminary design of stormwater treatment and other control measures in this plan meet the requirements of Regional Water Quality Control Board Order R2-2015-0049, NPDES Permit No. CAS612008.

Sharatchandra Bandugula

RCE No. 82491

ATTACHMENT A

SAN MATEO COUNTYWIDE
Water Pollution
Prevention Program

CITY OF SOUTH SAN FRANCISCO
ENVIRONMENTAL COMPLIANCE
Address: 195 BELLE AIRE RD
SOUTH SAN FRANCISCO CA 94080
650-829-3882

C.3 and C.6 Development Review Checklist

Municipal Regional Stormwater Permit (MRP)
Stormwater Controls for Development Projects

Project Information

I.A **Enter Project Data** *(For "C.3 Regulated Projects," data will be reported in the municipality's stormwater Annual Report.)*

Project Name: HOME 2 SUITES Case Number:

Project Address & Cross St.: 550 GATEWAY BLVD., CITY OF SOUTH SAN FRANCISCO

Project APN: 015-023-270 Project Watershed: COLMA CREEK

Applicant Name: VIJAY PATEL **I.A.4** Slope on Site: %

Applicant Phone: 650-333-1886 Applicant Email Address: vhpbaps@gmail.com

Development type: (check all that apply)

- ☐ Single Family Residential: A stand-alone home that is not part of a larger project.
- ☐ Single Family Residential: Two or more lot residential development.[1] # of units:
- ☐ Multi-Family Residential # of units:
- ☑ Commercial
- ☐ Industrial, Manufacturing
- ☐ Mixed-Use # of units:
- ☐ Streets, Roads[2], etc.
- ☐ 'Redevelopment' as defined by MRP: creating, adding and/or replacing exterior existing impervious surface on a site where past development has occurred.

I.A.1

- ☐ '**Special land use categories'** as defined by MRP: (1) auto service facilities[3], (2) retail gasoline outlets, (3) restaurants, (4) uncovered parking area (stand-alone or part of a larger project)
- ☐ Institutions: schools, libraries, jails, etc.
- ☐ Parks and trails, camp grounds, other recreational
- ☐ Agricultural, wineries
- ☐ Kennels, Ranches
- ☐ Other, Please specify

Project Description[4]: 93,320 SF HOTEL BLDG WITH 151 ROOMS. BUILDING WILL HAVE 5 STORIES WITH 137 UNCOVERED PARKING STALLS

(Also note any past or future phases of the project.)

I.A.2 Total Area of Site: 2 acres

I.A.3 Total Area of land disturbed during construction (include clearing, grading, excavating and stockpile area): 1.85 acres.

I.A.5 Certification:

I certify that the information provided on this form is correct and acknowledge that, should the project exceed the amount of new and/or replaced impervious surface provided in this form, the as-built project may be subject to additional improvements.

☐ Attach Preliminary Calculations ☐ Attach Final Calculations ☑ Attach copy of site plan showing areas

Name of person completing the form: SHARAT BANDUGULA Title: PE

Signature: Date:

Phone number: 925-685-4569 Email address: sbandugula@bellecci.com

[1] Common Plans of Development (subdivisions or contiguous, commonly owned lots, for the construction of two or more homes developed within 1 year of each other) are not considered single family projects by the MRP.

[2] Roadway projects creating 10,000 sq.ft. or more of contiguous impervious surface are subject to C.3 requirements if the roadway is new or being widened with additional traffic lanes.

[3] See Standard Industrial Classification (SIC) codes here

[4] Project description examples: 5-story office building, industrial warehouse, residential with five 4-story buildings for 200 condominiums, etc.

I.B Is the project a "C.3 Regulated Project" per MRP Provision C.3.b?

I.B.1 Enter the amount of impervious surface[5] Retained, Replaced and/or Created by the project:

Table I.B.1 Impervious[5] and Pervious Surfaces

Type of Impervious[5] Surface	I.B.1.a Pre-Project Impervious[5] Surface (sq.ft.)	I.B.1.b Existing Impervious[5] Surface to be Retained[6] (sq.ft.)	I.B.1.c Existing Impervious[5] Surface to be Replaced[6] (sq.ft.)	I.B.1.d New Impervious[5] Surface to be Created[6] (sq.ft.)	I.B.1.e Post-Project Impervious[5] Surface (sq.ft.) (=b+c+d)
Roof area(s)	0	0	0	19,422	19,422
Impervious[5] sidewalks, patios, paths, driveways, streets	2,847	2,847	0	6,324	9,171
Impervious[5] uncovered parking[7]	0	0	0	42,244	42,244
Totals of Impervious Surfaces:	2,847	2,847	0	67,990	70,837

I.B.1.f - Total Impervious[5] Surface Replaced and Created *(sum of totals for columns I.B.1.c and I.B.1.d)*:

Type of Pervious Surface	Pre-Project Pervious Surface (sq.ft.)				Post-project Pervious Surface (sq.ft.)
Landscaping	84,273				16,284
Pervious Paving				**I.B.1.e.1:**	
Green Roof					
Totals of Pervious Surfaces:	84,273				
Total Site Area (Total Impervious[5]+Total Pervious=**I.A.2**)	87,120				
Square Footage of Landscaped Based Treatment					

I.B.2 Please review and attach additional worksheets as required below using the Total Impervious Surface (IS) Replaced and Created in cell I.B.1.f from Table I.B.1 above and other factors:

	Check all that apply:	Check One Yes	Check One No	Attach Worksheet
I.B.2.a	Does this project involve any earthwork? If YES, then Check Yes, and Complete Worksheet A. If NO, then go to I.B.2.b	☑	☐	A
I.B.2.b	Is **I.B.1.f** greater than or equal to 2,500 sq.ft? If YES, then the Project is subject to Provision C.3.i. - complete Worksheets B, C & go to I.B.2.c. If NO, then Stop here - go to I.A.5 and complete Certification or ask municipal staff for Small Project Checklist.	☑	☐	B, C
I.B.2.c	Is the total Existing IS to be Replaced (column **I.B.1.c**) 50 percent or more of the total Pre-Project IS (column **I.B.1.a**)? If YES, site design, source control and treatment requirements apply to the whole site. Continue to I.B.2.d If NO, these requirements apply only to the impervious surface created and/or replaced. Continue to I.B.2.d	☐	☑	
I.B.2.d	Is this project a Special Land Use Category (**I.A.1**) and is **I.B.1.f** greater than or equal to 5,000 sq.ft? If YES, project is a Regulated Project. Fill out Worksheet D. Go to I.B.2.f. If NO, go to I.B.2.e	☐	☑	D
I.B.2.e	Is **I.B.1.f** greater than or equal to 10,000 sq.ft? If YES, project is a C.3 Regulated Project - complete Worksheet D. Then continue to I.B.2.f. If NO, then skip to I.B.2.g.	☑	☐	D
I.B.2.f	Is **I.B.1.f** greater than or equal to 43,560 sq.ft? If YES, project may be subject to Hydromodification Management requirements - complete Worksheet E then continue to I.B.2.g. If NO, then go to I.B.2.g.	☑	☐	E
I.B.2.g	Is **I.A.3** greater than or equal to 1 acre? If YES, check box, obtain coverage under the CA Const. General Permit & submit Notice of Intent to municipality - go to I.B.2.h. If NO, then go to I.B.2.h. For more information see: www.swrcb.ca.gov/water_issues/programs/stormwater/construction.shtml	☑	☐	
I.B.2.h	Is this a Special Project or does it have the potential to be a Special Project? If YES, complete Worksheet F - then continue to I.B.2.i. If NO, go to I.B.2.i.	☐	☑	F
I.B.2.i	Is project a High Priority Site? (Determined by the Municipality. High Priority Sites can include those located in or within 100 feet of a sensitive habitat, an Area of Special Biological Significance, a body of water, or **starting 7/1/16** on sites disturbing >=5,000 ft^2 with slopes >=15% (see **I.A.4**) (or per municipal criteria/map) and are subject to monthly inspections from Oct 1 to April 30.) If YES, complete section G-2 on Worksheet G - then continue to I.B.2.j. If NO, then go to I.B.2.j	☐	☑	G
I.B.2.j	For Municipal Staff Use Only: Are you using Alternative Certification for the project review? If YES, then fill out section G-1 on Worksheet G. Fill out other sections of Worksheet G as appropriate.	☐	☐	G

[5] Per the MRP, pavement that meets the following definition of pervious pavement is NOT an impervious surface. Pervious pavement is defined as pavement that stores and infiltrates rainfall at a rate equal to immediately surrounding unpaved, landscaped areas, or that stores and infiltrates the rainfall runoff volume described in Provision C.3.

[6] "Retained" means to leave existing impervious surfaces in place, unchanged; "Replaced" means to install new impervious surface where existing impervious surface is removed anywhere on the same property; and "Created" means the amount of new impervious surface being proposed which exceeds the total existing amount of impervious surface at the property.

[7] Uncovered parking includes the top level of a parking structure.

	See cell **I.B.1.e.1** above - Is the project installing 3,000 square feet or more of pervious paving? If YES, then fill out section G-3 on Worksheet G. Add to Municipal Inspection Lists (C.3.h)	☐	☑	

Worksheet A

C6 – Construction Stormwater BMPs

Identify Plan sheet showing the appropriate construction Best Management Practices (BMPs) used on this project:
(Applies to all projects with earthwork)

Yes	Plan Sheet	Best Management Practice (BMP)
☒		Control and prevent the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, wash water or sediments, rinse water from architectural copper, and non-stormwater discharges to storm drains and watercourses.
☒		Store, handle, and dispose of construction materials/wastes properly to prevent contact with stormwater.
☒		Do not clean, fuel, or maintain vehicles on-site, except in a designated area where wash water is contained and treated.
☐		Train and provide instruction to all employees/subcontractors re: construction BMPs.
☐		Protect all storm drain inlets in vicinity of site using sediment controls such as berms, fiber rolls, or filters.
☐		Limit construction access routes and stabilize designated access points.
☐		Attach the San Mateo Countywide Water Pollution Prevention Program's construction BMP plan sheet to project plans and require contractor to implement the applicable BMPs on the plan sheet.
☐		Use temporary erosion controls to stabilize all denuded areas until permanent erosion controls are established.
☐		Delineate with field markers clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and drainage courses.
☐		Provide notes, specifications, or attachments describing the following: ▪ Construction, operation and maintenance of erosion and sediment controls, include inspection frequency; ▪ Methods and schedule for grading, excavation, filling, clearing of vegetation, and storage and disposal of excavated or cleared material; ▪ Specifications for vegetative cover & mulch, include methods and schedules for planting and fertilization; ▪ Provisions for temporary and/or permanent irrigation.
☐		Perform clearing and earth moving activities only during dry weather.
☐		Use sediment controls or filtration to remove sediment when dewatering and obtain all necessary permits.
☐		Trap sediment on-site, using BMPs such as sediment basins or traps, earthen dikes or berms, silt fences, check dams, soil blankets or mats, covers for soil stock piles, etc.
☐		Divert on-site runoff around exposed areas; divert off-site runoff around the site (e.g., swales and dikes).
☐		Protect adjacent properties and undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers or filters, dikes, mulching, or other measures as appropriate.

