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## STORMWATER CONTROL PLAN (SWCP)

MARIN COUNTY

### PROJECT NAME & OWNER

825 DRAKE AVENUE  
MULTI FAMILY HOUSING

### PROJECT LOCATION

825 DRAKE AVENUE  
SAUSALITO, CA 94965  
UNINCORPORATED MARIN COUNTY

### PREPARED FOR

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### PREPARED BY

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PREPARED: APRIL 2, 2020



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Project Name/Number	825 Drake Avenue Multi Family Housing
Application Submittal Date	April, 2020
Project Location	825 Drake Avenue
Name of Developer	AMG & Associates
Project Phase No.	N/A
Project Type and Description	4 Story – 83 Unit Multi Family Housing Project
Project Watershed	San Francisco Bay
Total Project Site Area (acres)	1.01 Acres
Total Area of Land Disturbed (acres)	0.90 Acres
Total New Impervious Surface Area (sq. ft.)	22,768 sf
Total Replaced Impervious Surface Area	8,876 sf
Total Pre-Project Impervious Surface Area	8,876 sf
Total Post-Project Impervious Surface Area	31,644 sf
50% Rule	Applies
Project Density	83 Units per Acre
Applicable Special Project Categories	None
Percent LID and non-LID treatment	100% of stormwater runoff of impervious surfaces will be treated by on-site Bioswale Planters
HMP Compliance	Doesn't Apply – Less than one acre of impervious surface

**II. SETTING**

A. Project Location & Description

The Project Site is located at 825 Drake Avenue in unincorporated Marin County, at the northeast corner of Parker Circle and Drake Avenue. The subject parcel is bounded by the Village Oduduwa Housing Site to the north and the Ponderosa Estates Housing Site to the east. The area of the subject parcel, Assessor's Parcel Number 052-112-03, is 44,158 square feet, 1.02 acres, and is roughly rectangular in shape. The zoning for the subject parcel is RMP-34, Residential Multiple Planned. The Countywide Plan designation is MF4.5, Medium to High Density Residential. The proposed project is a 4 story, 83 unit, Multi-Family Housing Project, including a 24 car parking lot, accessed by a one-way driveway in on Parker Circle and a one-way driveway out onto Drake Avenue.

B. Existing Site Features and Description

The Project Site is a hilly, partially wooded site and currently houses a modular building and concrete parking lot. The topography of the Project Site slopes steeply from the north down to Drake Avenue, with the high point at the northwest corner of the site at elevation 87 (NAVD 88) and the low point at the southeast corner of the site at elevation 44 for an average slope of 12%.

There is an existing 12” underground storm drain, contained within an existing 10 foot storm drain easement, that traverses north-south across the eastern edge of the subject property. This existing 12” storm drain connects into an existing storm drain catch basin in Drake Avenue and will be utilized to collect the on-site storm drainage from the Project Site.

There are existing utilities in Drake Avenue that will be able to serve the existing Project Site.

A geotechnical investigation will be performed for the proposed project and will include a review of on-site soils, and design recommendations. The geotechnical investigation will likely reveal the site is underlain by clay and silt with variable amounts of organic material. This soil type has a very low infiltration rate.

Treatment of stormwater runoff from the Project Site is to be provided. The total post-project impervious surface area will be approximately 34,520 square feet. However, this project does not require stormwater management facilities that provide hydrograph modification benefits because the project will not be creating or replacing more than one acre of impervious surfacing. Instead, treatment of stormwater runoff from the Project Site will be provided. The locations of the eleven Vegetated Flow-Through Bioswales will be scattered throughout the Project Site. Underground storm drain pipes will collect the treated stormwater runoff from the project Vegetated Flow-Through Bioswales and convey the runoff to two existing publicly maintained catch basins in Drake Avenue.

Disposal of runoff to deep infiltration is not feasible on this site due to the low permeability of the clay soils.

### **III. LOW IMPACT DEVELOPMENT DESIGN STRATEGIES**

#### A. Optimization of Site Layout

1. Limitation of development envelope. The Project Site is bounded on 2 sides by public streets; Sugar City Building Materials property on the east side and a narrow 20 foot wide EBMUD property to the north. A new 5,000 square foot building is proposed in the northern portion of the subject property, relatively far from San Pablo Avenue. Since the property owner is Landscaping company, landscaped areas will be incorporated into the site design and act as buffers between the proposed development and the property lines.
2. Preservation of natural drainage features. The Project Site does not have any natural drainage features to preserve. Currently, the Project Site features overland flow from the north (high) part of the subject property down to the south (low) part of the subject property along Drake Avenue. There are two existing publicly maintained catch basins along the Drake Avenue project frontage which will be utilized to collect the treated storm water runoff from the proposed project.
3. Setbacks from creeks, wetlands, and riparian habitats. There are no wetlands or riparian habitats on the subject parcel.
4. Minimization of Imperviousness. The proposed total impervious area (including roofs, concrete walkways and asphalt concrete paving) is 34,520 square feet or 78% of the 44,158 square feet of the subject parcel. The four story architectural design allows the project to maximize the number of residential units on the Project Site.
5. Use of drainage as a design element. The project design and grading set out to maximize the total area that receives stormwater treatment.