Worksheet B

C3 - Source Controls

Select appropriate source controls and identify the detail/plan sheet where these elements are shown.

Yes	Detail/Plan Sheet No.	Features that require source control measures	Source Control Measures (Refer to Local Source Control List for detailed requirements)
☐		Storm Drain	Mark on-site inlets with the words "No Dumping! Flows to Bay" or equivalent.
☐		Floor Drains	Plumb interior floor drains to sanitary sewer[8] [or prohibit].
☐		Parking garage	Plumb interior parking garage floor drains to sanitary sewer.[8]
☐		Landscaping	▪ Retain existing vegetation as practicable. ▪ Select diverse species appropriate to the site. Include plants that are pest- and/or disease-resistant, drought-tolerant, and/or attract beneficial insects. ▪ Minimize use of pesticides and quick-release fertilizers. ▪ Use efficient irrigation system; design to minimize runoff.
☐		Pool/Spa/Fountain	Provide connection to the sanitary sewer to facilitate draining.[8]
☐		Food Service Equipment (non-residential)	Provide sink or other area for equipment cleaning, which is: ▪ Connected to a grease interceptor prior to sanitary sewer discharge.[8] ▪ Large enough for the largest mat or piece of equipment to be cleaned. ▪ Indoors or in an outdoor roofed area designed to prevent stormwater run-on and run-off, and signed to require equipment washing in this area.
☐		Refuse Areas	▪ Provide a roofed and enclosed area for dumpsters, recycling containers, etc., designed to prevent stormwater run-on and runoff. ▪ Connect any drains in or beneath dumpsters, compactors, and tallow bin areas serving food service facilities to the sanitary sewer.[8]
☐		Outdoor Process Activities [9]	Perform process activities either indoors or in roofed outdoor area, designed to prevent stormwater run-on and runoff, and to drain to the sanitary sewer.[8]
☐		Outdoor Equipment/ Materials Storage	▪ Cover the area or design to avoid pollutant contact with stormwater runoff. ▪ Locate area only on paved and contained areas. ▪ Roof storage areas that will contain non-hazardous liquids, drain to sanitary sewer[8], and contain by berms or similar.
☐		Vehicle/ Equipment Cleaning	▪ Roofed, pave and berm wash area to prevent stormwater run-on and runoff, plumb to the sanitary sewer[8], and sign as a designated wash area. ▪ Commercial car wash facilities shall discharge to the sanitary sewer.[8]
☐		Vehicle/ Equipment Repair and Maintenance	▪ Designate repair/maintenance area indoors, or an outdoors area designed to prevent stormwater run-on and runoff and provide secondary containment. Do not install drains in the secondary containment areas. ▪ No floor drains unless pretreated prior to discharge to the sanitary sewer.[8] ▪ Connect containers or sinks used for parts cleaning to the sanitary sewer.[8]
☐		Fuel Dispensing Areas	▪ Fueling areas shall have impermeable surface that is a) minimally graded to prevent ponding and b) separated from the rest of the site by a grade break. ▪ Canopy shall extend at least 10 ft. in each direction from each pump and drain away from fueling area.
☐		Loading Docks	▪ Cover and/or grade to minimize run-on to and runoff from the loading area. ▪ Position downspouts to direct stormwater away from the loading area. ▪ Drain water from loading dock areas to the sanitary sewer.[8] ▪ Install door skirts between the trailers and the building.
☐		Fire Sprinklers	Design for discharge of fire sprinkler test water to landscape or sanitary sewer.[8]
☐		Miscellaneous Drain or Wash Water	▪ Drain condensate of air conditioning units to landscaping. Large air conditioning units may connect to the sanitary sewer.[8] ▪ Roof drains from equipment drain to landscaped area where practicable. ▪ Drain boiler drain lines, roof top equipment, all wash water to sanitary sewer.[8]
☐		Architectural Copper Rinse Water	▪ Drain rinse water to landscaping, discharge to sanitary sewer[8], or collect and dispose properly offsite. See flyer "Requirements for Architectural Copper."

[8] Any connection to the sanitary sewer system is subject to sanitary district approval.

[9] Businesses that may have outdoor process activities/equipment include machine shops, auto repair, industries with pretreatment facilities.

Worksheet C

Low Impact Development – Site Design Measures

Select Appropriate Site Design Measures *(Required for C.3 Regulated Projects; all other projects are encouraged to implement site design measures, which may be required at municipality discretion.) Projects that create and/or replace 2,500 – 10,000 sq.ft. of impervious surface, and stand-alone single family homes that create/replace 2,500 sq.ft. or more of impervious surface, must include* ***one of Site Design Measures a through f*** *(Provision C.3.i requirements).*[10] *Larger projects must also include applicable Site Design Measures g through i. Consult with municipal staff about requirements for your project.*

Select appropriate site design measures and Identify the Plan Sheet where these elements are shown.

Yes	Plan Sheet Number	
☐		a. Direct roof runoff into cisterns or rain barrels and use rainwater for irrigation or other non-potable use.
☐		b. Direct roof runoff onto vegetated areas.
☐		c. Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.
☐		d. Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.
☐		e. Construct sidewalks, walkways, and/or patios with pervious or permeable surfaces. Use the specifications in the C3 Technical Guidance (Version 4.1) downloadable at www.flowstobay.org/newdevelopment.
☐		f. Construct bike lanes, driveways, and/or uncovered parking lots with pervious surfaces. Use the specifications in the C3 Technical Guidance (Version 4.1) downloadable at www.flowstobay.org/newdevelopment.
☐		g. Limit disturbance of natural water bodies and drainage systems; minimize compaction of highly permeable soils; protect slopes and channels; and minimize impacts from stormwater and urban runoff on the biological integrity of natural drainage systems and water bodies.
☐		h. Conserve natural areas, including existing trees, other vegetation and soils.
☐		i. Minimize impervious surfaces.

Regulated Projects can also consider the following site design measures to reduce treatment system sizing:

Yes	Plan Sheet Number	
☑	STORM WATER CONTROL PLAN EXHIBIT	j. Self-treating area (see Section 4.2 of the C.3 Technical Guidance)
☑	STORM WATER CONTROL PLAN EXHIBIT	k. Self-retaining area (see Section 4.3 of the C.3 Technical Guidance)
☐		l. Plant or preserve interceptor trees (Section 4.1, C.3 Technical Guidance)

[10] See MRP Provision C.3.a.i.(6) for non-C.3 Regulated Projects, C.3.c.i.(2)(a) for Regulated Projects, C.3.i for projects that create/replace 2,500 to 10,000 sq.ft. of impervious surface and stand-alone single family homes that create/replace 2,500 sq.ft. or more of impervious surface.

Worksheet D

C3 Regulated Project - Stormwater Treatment Measures

Check all applicable boxes and indicate the treatment measure(s) included in the project.

Yes	
☐ Attach Worksheet F and Calculations	Is the project a **Special Project**?[11] If yes, consult with municipal staff about the need to evaluate the feasibility and infeasibility of 100% LID treatment. Indicate the type of non-LID treatment to be used, the hydraulic sizing method[12], and percentage of the amount of runoff specified in Provision C.3.d that is treated: Non-LID Treatment Measures: — Hydraulic sizing method[12] — % of C.3.d amount of runoff treated ☐ Media filter — ☐2.a ☐2.b ☐2.c — ____% ☐ Tree well filter — ☐2.a ☐2.b ☐2.c — ____%
☐	Is the project using infiltration systems? The MRP no longer requires the use or analysis of the feasibility of infiltration, but infiltration systems are encouraged and may be beneficial depending on the project. Indicate the infiltration measures to be used, and hydraulic sizing method: Infiltration Measures: — Hydraulic sizing method[12] ☐ Bioinfiltration[13] — ☐1.a ☐1.b ☐2.c ☐3 ☐ Infiltration trench — ☐1.a ☐1.b ☐ Other (specify):
☐	Is the project harvesting and using rainwater? The MRP no longer requires the use or analysis of the feasibility of rainwater harvesting, but it rainwater harvesting and use is encouraged and may be beneficial depending on the project." Rainwater Harvesting/Use Measures: — Hydraulic sizing method[12] ☐ Rainwater Harvesting for indoor non-potable water use — ☐1.a ☐1.b ☐ Rainwater Harvesting for landscape irrigation use — ☐1.a ☐1.b
☑	Is the project installing biotreatment measures? Indicate the biotreatment measures to be used, and the hydraulic sizing method: Biotreatment Measures: — Hydraulic sizing method[12] ☑ Bioretention area — ☑2.c ☐3 ☐ Flow-through planter — ☐2.c ☐3 ☐ Other (specify): _____

A copy of the long term Operations and Maintenance (O&M) Agreement and Plan for this project will be required. Please contact the NPDES Representative of the applicable municipality for an agreement template and consult the C.3 Technical Guidance at www.flowstobay.org for maintenance plan templates for specific facility types.

[11] Special Projects are smart growth, high density, or transit-oriented developments with the criteria defined in Provision C.3.e.ii.(2), (3) or (4) (see Worksheet F).

[12] Indicate which of the following Provision C.3.d.i hydraulic sizing methods were used. Volume based approaches: 1(a) Urban Runoff Quality Management approach, or 1(b) 80% capture approach (recommended volume-based approach). Flow-based approaches: 2(a) 10% of 50-year peak flow approach, 2(b) 2 times the 85th percentile rainfall intensity approach, or 2(c) 0.2-Inch-per-hour intensity approach (recommended flow-based approach – also known as the 4% rule). Combination flow and volume-based approach: 3.

[13] See Section 6.1 of the C.3 Technical Guidance for conditions in which bioretention areas provide bioinfiltration.

Worksheet E

Hydromodification Management

E-1 Is the project a Hydromodification Management[14] (HM) Project?

E-1.1 Is the total impervious area increased over the pre-project condition?

- ☐ Yes. Continue to E-1.2
- ☑ No. The project is NOT required to incorporate HM Measures.
  Go to Item E-1.4 and check "No."

E-1.2 Is the site located in an HM Control Area per the HM Control Areas map (Appendix H of the C.3 Technical Guidance)?

- ☐ Yes. Continue to E-1.3
- ☐ No. Attach map, indicating project location. The project is NOT required to incorporate HM Measures.
  Skip to Item E-1.4 and check "No."

E-1.3 Has an engineer or qualified environmental professional determined that runoff from the project flows only through a hardened channel or enclosed pipe along its entire length before emptying into a waterway in the exempt area?

- ☐ Yes. Attach map of facility. Go to Item E-1.4 and check "Yes."
- ☐ No. Attach map, indicating project location. The project is NOT required to incorporate HM Measures.
  Skip to Item E-1.4 and check "No."

E-1.4 Is the project a Hydromodification Management Project?

- ☐ Yes. The project is subject to HM requirements in Provision C.3.g of the Municipal Regional Stormwater Permit.
- ☑ No. The project is EXEMPT from HM requirements.