#### B. Use of Permeable Pavements

Due to the geotechnical and soil constraints listed above, permeable pavements will not be incorporated into the Project Site.

#### C. Dispersal of Runoff to Pervious Areas

No stormwater runoff from impervious areas will be directed to pervious areas of the Project Site.

#### D. Stormwater Control Measures

This project will seek to direct all but 275 square feet of the stormwater runoff from the building roofs, concrete walkways and asphalt concrete paving to the 11 IMP areas located throughout the Project Site.

#### **IV. DOCUMENTATION OF DRAINAGE DESIGN**

##### A. Descriptions of each Drainage Management Area

###### 1. Table of Drainage Management Areas

<i>DMA Name</i>	<i>Surface Type</i>	<i>Area (square feet)</i>
<i>DMA A1</i>	<i>Asphalt Pavement</i>	<i>3,150</i>
<i>DMA A2</i>	<i>Concrete Pavement</i>	<i>690</i>
<i>DMA A3</i>	<i>Landscape</i>	<i>775</i>
<i>DMA B1</i>	<i>Roof</i>	<i>3,125</i>
<i>DMA C1</i>	<i>Roof</i>	<i>2,170</i>
<i>DMA D1</i>	<i>AC Pavement</i>	<i>4,810</i>
<i>DMA D2</i>	<i>Landscape</i>	<i>600</i>
<i>DMA E1</i>	<i>Roof</i>	<i>2,345</i>
<i>DMA E2</i>	<i>AC Pavement</i>	<i>3,380</i>
<i>DMA E3</i>	<i>Concrete Pavement</i>	<i>710</i>
<i>DMA E4</i>	<i>Landscape</i>	<i>245</i>
<i>DMA F1</i>	<i>Roof</i>	<i>1,740</i>
<i>DMA G1</i>	<i>Roof</i>	<i>1,720</i>
<i>DMA H1</i>	<i>Roof</i>	<i>1,085</i>
<i>DMA H2</i>	<i>AC Pavement</i>	<i>500</i>
<i>DMA H3</i>	<i>Concrete Pavement</i>	<i>285</i>
<i>DMA H4</i>	<i>Landscape</i>	<i>1,955</i>
<i>DMA I1</i>	<i>Roof</i>	<i>4,120</i>
<i>DMA I2</i>	<i>Concrete Pavement</i>	<i>115</i>
<i>DMA J1</i>	<i>Roof</i>	<i>1,740</i>
<i>DMA K1</i>	<i>Roof</i>	<i>1,990</i>
<i>DMA K2</i>	<i>Concrete Pavement</i>	<i>570</i>
<i>DMA K3</i>	<i>Landscape</i>	<i>610</i>
<i>DMA X1</i>	<i>AC/Concrete Pvmt.</i>	<i>275</i>
<i>DMA X2</i>	<i>Landscape</i>	<i>3,905</i>

###### 2. Drainage Management Area Descriptions

DMA A1: Totaling 3,150 square feet. This area includes a portion of the asphalt concrete pavement in the north and east side of the Project Site. DMA A1 drains to IMP A - In-Ground Vegetated Flow-Through Bioswale.

DMA A2: Totaling 690 square feet. This area includes concrete pavement along the east side of the project building. This area slopes towards DMA A1 which is then directed to IMP A - In-Ground Vegetated Flow-Through Bioswale.

DMA A3: Totaling 775 square feet. This area includes a portion of the landscaping along the east side of the Project Site. This area slopes towards DMA A1 which is then directed to IMP A – In-Ground Vegetated Flow-Through Bioswale.

DMA B1: Totaling 3,125 square feet. This area includes a portion of the roof along the east side of the project building. DMA B1 drains to IMP B – In-Ground Vegetated Flow-Through Bioswale.

DMA C1: Totaling 2,170 square feet. This area includes a portion of the roof along the northeast side of the project building. DMA C1 drains to IMP C – In-Ground Vegetated Flow-Through Bioswale.

DMA D1: Totaling 4,810 square feet. This area includes a portion of the asphalt concrete pavement in the north side of the Project Site. DMA D1 drains to IMP D - In-Ground Vegetated Flow-Through Bioswale.

DMA D2: Totaling 600 square feet. This area includes a portion of the landscaping along the north side of the Project Site. This area slopes towards DMA D2 which is then directed to IMP D – In-Ground Vegetated Flow-Through Bioswale.

DMA E1: Totaling 2,345 square feet. This area includes a portion of the roof along the north side of the project building. DMA E1 drains to IMP E – In-Ground Vegetated Flow-Through Bioswale.

DMA E2: Totaling 3,380 square feet. This area includes a portion of the asphalt concrete pavement in the northwest side of the Project Site. DMA E2 drains to IMP E – In Ground Vegetated Flow-Through Bioswale.

DMA E3: Totaling 710 square feet. This area includes concrete pavement along the north side of the project building. This area slopes towards DMA E2 which is then directed to IMP E - In-Ground Vegetated Flow-Through Bioswale.