- ➢ If the project is subject to the HM requirements, incorporate in the project flow duration control measures designed such that post-project discharge rates and durations match pre-project discharge rates and durations.
- ➢ The Bay Area Hydrology Model (BAHM) has been developed to help size flow duration controls. See www.bayareahydrologymodel.org. Guidance is provided in Chapter 7 of the C.3 Technical Guidance.

E-2 Incorporate HM Controls (if required)

Are the applicable items provided with the Plans?

Yes	No	NA	
☐	☐	☐	Site plans with pre- and post-project impervious surface areas, surface flow directions of entire site, locations of flow duration controls and site design measures per HM site design requirement
☐	☐	☐	Soils report or other site-specific document showing soil type(s) on site
☐	☐	☐	If project uses the Bay Area Hydrology Model (BAHM), a list of model inputs and outputs.
☐	☐	☐	If project uses custom modeling, a summary of the modeling calculations with corresponding graph showing curve matching (existing, post-project, and post-project with HM controls curves), goodness of fit, and (allowable) low flow rate.
☐	☐	☐	If project uses the Impracticability Provision, a listing of all applicable costs and a brief description of the alternative HM project (name, location, date of start up, and entity responsible for maintenance).
☐	☐	☐	If the project uses alternatives to the default BAHM approach or settings, a written description and rationale.

[14] Hydromodification is the change in a site's runoff hydrograph, including increases in flows and durations that results when land is developed (made more impervious). The effects of hydromodification include, but are not limited to, increased bed and bank erosion of receiving streams, loss of habitat, increased sediment transport and/or deposition, and increased flooding. Hydromodification control measures are designed to reduce these effects.

Worksheet F
Special Projects

Complete this worksheet for projects that appear to meet the definition of "Special Project", per Provision C.3.e.ii of the Municipal Regional Stormwater Permit (MRP). The form assists in determining whether a project meets Special Project criteria, and the percentage of low impact development (LID) treatment reduction credit. Special Projects that implement less than 100% LID treatment must provide a narrative discussion of the feasibility or infeasibility of 100% LID treatment. See Appendix J of the C.3 Technical Guidance Handbook (download at www.flowstobay.org) for more information.

F.1 "Special Project" Determination *(Check the boxes to determine if the project meets any of the following categories.)*

Special Project Category "A"

Does the project have ALL of the following characteristics?

- ☐ Located in a municipality's designated central business district, downtown core area or downtown core zoning district, neighborhood business district or comparable pedestrian-oriented commercial district, or historic preservation site and/or district[15];
- ☐ Creates and/or replaces 0.5 acres or less of impervious surface;
- ☐ Includes no surface parking, except for incidental parking for emergency vehicle access, ADA access, and passenger or freight loading zones;
- ☐ Has at least 85% coverage of the entire site by permanent structures. The remaining 15% portion of the site may be used for safety access, parking structure entrances, trash and recycling service, utility access, pedestrian connections, public uses, landscaping and stormwater treatment.

☐ No (continue) ☐ Yes – Complete Section F.2 below

Special Project Category "B"

Does the project have ALL of the following characteristics?

- ☐ Located in a municipality's designated central business district, downtown core area or downtown core zoning district, neighborhood business district or comparable pedestrian-oriented commercial district, or historic preservation site and/or district[20];
- ☐ Creates and/or replaces more than 0.5 acres of impervious area and less than 2.0 acres;
- ☐ Includes no surface parking, except for incidental parking for emergency access, ADA access, and passenger or freight loading zones;
- ☐ Has at least 85% coverage of the entire site by permanent structures. The remaining 15% portion of the site may be used for safety access, parking structure entrances, trash and recycling service, utility access, pedestrian connections, public uses, landscaping and stormwater treatment;
- ☐ Minimum density of either 50 dwelling units per acre (for residential projects) or a Floor Area Ratio (FAR) of 2:1 (for commercial projects) - mixed use projects may use either criterion. **Note Change on 7/1/16[16]**

☐ No (continue) ☐ Yes – Complete Section F-2 below

Special Project Category "C"

Does the project have ALL of the following characteristics?

- ☐ At least 50% of the project area is within 1/2 mile of an existing or planned transit hub[17] or 100% within a planned Priority Development Area[18];
- ☐ The project is characterized as a non-auto-related use[19]; and
- ☐ Minimum density of either 25 dwelling units per acre (for residential projects) or a Floor Area Ratio (FAR) of 2:1 (for commercial projects) - mixed use projects may use either criterion. **Note Change on 7/1/16[16]**

☐ No (continue) ☐ Yes – Complete Section F-2 below

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[15] And built as part of a municipality's stated objective to preserve/enhance a pedestrian-oriented type of urban design.

[16] **Effective 7/1/16**, the MRP establishes definitions for "Gross Density"(GD) & FAR. GD is defined as, "the total number of residential units divided by the acreage of the entire site area, including land occupied by public right-of-ways, recreational, civic, commercial and other non-residential uses." FAR is defined as," the Ratio of the total floor area on all floors of all buildings at a project site (except structures, floors, or floor areas dedicated to parking) to the total project site area.

[17] "Transit hub" is defined as a rail, light rail, or commuter rail station, ferry terminal, or bus transfer station served by three or more bus routes. (A bus stop with no supporting services does not qualify.)

[18] A "planned Priority Development Area" is an infill development area formally designated by the Association of Bay Area Government's / Metropolitan Transportation Commission's FOCUS regional planning program.

[19] Category C specifically excludes stand-alone surface parking lots; car dealerships; auto and truck rental facilities with onsite surface storage; fast-food restaurants, banks or pharmacies with drive-through lanes; gas stations; car washes; auto repair and service facilities; or other auto-related project unrelated to the concept of transit oriented development.

F.2 LID Treatment Reduction Credit Calculation

(If more than one category applies, choose only one of the applicable categories and fill out the table for that category.)

Category	Impervious Area Created/Replaced (sq. ft.)	Site Coverage (%)	Project Density[16] or FAR[16]	Density/Criteria	Allowable Credit (%)	Applied Credit (%)
A			N.A.	N.A.	100%	
B				Res ≥ 50 DU/ac or FAR ≥ 2:1	50%	
				Res ≥ 75 DU/ac or FAR ≥ 3:1	75%	
				Res ≥ 100 DU/ac or FAR ≥ 4:1	100%	
C				**Location credit (select one)[20]:**		
				Within ¼ mile of transit hub	50%	
				Within ½ mile of transit hub	25%	
				Within a planned PDA	25%	
				Density credit (select one):		
				Res ≥ 30 DU/ac or FAR ≥ 2:1	10%	
				Res ≥ 60 DU/ac or FAR ≥ 4:1	20%	
				Res ≥ 100 DU/ac or FAR ≥ 6:1	30%	
				Parking credit (select one):		
				≤ 10% at-grade surface parking[21]	10%	
				No surface parking	20%	
				TOTAL TOD CREDIT =		

F.3 Narrative Discussion of the Feasibility/Infeasibility of 100% LID Treatment:

If project will implement less than 100% LID, prepare a discussion of the feasibility or infeasibility of 100% LID treatment, as described in Appendix K of the C.3 Technical Guidance.

F.4 Select Certified Non-LID Treatment Measures:

If the project will include non-LID treatment measures, select a treatment measure certified for "Basic" General Use Level Designation (GULD) by the Washington State Department of Ecology's Technical Assessment Protocol – Ecology (TAPE). Guidance is provided in Appendix K of the C.3 Technical Guidance (download at www.flowstobay.org).[22]

[20] To qualify for the location credit, at least 50% of the project's site must be located within the ¼ mile or ½ mile radius of an existing or planned transit hub, as defined on page 1, footnote 2. A planned transit hub is a station on the MTC's Regional Transit Expansion Program list, per MTC's Resolution 3434 (revised April 2006), which is a regional priority funding plan for future transit stations in the San Francisco Bay Area. To qualify for the PDA location credit, 100% of the project site must be located within a PDA, as defined on page 1, footnote 3.

[21] The at-grade surface parking must be treated with LID treatment measures.

[22] TAPE certification is used in order to satisfy Special Project's reporting requirements in the MRP.

Worksheet G
(For municipal staff use only)

G-1 **Alternative Certification:** Were the treatment and/or HM control sizing and design reviewed by a qualified third-party professional that is not a member of the project team or agency staff?

☐ Yes ☐ No Name of Reviewer _____

G-2 **High Priority Site:** High Priority Sites can include those located in or within 100 feet of a sensitive habitat, an Area of Special Biological Significance (ASBS), a body of water, or **starting 7/1/16** on "hillside projects" disturbing >=5,000 sq.ft. of land and with steep slopes (of >=15% - see cell **I.A.4** - or as identified by municipal criteria or map). These sites are subject to monthly inspections from Oct 1 to April 30. See MRP Provision C.6.e.ii.(2).

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☐ Yes ☐ No If yes, then add site to Staff's Monthly Rainy Season Construction Site Inspection List

G-3 **Inspections of Sites with Pervious Paving: Starting 7/1/16**, Regulated projects that are installing 3,000 sq.ft. or more of pervious paving (see cell **I.B.1.e.1**) (excluding private-use patios in single family homes, townhomes, or condominiums) must have the paving system inspected by the jurisdiction upon completion of the installation and the site must be added to the jurisdiction's list of sites needing inspections at least once every five years – see provision C.3.h. Pervious pavement systems include pervious concrete, pervious asphalt, pervious pavers and grid pavers etc. and are described in the C3 Technical Guidance (Version 4.1) downloadable at: www.flowstobay.org/newdevelopment.

☐ Yes ☐ No If yes, then add site to Staff's Lists for Inspections at the end of Construction and O&M.

Operations and Maintenance (O&M) Submittals

G-4 Stormwater Treatment Measure and/HM Control Owner or Operator's Information:

Name:_____

Address:_____

Phone:_____ Email:_____

- *Applicant must call for inspection and receive inspection within 45 days of installation of treatment measures and/or hydromodification management controls.*

The following questions apply to C.3 Regulated Projects and Hydromodification Management Projects.

		Yes	No	N/A
G-4.1	Was maintenance plan submitted?	☐	☐	☐
G-4.2	Was maintenance plan approved?	☐	☐	☐
G-4.3	Was maintenance agreement submitted? (Date executed:_____)	☐	☐	☐

- *Attach the executed maintenance agreement as an appendix to this checklist.*

G-5 **Annual Operations and Maintenance (O&M) Submittals (for municipal staff use only):**

For C.3 Regulated Projects and Hydromodification Management Projects, indicate the dates on which the Applicant submitted annual reports for project O&M:

_____

G-6 **Comments (for municipal staff use only):**

_____

_____

_____

_____

_____

G-7 NOTES (for municipal staff use only):

Section I Notes:_____

Worksheet A Notes:_____

Worksheet B Notes:_____

Worksheet C Notes:_____

Worksheet D Notes:_____

Worksheet E Notes:_____

Worksheet F Notes:_____

G-8 Project Close-Out (for municipal staff use only):

		Yes	No	NA
8.1	Were final Conditions of Approval met?	☐	☐	
8.2	Was initial inspection of the completed treatment/HM measure(s) conducted? (Date of inspection:_____)	☐	☐	☐
8.3	Was maintenance plan submitted? (Date executed:_____)	☐	☐	☐
8.4	Was project information provided to staff responsible for O&M verification inspections? (Date provided to inspection staff:_____)	☐	☐	☐

G-9 Project Close-Out (Continued -- for municipal staff use only):

Name of staff confirming project is closed out:_____

Signature:_____ Date:_____

Name of O&M staff receiving information:_____

Signature:_____ Date:_____

ATTACHMENT B

Worksheet for Calculating the Combination Flow and Volume Method

Instructions: After completing Section 1, make a copy of this Excel file for each Drainage Management Area within the project. Enter information specific to the project and DMA in the cells shaded in yellow. Cells shaded in light blue contain formulas and values that will be automatically calculated.

1.0 Project Information

1-1	Project Name:	SSF MOTEL
1-2	City application ID:	
1-3	Site Address or APN:	
1-4	Tract or Parcel Map No:	
1-5	Rainfall Region	6
1-6	Region Mean Annual Precipitation (MAP)	20.10
1-7	Site Mean Annual Precipitation (MAP)	20

The calculations presented here are based on the **combination flow and volume sizing method** provided in the Countywide Program's C.3 Technical Guidance, Version 4.0. The steps presented below are explained in Section 5.1 of the Guidance, applicable portions of which are included in this file, in the sheet named "Guidance from Chapter 5".

Click here for map

1-8 ***MAP adjustment factor is automatically calculated as:*** **1.00**

(The "Site Mean Annual Precipitation (MAP)" is divided by the MAP for the applicable rain gauge, showin in Table 5-3, below.)
Refer to the map in Appendix C of the C.3 Technical Guidance to identify the Rainfall Region for the site.

2.0 Calculate Percentage of Impervious Surface for Drainage Management Area (DMA)

2-1 Name of DMA: **DMA 1**

For items 2-2 and 2-3, enter the areas in square feet for each type of surface within the DMA.

	Type of Surface	Area of surface type within DMA (Sq. Ft.)	Adjust Pervious Surface	Effective Impervious Area
2-2	Impervious surface	3,474	1.0	3,474
2-3	Pervious surface	634	0.1	63
	Total DMA Area (square feet) =	4,108		

2-4 ***Total Effective Impervious Area (EIA)*** **3,537** **Square feet**

3.0 Calculate Unit Basin Storage Volume in Inches

Table 5-3. Unit Basin Storage Volumes in Inches for 80 Percent Capture Using 48-Hour Drawdowns, based on runoff coefficient

Region	Station, and Mean Annual Precipitation (Inches)	Runoff Coefficient of 1.0
1	Boulder Creek, 55.9”	2.04"
2	La Honda, 24.4”	0.86"
3	Half Moon Bay, 25.92”	0.82"
4	Palo Alto, 14.6”	0.64"
5	San Francisco, 21.0”	0.73"
6	San Francisco airport, 20.1”	0.85"
7	San Francisco Oceanside, 19.3”	0.72"

3-1 ***Unit basin storage volume from Table 5-3:*** **0.85**

(The coefficient for this method is always 1.0, due to the conversion of any landscaping to effective impervious area.)

3-2 ***Adjusted unit basin storage volume:*** **0.85** **Inches**

(The unit basin storage volume [Item 3-1] is adjusted by applying the MAP adjustment factor [Item 1-8].)

3-3 ***Required Capture Volume (in cubic feet):*** **249** **Cubic feet**

(The adjusted unit basin sizing volume [Item 3-2] is multiplied by the DMA EIA [Item 2-4] and converted to cubic feet)

4.0 Calculate the Duration of the Rain Event

4-1	Rainfall intensity	0.2	**Inches per hour**
4-2	Divide Item 3-2 by Item 4-1	4.23	**Hours of Rain Event Duration**

5.0 Preliminary Estimate of Surface Area of Treatment Measure

5-1	4% of DMA EIA (Item 2-4)	141	**Square feet**
5-2	Area 25% smaller than Item 5-1 (i.e., 3% of DMA EIA)	106	**Square feet**
5-3	Volume of treated runoff for area in Item 5-2	187	**Cubic feet** (Item 5-2 * 5 inches per hour * 1/12 * Item 4-2)

6.0 Initial Adjustment of Depth of Surface Ponding Area

6-1	Subtract Item 5-3 from Item 3-3	62	**Cubic feet** (Amount of runoff to be stored in ponding area)
6-2	Divide Item 6-1 by Item 5-2	0.59	**Feet** (Depth of stored runoff in surface ponding area)
6-3	Convert Item 6-2 from feet to inches	7.05	**Inches** (Depth of stored runoff in surface ponding area)

6-4 If ponding depth in Item 6-3 meets your target depth (recommend 6"), skip to Item 8-1. If not, continue to Step 7-1.
(Note: Overflow outlet elevation should be set based on the calculated ponding depth.)

7.0 Optimize Size of Treatment Measure

7-1	Enter an area larger than Item 5-2	137	**Sq.ft.** (enter larger area if you need less ponding depth.)
7-2	Volume of treated runoff for area in Item 7-1	241	**Cubic feet** (Item 7-1 * 5 inches per hour * 1/12 * Item 4-2)
7-3	Subtract Item 7-2 from Item 3-3	8	**Cubic feet** (Amount of runoff to be stored in ponding area)
7-4	Divide Item 7-3 by Item 7-1	0.06	**Feet** (Depth of stored runoff in surface ponding area)
7-5	Convert Item 7-4 from ft. to inches	0.69	**Inches** (Depth of stored runoff in surface ponding area)

7-6 If the ponding depth in Item 7-5 meets target, stop here. If not, repeat Steps 7-1 through 7-5 until you obtain target depth.
(Note: Overflow outlet elevation should be set based on the calculated ponding depth.)

8.0 Surface Area of Treatment Measure for DMA

8-1	Final surface area of treatment	137	**Square feet** (Either Item 5-2 or final amount in Item 7-1)

Worksheet for Calculating the Combination Flow and Volume Method

Instructions: After completing Section 1, make a copy of this Excel file for each Drainage Management Area within the project. Enter information specific to the project and DMA in the cells shaded in yellow. Cells shaded in light blue contain formulas and values that will be automatically calculated.

1.0 Project Information

1-1	Project Name:	SSF MOTEL
1-2	City application ID:	
1-3	Site Address or APN:	
1-4	Tract or Parcel Map No:	
1-5	Rainfall Region	6
1-6	Region Mean Annual Precipitation (MAP)	20.10
1-7	Site Mean Annual Precipitation (MAP)	20

The calculations presented here are based on the **combination flow and volume sizing method** provided in the Countywide Program's C.3 Technical Guidance, Version 4.0. The steps presented below are explained in Section 5.1 of the Guidance, applicable portions of which are included in this file, in the sheet named "Guidance from Chapter 5".

Click here for map

1-8 ***MAP adjustment factor is automatically calculated as:*** **1.00**

(The "Site Mean Annual Precipitation (MAP)" is divided by the MAP for the applicable rain gauge, showin in Table 5-3, below.)
Refer to the map in Appendix C of the C.3 Technical Guidance to identify the Rainfall Region for the site.

2.0 Calculate Percentage of Impervious Surface for Drainage Management Area (DMA)

2-1 Name of DMA: **DMA 2**

For items 2-2 and 2-3, enter the areas in square feet for each type of surface within the DMA.

	Type of Surface	Area of surface type within DMA (Sq. Ft.)	Adjust Pervious Surface	Effective Impervious Area
2-2	Impervious surface	61,573	1.0	61,573
2-3	Pervious surface	11,777	0.1	1,178
	Total DMA Area (square feet) =	73,350		

2-4 ***Total Effective Impervious Area (EIA)*** **62,751** **Square feet**

3.0 Calculate Unit Basin Storage Volume in Inches

Table 5-3. Unit Basin Storage Volumes in Inches for 80 Percent Capture Using 48-Hour Drawdowns, based on runoff coefficient

Region	Station, and Mean Annual Precipitation (Inches)	Runoff Coefficient of 1.0
1	Boulder Creek, 55.9”	2.04"
2	La Honda, 24.4”	0.86"
3	Half Moon Bay, 25.92”	0.82"
4	Palo Alto, 14.6”	0.64"
5	San Francisco, 21.0”	0.73"
6	San Francisco airport, 20.1”	0.85"
7	San Francisco Oceanside, 19.3”	0.72"

3-1 ***Unit basin storage volume from Table 5-3:*** **0.85**

(The coefficient for this method is always 1.0, due to the conversion of any landscaping to effective impervious area.)

3-2 ***Adjusted unit basin storage volume:*** **0.85** **Inches**

(The unit basin storage volume [Item 3-1] is adjusted by applying the MAP adjustment factor [Item 1-8].)

3-3 ***Required Capture Volume (in cubic feet):*** **4,423** **Cubic feet**

(The adjusted unit basin sizing volume [Item 3-2] is multiplied by the DMA EIA [Item 2-4] and converted to cubic feet)

4.0 Calculate the Duration of the Rain Event

4-1	Rainfall intensity	0.2	**Inches per hour**
4-2	Divide Item 3-2 by Item 4-1	4.23	**Hours of Rain Event Duration**

5.0 Preliminary Estimate of Surface Area of Treatment Measure

5-1	4% of DMA EIA (Item 2-4)	2,510	**Square feet**
5-2	Area 25% smaller than Item 5-1 (i.e., 3% of DMA EIA)	1,883	**Square feet**
5-3	Volume of treated runoff for area in Item 5-2	3,317	**Cubic feet** (Item 5-2 * 5 inches per hour * 1/12 * Item 4-2)

6.0 Initial Adjustment of Depth of Surface Ponding Area

6-1	Subtract Item 5-3 from Item 3-3	1,106	**Cubic feet** (Amount of runoff to be stored in ponding area)
6-2	Divide Item 6-1 by Item 5-2	0.59	**Feet** (Depth of stored runoff in surface ponding area)
6-3	Convert Item 6-2 from feet to inches	7.05	**Inches** (Depth of stored runoff in surface ponding area)

6-4 If ponding depth in Item 6-3 meets your target depth (recommend 6"), skip to Item 8-1. If not, continue to Step 7-1.
(Note: Overflow outlet elevation should be set based on the calculated ponding depth.)

7.0 Optimize Size of Treatment Measure

7-1	Enter an area larger than Item 5-2	**2606**	**Sq.ft.** (enter larger area if you need less ponding depth.)
7-2	Volume of treated runoff for area in Item 7-1	**4,592**	**Cubic feet** (Item 7-1 * 5 inches per hour * 1/12 * Item 4-2)
7-3	Subtract Item 7-2 from Item 3-3	**(169)**	**Cubic feet** (Amount of runoff to be stored in ponding area)
7-4	Divide Item 7-3 by Item 7-1	**-0.06**	**Feet** (Depth of stored runoff in surface ponding area)
7-5	Convert Item 7-4 from ft. to inches	**-0.78**	**Inches** (Depth of stored runoff in surface ponding area)

7-6 If the ponding depth in Item 7-5 meets target, stop here. If not, repeat Steps 7-1 through 7-5 until you obtain target depth.
(Note: Overflow outlet elevation should be set based on the calculated ponding depth.)

8.0 Surface Area of Treatment Measure for DMA

8-1	Final surface area of treatment	**2,606**	**Square feet** (Either Item 5-2 or final amount in Item 7-1)

Worksheet for Calculating the Combination Flow and Volume Method

Instructions: After completing Section 1, make a copy of this Excel file for each Drainage Management Area within the project. Enter information specific to the project and DMA in the cells shaded in yellow. Cells shaded in light blue contain formulas and values that will be automatically calculated.

1.0 Project Information

1-1	Project Name:	SSF MOTEL
1-2	City application ID:	
1-3	Site Address or APN:	
1-4	Tract or Parcel Map No:	
1-5	Rainfall Region	6
1-6	Region Mean Annual Precipitation (MAP)	20.10
1-7	Site Mean Annual Precipitation (MAP)	20

The calculations presented here are based on the **combination flow and volume sizing method** provided in the Countywide Program's C.3 Technical Guidance, Version 4.0. The steps presented below are explained in Section 5.1 of the Guidance, applicable portions of which are included in this file, in the sheet named "Guidance from Chapter 5".

Click here for map

1-8 ***MAP adjustment factor is automatically calculated as:*** **1.00**

(The "Site Mean Annual Precipitation (MAP)" is divided by the MAP for the applicable rain gauge, showin in Table 5-3, below.)
Refer to the map in Appendix C of the C.3 Technical Guidance to identify the Rainfall Region for the site.

2.0 Calculate Percentage of Impervious Surface for Drainage Management Area (DMA)

2-1 Name of DMA: **DMA 3**

For items 2-2 and 2-3, enter the areas in square feet for each type of surface within the DMA.

	Type of Surface	Area of surface type within DMA (Sq. Ft.)	Adjust Pervious Surface	Effective Impervious Area
2-2	Impervious surface	2,743	1.0	2,743
2-3	Pervious surface	400	0.1	40
	Total DMA Area (square feet) =	3,143		

2-4 ***Total Effective Impervious Area (EIA)*** **2,783** **Square feet**

3.0 Calculate Unit Basin Storage Volume in Inches

Table 5-3. Unit Basin Storage Volumes in Inches for 80 Percent Capture Using 48-Hour Drawdowns, based on runoff coefficient

Region	Station, and Mean Annual Precipitation (Inches)	Runoff Coefficient of 1.0
1	Boulder Creek, 55.9”	2.04"
2	La Honda, 24.4”	0.86"
3	Half Moon Bay, 25.92”	0.82"
4	Palo Alto, 14.6”	0.64"
5	San Francisco, 21.0”	0.73"
6	San Francisco airport, 20.1”	0.85"
7	San Francisco Oceanside, 19.3”	0.72"

3-1 ***Unit basin storage volume from Table 5-3:*** **0.85**

(The coefficient for this method is always 1.0, due to the conversion of any landscaping to effective impervious area.)

3-2 ***Adjusted unit basin storage volume:*** **0.85** **Inches**

(The unit basin storage volume [Item 3-1] is adjusted by applying the MAP adjustment factor [Item 1-8].)

3-3 ***Required Capture Volume (in cubic feet):*** **196** **Cubic feet**

(The adjusted unit basin sizing volume [Item 3-2] is multiplied by the DMA EIA [Item 2-4] and converted to cubic feet)

4.0 Calculate the Duration of the Rain Event

4-1	Rainfall intensity	0.2	**Inches per hour**
4-2	Divide Item 3-2 by Item 4-1	4.23	**Hours of Rain Event Duration**

5.0 Preliminary Estimate of Surface Area of Treatment Measure

5-1	4% of DMA EIA (Item 2-4)	111	**Square feet**
5-2	Area 25% smaller than Item 5-1 (i.e., 3% of DMA EIA)	83	**Square feet**
5-3	Volume of treated runoff for area in Item 5-2	147	**Cubic feet** (Item 5-2 * 5 inches per hour * 1/12 * Item 4-2)

6.0 Initial Adjustment of Depth of Surface Ponding Area

6-1	Subtract Item 5-3 from Item 3-3	49	**Cubic feet** (Amount of runoff to be stored in ponding area)
6-2	Divide Item 6-1 by Item 5-2	0.59	**Feet** (Depth of stored runoff in surface ponding area)
6-3	Convert Item 6-2 from feet to inches	7.05	**Inches** (Depth of stored runoff in surface ponding area)

6-4 If ponding depth in Item 6-3 meets your target depth (recommend 6"), skip to Item 8-1. If not, continue to Step 7-1.
(Note: Overflow outlet elevation should be set based on the calculated ponding depth.)

7.0 Optimize Size of Treatment Measure

7-1	Enter an area larger than Item 5-2	97	**Sq.ft.** (enter larger area if you need less ponding depth.)
7-2	Volume of treated runoff for area in Item 7-1	171	**Cubic feet** (Item 7-1 * 5 inches per hour * 1/12 * Item 4-2)
7-3	Subtract Item 7-2 from Item 3-3	25	**Cubic feet** (Amount of runoff to be stored in ponding area)
7-4	Divide Item 7-3 by Item 7-1	0.26	**Feet** (Depth of stored runoff in surface ponding area)
7-5	Convert Item 7-4 from ft. to inches	3.12	**Inches** (Depth of stored runoff in surface ponding area)

7-6 If the ponding depth in Item 7-5 meets target, stop here. If not, repeat Steps 7-1 through 7-5 until you obtain target depth.
(Note: Overflow outlet elevation should be set based on the calculated ponding depth.)

8.0 Surface Area of Treatment Measure for DMA

8-1	Final surface area of treatment	97	**Square feet** (Either Item 5-2 or final amount in Item 7-1)

ATTACHMENT C

6.1 Bioretention Areas

Figure 6-1. Bioretention Area.
Source: City of Brisbane

Best uses
- Any type of development
- Drainage area up to 2 acres
- Landscape design element

Advantages
- Detains low flows
- Landscape feature
- Low maintenance
- Reliable once established

Limitations
- Not appropriate where soil is unstable
- Requires irrigation
- Susceptible to clogging – especially if installed prior to construction site soil stabilization.

Bioretention areas[1], or "rain gardens," are concave landscaped areas that function as soil and plant-based filtration devices that remove pollutants through a variety of physical, biological, and chemical treatment processes. Bioretention areas can be any shape, including linear. Linear bioretention areas are sometimes referred to as bioretention swales. Bioretention areas normally consist of the following layers, starting from the top: a surface ponding area, a layer of mulch, planting soil and plants, and an underlying rock layer with an underdrain that connects to the municipal storm drain system.

Bioretention areas are designed to distribute stormwater runoff evenly within the surface ponding area. The water is temporarily stored in the ponding area and percolates through the planting soil, which is engineered to have a high rate of infiltration. From there, the water filters down into the underlying rock layer.

The rock layer of the bioretention area may be designed to either maximize infiltration or prevent infiltration to the underlying soils. In bioretention areas that maximize infiltration, the underdrain is raised 6 inches above the bottom of the rock layer, and there is no liner between the rock layer or planting soil and the surrounding soils. Maximizing infiltration is only allowed where conditions are suitable for infiltration – check with the geotechnical engineer. Where infiltration is precluded, the bioretention area is fully lined with waterproof material, and the underdrain is placed at the bottom of the rock layer.

Design and Sizing Guidelines

DRAINAGE AREA AND SETBACK REQUIREMENTS

- Set back from structures 10' or as required by structural or geotechnical engineer, or local jurisdiction.

[1] A bioretention area that is unlined and has a raised underdrain in the underlying rock layer to promote infiltration may also be called a "bioinfiltration area".

- Area draining to the bioretention area does not exceed 2 acres.
- Area draining to the bioretention area shall not contain a significant source of soil erosion, such as high velocity flows along slopes not stabilized with vegetation or hardscape.
- Areas immediately adjacent to bioretention area shall have slopes more than 0.5% for pavement and more than 1% for vegetated areas.
- Bioretention areas, including linear treatment measures, shall not be constructed in slopes greater than 4%, unless constructed as a series of bioretention cells. Separate bioretention cells by check dams up to 24 inches high and at least 25 feet apart. The slope within cells shall not exceed 4%. Bioretention cells are not recommended if overall slope exceeds 8%.
- If treatment measure is designed to infiltrate stormwater to underlying soils, a 50-foot setback is needed from septic system leach field.

TREATMENT DIMENSIONS AND SIZING

- Bioretention area may be sized to 4% of the impervious surface area on the project site. The area of impervious surface multiplied by 0.04 sizing factor will equal the footprint of the bioretention area. Alternatively, bioretention sizing may be calculated using the flow-based treatment standard, or the combination flow- and volume-based treatment standard described in Section 5.1 based on the flow entering the basin at the treatment flow rate over the initial hours of the storm until the treatment volume is attained.
- The bioretention area shall be sized to either:
  - Percolate the design treatment flow using a rate of 5 inches per hour. No additional allowance is provided for storage or for infiltration rates in excess of 5 inches per hour; or,
  - Store the 24-hour treatment volume based on inflow at the water treatment rate for the initial hours of the storm and outflow by infiltration.
- Where there is a positive surface overflow, bioretention areas shall have freeboard of at least 0.2 feet to the lowest structural member versus the 100-year storm water level in the bioretention area, unless local jurisdiction has other requirements.
- Where the bioretention area is in a sump that depends on outflow through a catch basin, the bioretention area shall have a freeboard of at least 0.5 feet to the lowest building finished floor elevation (including garage and excluding crawl space) for conditions with the outlet 50 percent clogged, unless local jurisdiction has other requirements. Where the freeboard cannot be provided, emergency pump may be allowed on a case-by-case basis.
- Minimum 2 inches between the crest of the emergency outfall riser and elevation of the surface area.
- The elevation of the surface area may vary as needed to distribute stormwater flows throughout the surface area.
- Side slopes do not exceed 3:1; downstream slope for overflow shall not exceed 3:1.

- Surface ponding depths should vary, with a maximum depth of 12 inches. If ponding depths exceed 6 inches, landscape architect shall approve planting palette for desired depth.
- The inlet to the overflow catch basin shall be at least 6 inches above the low point of the bioretention planting area.

INLETS TO TREATMENT MEASURE

Flow may enter the treatment measure (see example drawings in Section 5.13):

  - As overland flow from landscaping (no special requirements)
  - As overland flow from pavement (cutoff wall required)
  - Through a curb opening (minimum 18 inches)
  - Through a curb drain
  - With drop structure through a stepped manhole (refer to Figure 5-3 in Chapter 5)
  - Through a bubble-up manhole or storm drain emitter
  - Through roof leader or other conveyance from building roof

- Where flows enter the biotreatment measure, allow a change in elevation of 4 to 6 inches between the paved surface and biotreatment soil elevation, so that vegetation or mulch build-up does not obstruct flow.
- Cobbles or rocks shall be installed to dissipate flow energy where runoff enters the treatment measure.

VEGETATION

- Plant species should be suitable to well-drained soil and occasional inundation. See planting guidance in Appendix A.
- Shrubs and small trees shall be placed to anchor the bioretention area cover.
- Tree planting shall be as required by the municipality. If larger trees are selected, plant them at the periphery of bioretention area.
- Underdrain trench shall be offset at edge of tree planting zone, as needed, to maximize distance between tree roots and underdrain.
- Use integrated pest management (IPM) principles in the landscape design to help avoid or minimize any use of synthetic pesticides and quick-release fertilizer. Check with the local jurisdiction for any local policies regarding the use of pesticides and fertilizers.
- Irrigation shall be provided to maintain plant life.
- Trees and vegetation do not block inflow, create traffic or safety issues, or obstruct utilities.

SOIL AND DRAINAGE CONSIDERATIONS SPECIFIC TO BIORETENTION AREAS

- Planting soil shall have a long term minimum percolation rate of 5 inches per hour (initial infiltration rate may exceed this to allow for tendency of infiltration rate to reduce over time.) Soil guidance is provided in Appendix K. Check with municipality for any additional requirements.

- Bioretention areas shall have a minimum planting soil depth of 18 inches.
- Provide 3-inch layer of mulch in areas between plantings.
- An underdrain system is generally required. Depending on the infiltration rate of in situ soils, the local jurisdiction may allow installation without an underdrain on a case-by-case basis.
- Consideration of groundwater level and placement of the underdrain:
    1. If there is less than a 5 foot separation between the bottom of the facility and the seasonal high groundwater level, or infiltration is not allowed due to other site constrains, an impermeable liner should be placed between the drain rock and the bottom of the facility and the underdrain placed on top of that liner.
    2. If there is at least a 5-foot separation between the bottom of the facility and the seasonal high groundwater level, and geotechnical conditions allow infiltration, the facility should be unlined and the underdrain should be raised at least 6 inches above the bottom of the drain rock to allow storage and infiltration of treated water.

SOIL AND DRAINAGE CONSIDERATIONS FOR ALL BIOTREATMENT SYSTEMS

- Filter fabric shall not be used in or around underdrain trench.
- The underdrain shall include a perforated pipe with cleanouts and connection to a storm drain or discharge point. Clean-out shall consist of a vertical, rigid, non-perforated PVC pipe, with a minimum diameter of 4 inches and a watertight cap fit flush with the ground, or as required by municipality.
- Underdrain trench shall include a 12-inch thick layer of Caltrans Standard Section 68-1.025 permeable material Class 2, or similar municipality-approved material. A minimum 4-inch diameter perforated pipe shall be placed within the backfill layer. To help prevent clogging, two rows of perforation may be used. There shall be adequate fall from the underdrain to the storm drain or discharge point.
- Beginning December 1, 2011, soils in the area of inundation within the facility shall meet biotreatment soil specifications approved by the Regional Water Board (Appendix K), which supersede other soil specifications. The minimum percolation rate for the biotreatment soil is 5 inches per hour. The long-term desired maximum infiltration rate is 10 inches per hour, although initial infiltration rate may exceed this to allow for tendency of infiltration rate to reduce over time.

CONSTRUCTION REQUIREMENTS FOR ALL BIOTREATMENT SYSTEMS

- When excavating, avoid spreading fines of the soils on bottom and side slopes. Remove any smeared soiled surfaces and provide a natural soil interface into which water may percolate.
- Minimize compaction of existing soils. Protect from construction traffic.
- Protect the area from construction site runoff. Runoff from unstabilized areas shall be diverted away from biotreatment facility.

MAINTENANCE CONSIDERATIONS FOR ALL TREATMENT MEASURES

- A Maintenance Agreement shall be provided.

- Maintenance Agreement shall state parties' responsibility for maintenance and upkeep.
- Prepare a maintenance plan and submit with Maintenance Agreement. Maintenance plan templates are in Appendix G.

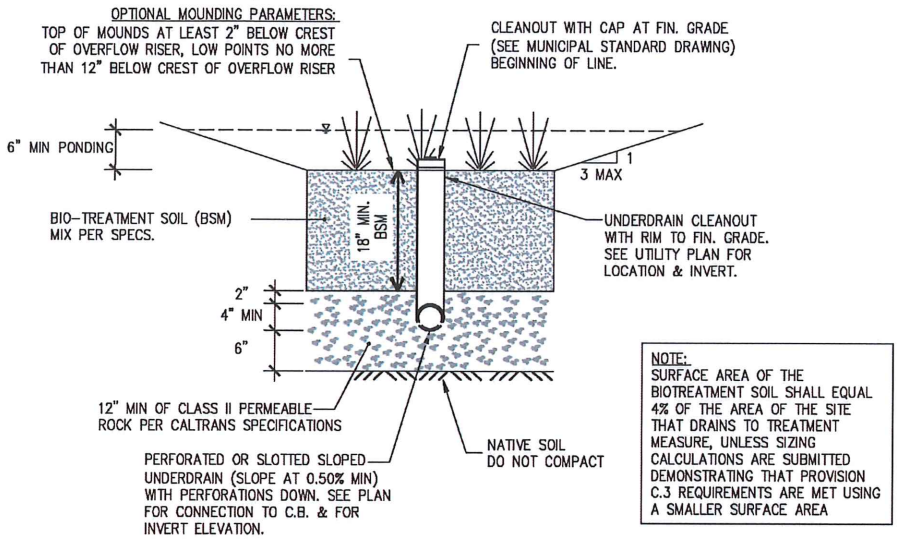


Figure 6-2: Cross Section, Bioretention Area

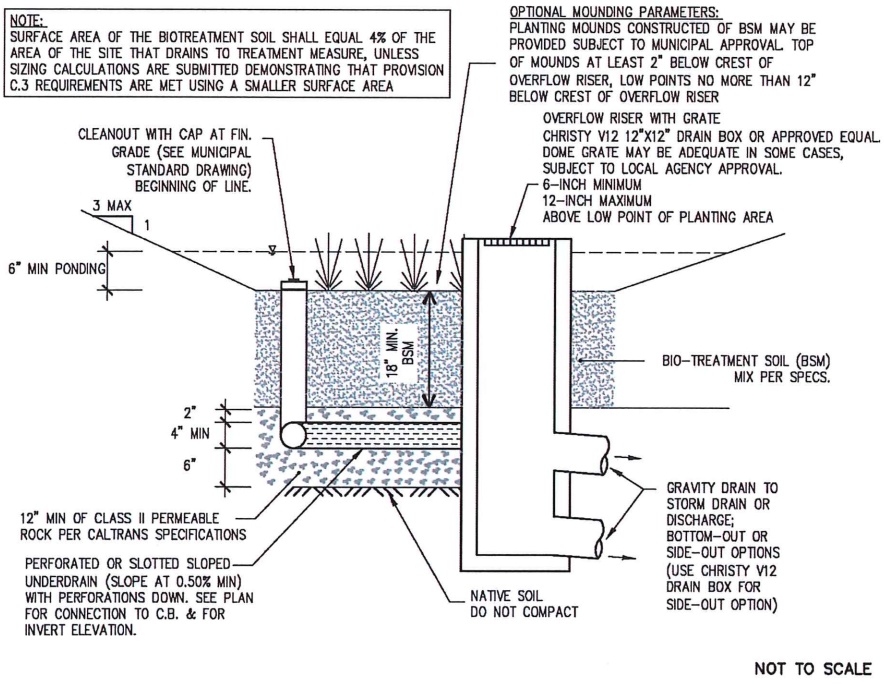


Figure 6-3: Cross Section, Bioretention Area (side view)

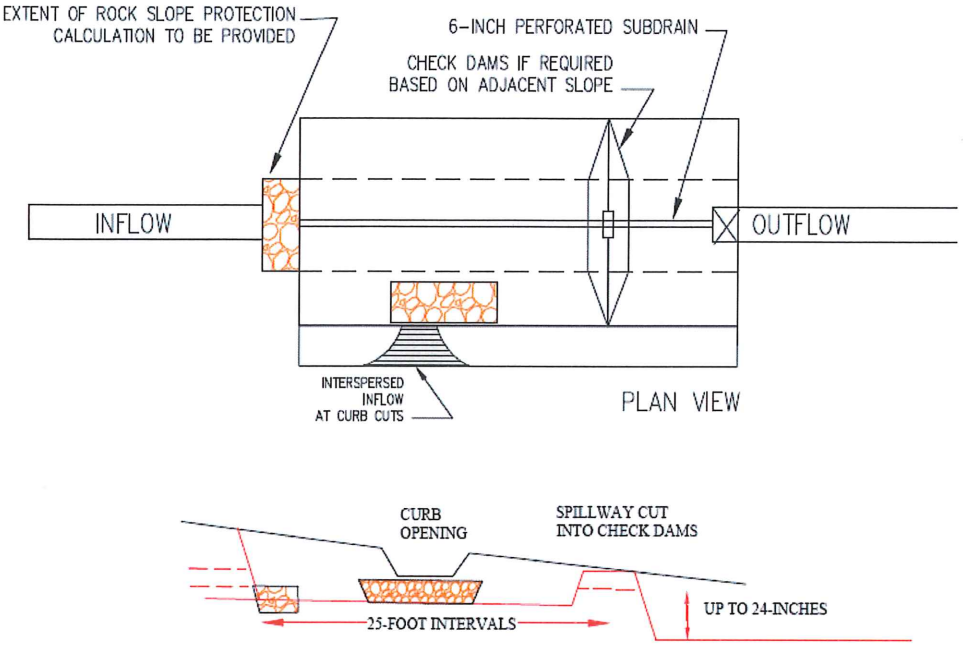


Figure 6-4: Check dam (plan view and profile) for installing a series of linear bioretention cells in sloped area

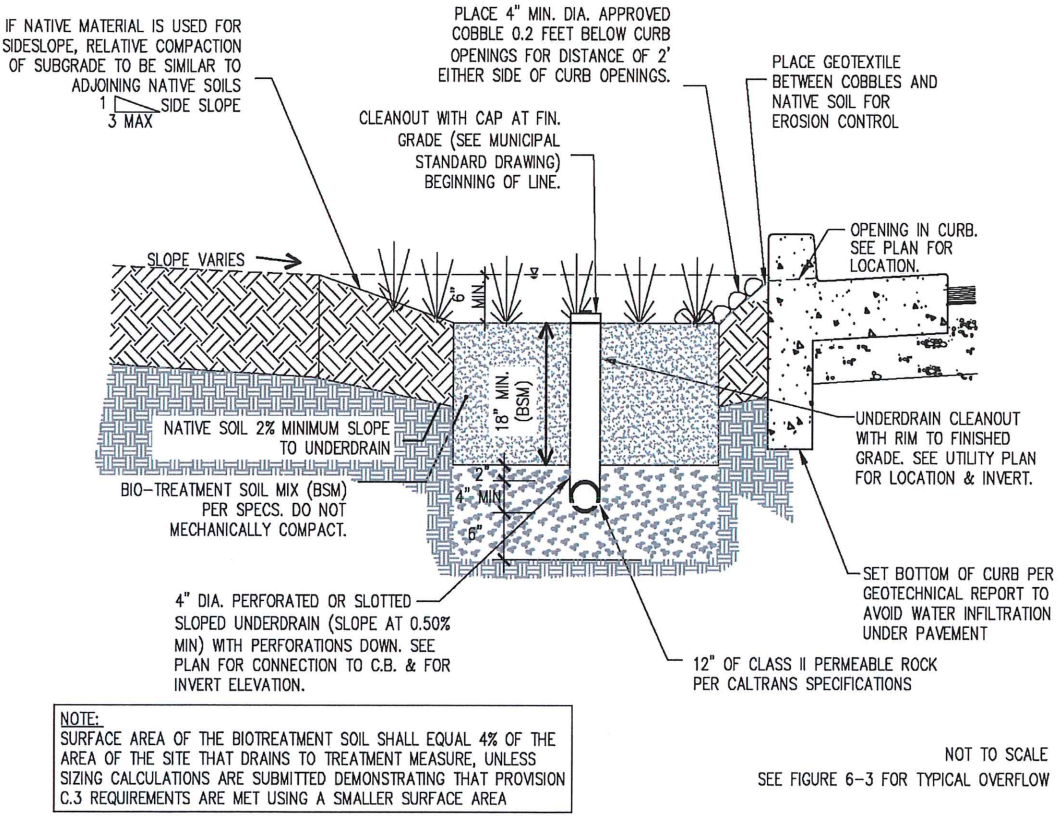


Figure 6-5: Cross section of bioretention area showing inlet from pavement.

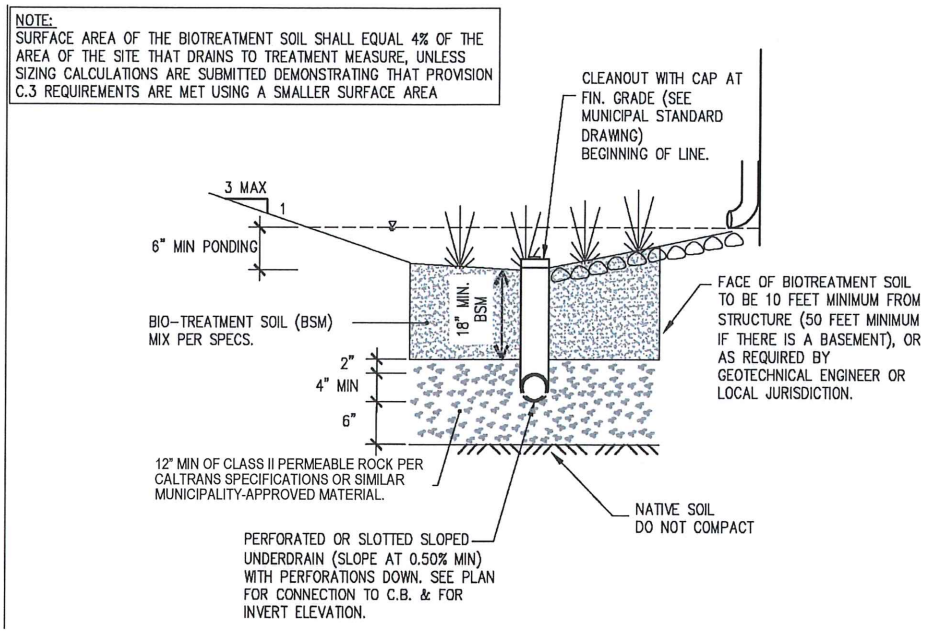


Figure 6-6: Bioretention area in landscaping to treat runoff from rainwater leaders (Not to Scale)

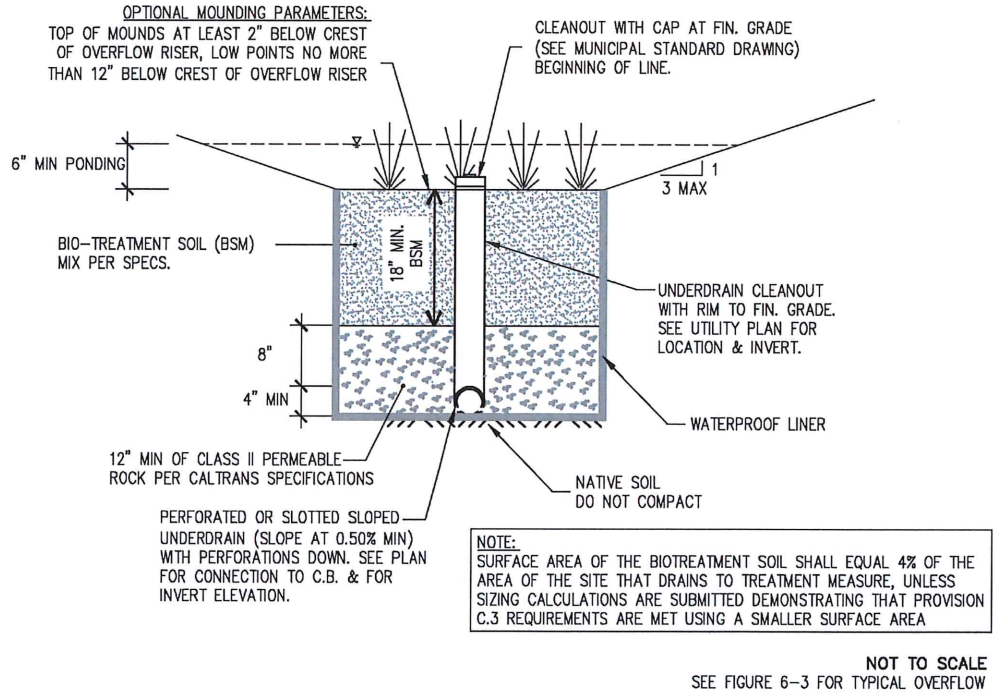
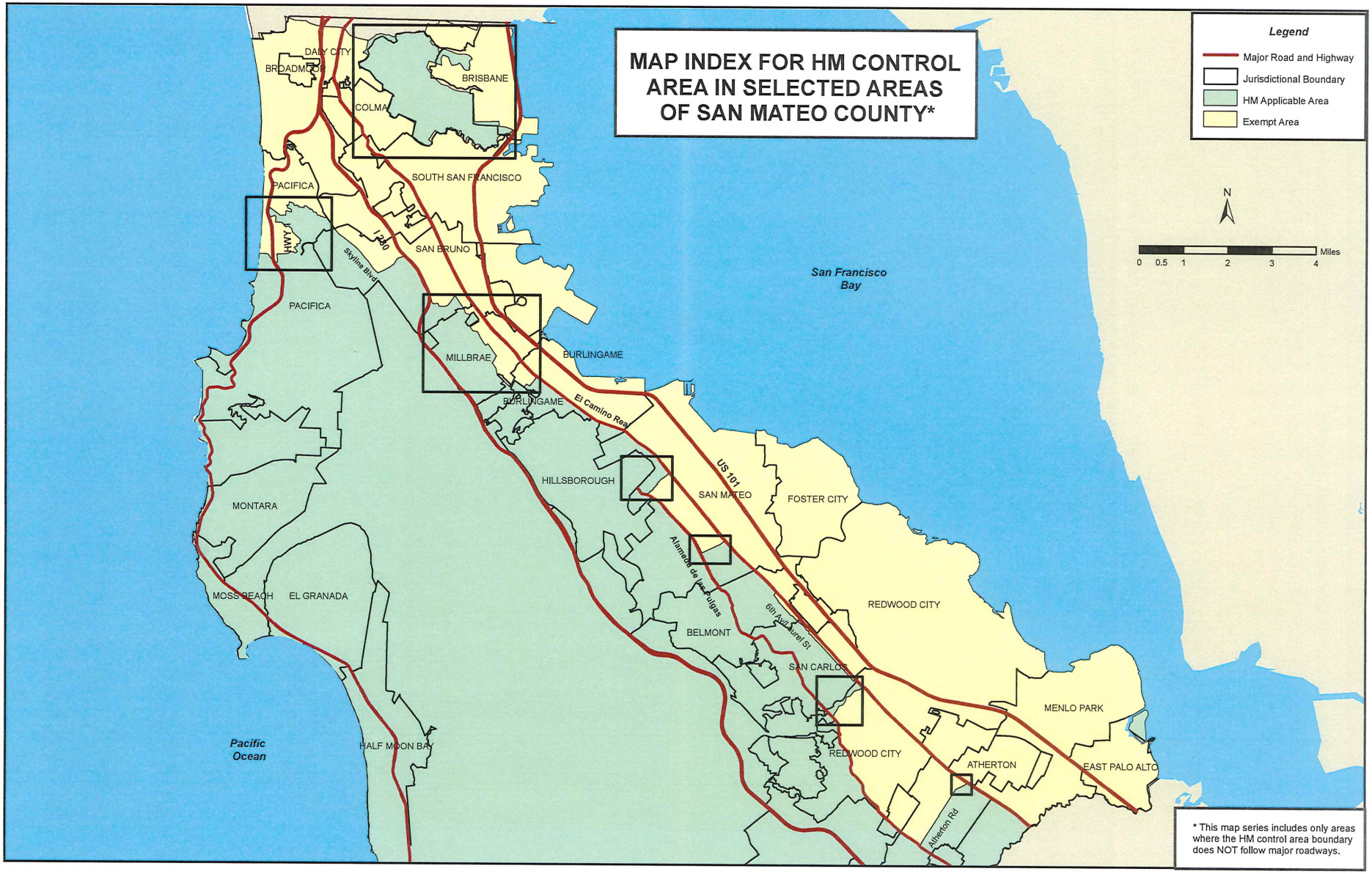


Figure 6-7: Cross section of lined bioretention area, for locations where infiltration is precluded.

SAN MATEO COUNTYWIDE
Water Pollution Prevention Program
Clean Water. Healthy Community.

ATTACHMENT D


MAP INDEX FOR HM CONTROL AREA IN SELECTED AREAS OF SAN MATEO COUNTY*
Legend
Major Road and Highway
Jurisdictional Boundary
HM Applicable Area
Exempt Area
N
0 0.5 1 2 3 4 Miles
DALY CITY
BRADMOOR
COLMA
BRISBANE
SOUTH SAN FRANCISCO
PACIFICA
SAN BRUNO
HWY 1
Skyline Blvd
San Francisco Bay
MILLBRAE
BURLINGAME
El Camino Real
US 101
HILLSBOROUGH
SAN MATEO
FOSTER CITY
MONTARA
Alameda de las Pulgas
6th Ave/Laurel St
REDWOOD CITY
MOSS BEACH
EL GRANADA
BELMONT
SAN CARLOS
MENLO PARK
Pacific Ocean
HALF MOON BAY
ATHERTON
EAST PALO ALTO
Atherton Rd
* This map series includes only areas where the HM control area boundary does NOT follow major roadways.

ATTACHMENT E

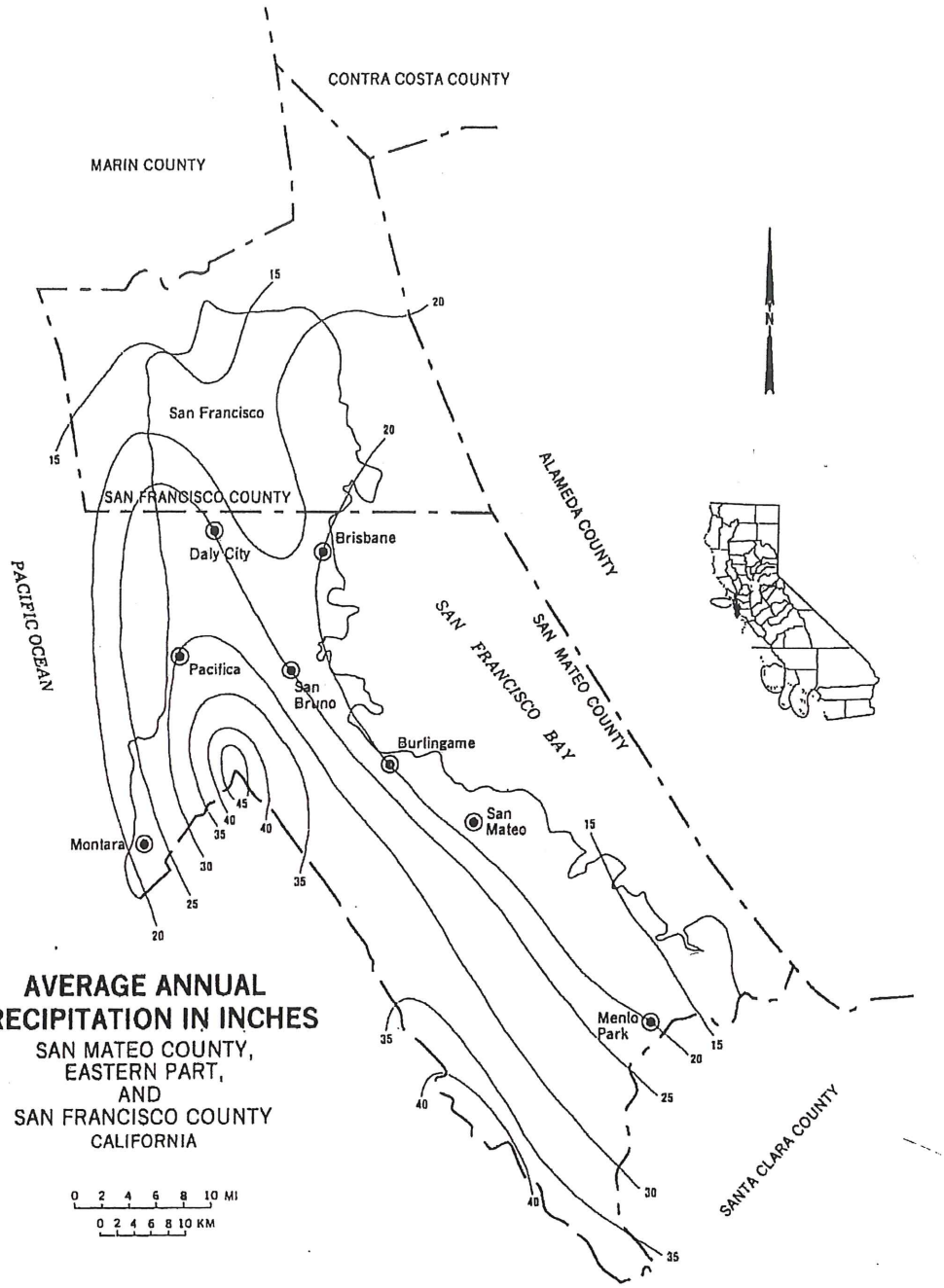


Figure 1.—Average annual precipitation in the survey area.

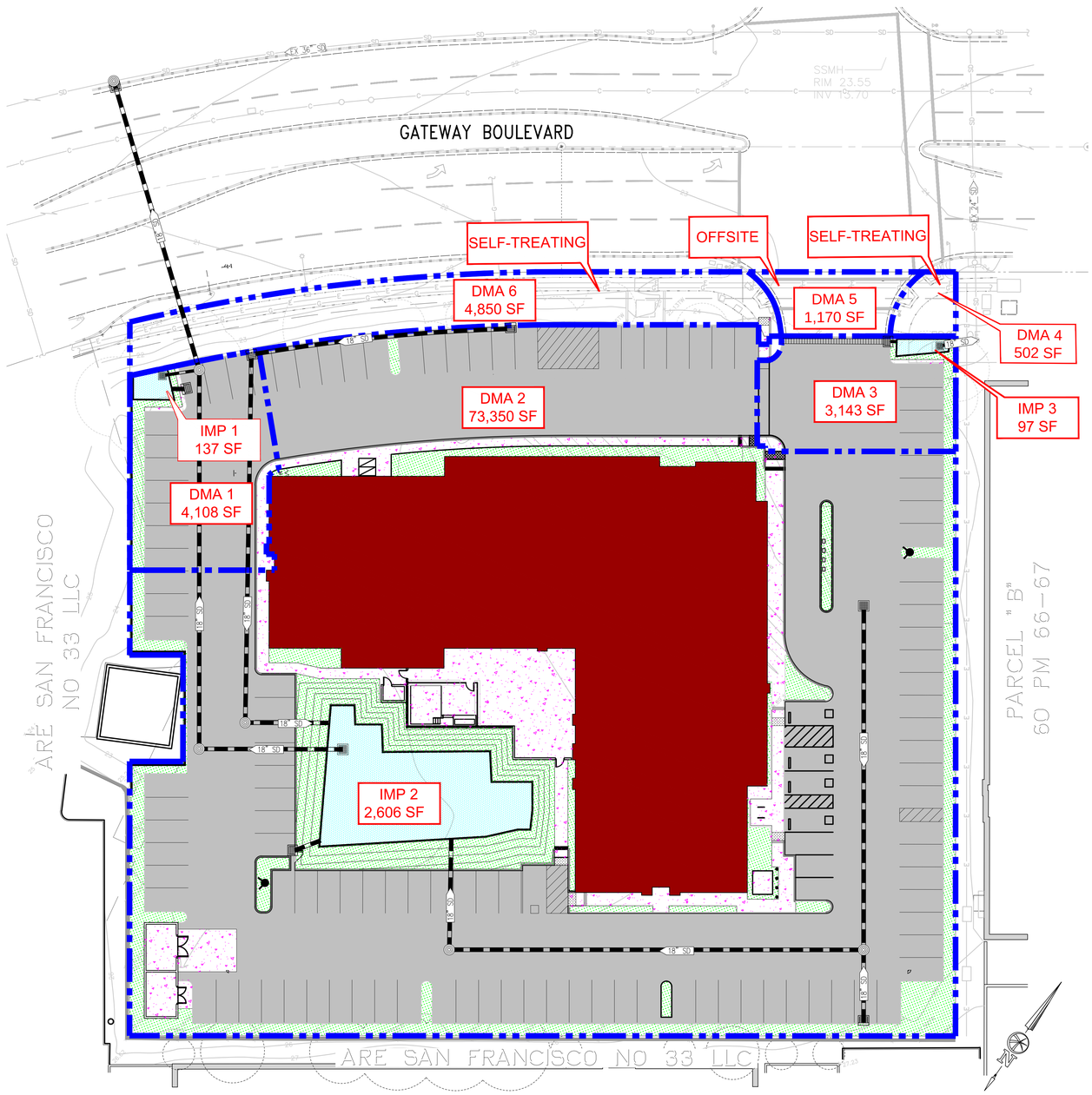
same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil

ATTACHMENT F

Call Two Working Days Before You Dig!

1-800-227-2600

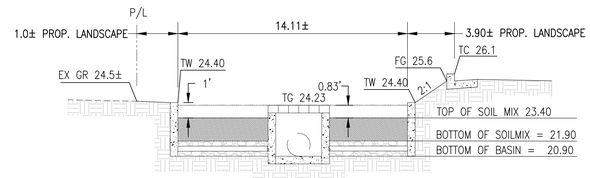


20 10 0 20 40 60

SCALE IN FEET

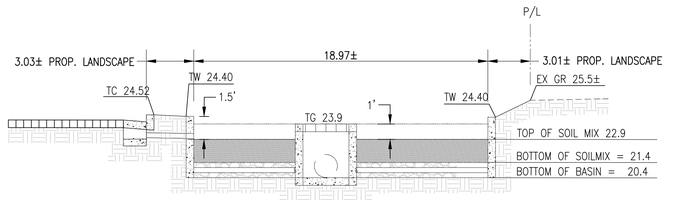
LEGEND

- PROPERTY BOUNDARY
- EX 36" SD — EXISTING STORM DRAIN
- SD — PROPOSED STORM DRAIN
- ROOF
- ASPHALT PAVEMENT
- CONCRETE SIDEWALK
- WATER QUALITY BASIN
- LANDSCAPING AREA
- DMA 1 / 9,772 SF — DRAINAGE MANAGEMENT AREA BOUNDARY
- IMP 1 / 11,895 SF — INTEGRATED MANAGEMENT PRACTICE -BIORETENTION AREA



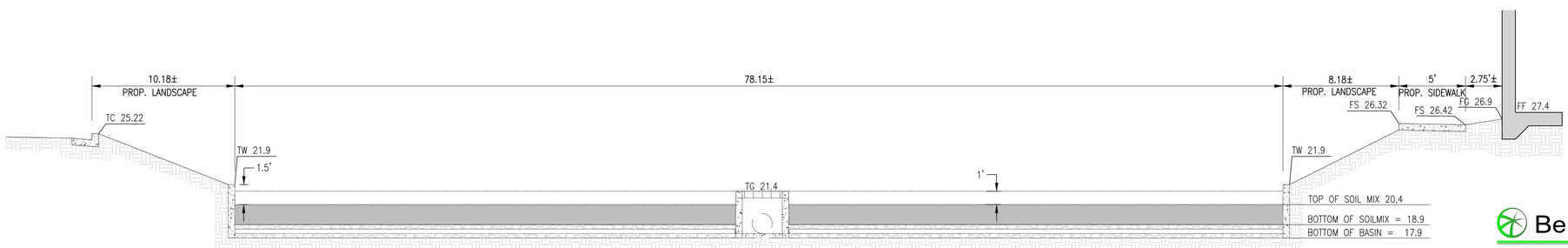
IMP 1 - CROSS SECTION

NOT TO SCALE



IMP 3 - CROSS SECTION

NOT TO SCALE



IMP 2 - CROSS SECTION

NOT TO SCALE

Bellecci & Associates, inc.

Civil Engineering • Land Surveying

2290 Diamond Boulevard, Suite 100 Concord, CA 94520

Phone (925) 685-4569 Fax (925) 685-4838

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THOMAS E. JESS ARCHITECT #C27608
STEPHEN A. RIGOR ARCHITECT #C33672

ARCHITECT OF RECORD/CONSULTANT

CONSULTANT

PRELIMINARY NOT FOR CONSTRUCTION

CLIENT

SRI KRISHNA ENTERPRISE
300 GATEWAY BOULEVARD
SOUTH SAN FRANCISCO, CA 94080

PROJECT

GATEWAY HOTEL
550 GATEWAY BOULEVARD
SOUTH SAN FRANCISCO, CA

STORM WATER CONTROL PLAN

#	REVISION	DATE

PROJECT 16164

DATE JUNE 16, 2017

SHEET C8 OF C14

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