DMA E4: Totaling 245 square feet. This area includes a portion of the landscaping along the north side of the project building. This area slopes towards DMA E2 which is then directed to IMP E – In-Ground Vegetated Flow-Through Bioswale.

DMA F1: Totaling 1,740 square feet. This area includes a portion of the roof along the northwest side of the project building. DMA F1 drains to IMP F – Above-Ground Vegetated Flow-Through Bioswale.

DMA G1: Totaling 1,720 square feet. This area includes a portion of the roof along the northwest side of the project building. DMA G1 drains to IMP G – Above-Ground Vegetated Flow-Through Bioswale.

DMA H1: Totaling 1,085 square feet. This area includes a portion of the roof along the northwest side of the project building. DMA H1 drains to IMP H – In-Ground Vegetated Flow-Through Bioswale.

DMA H2: Totaling 500 square feet. This area includes a portion of the asphalt concrete pavement in the northwest side of the Project Site. DMA H2 drains to IMP H – In-Ground Vegetated Flow-Through Bioswale.

DMA H3: Totaling 285 square feet. This area includes concrete pavement along the northwest side of the project building. This area slopes towards DMA H4 which is then directed to IMP H - In-Ground Vegetated Flow-Through Bioswale.

DMA H4: Totaling 1,955 square feet. This area includes a portion of the landscaping along the northwest side of the Project Site. DMA H4 drains to IMP H – In-Ground

DMA I1: Totalling 4,120 square feet. This area includes a portion of the roof along the west side of the project building. DMA I1 drains to IMP I – Above-Ground Vegetated Flow-Through Bioswale.

DMA I2: Totalling 115 square feet. This area includes concrete pavement along the west side of the project building. DMA I2 drains to IMP I – Above-Ground Vegetated Flow-Through Bioswale.

DMA J1: Totalling 1,740 square feet. This area includes a portion of the roof along the south side of the project building. DMA J1 drains to IMP J – Above-Ground Vegetated Flow-Through Bioswale.

DMA K1: Totalling 1,990 square feet. This area includes a portion of the roof along the south side of the project building. DMA K1 drains to IMP K – Above-Ground Vegetated Flow-Through Bioswale.

DMA K2: Totalling 570 square feet. This area includes concrete pavement along the south side of the project building. DMA K2 drains to IMP K – In-Ground Vegetated Flow-Through Bioswale.

DMA K3: Totalling 610 square feet. This area includes a portion of the landscaping along the south side of the project building. DMA K3 drains to IMP K – In-Ground Vegetated Flow-Through Bioswale.

DMA X1: Totalling 275 square feet. This area includes a portion of the asphalt concrete pavement at the southeast driveway entrance. This area will not receive any stormwater treatment.

DMA X2: Totalling 3,905 square feet. This area includes landscaping mainly along Drake Avenue, but also includes miscellaneous landscaping throughout the Project Site. This area will not receive any stormwater treatment.

## B. Integrated Management Practice Descriptions

Integrated Management Practice (IMP) facilities are proposed for the subject parcel; Above-Ground and In-Ground Vegetated Flow-Through Bioswales. The Bioswales will incorporate the following features:

- Surrounded by a concrete curb/wall.
- Each layer built flat, level, and to the elevations specified in the plans:
  - Bottom of Gravel Layer (BGL)
  - Top of Gravel Layer (TGL)
  - Top of Soil Layer (TSL)
  - Overflow Grate
  - Facility Rim
- 12 inches (min.) Class 2 permeable, Caltrans specification 68-2.02F(3).
- 18 inches sand/compost mix meeting the specifications approved by the Regional Water Quality Control Board in April 2016.
- 4 in. dia. PVC SDR 35 perforated pipe underdrain, installed with the invert at the top of the Class 2 permeable layer with holes facing down, and connected to the overflow structure
- 6-inch-deep reservoir between top of soil elevation and overflow grate elevation
- Concrete drop inlet with frame overflow structure, with grate set to specified elevation, connected to new storm drain manhole at drainage ditch
- Plantings selected for water conservation
- Irrigation system with drip emitters and “smart” irrigation controllers



**Information Summary for IMP Design**

Total Project Area (Square feet)	44,158
Mean Annual Precipitation	33 inches
IMPs Designed For:	Treatment Only

**Areas Draining to IMPs**

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type:		IMP Name			
					D	IMP A	IMP Sizing factor	Rain Adjust -ment Factor	Minimum Area or Volume	Proposed Area or Volume
DMA A1	3,150	Roof	1	3,150						
DMA A2	690	AC/Conc. Pavement	1	690						
DMA A3	775	Landscape	0.1	78						
<b>Total</b>				<b>3,918</b>	<b>0.04</b>	<b>1.00</b>	<b>157</b>	<b>168</b>		<b>IMP Area</b>

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type:		IMP Name			
					D	IMP B	IMP Sizing factor	Rain Adjust -ment Factor	Minimum Area or Volume	Proposed Area or Volume
DMA B1	3,125	Roof	1	3,125						
<b>Total</b>				<b>3,125</b>	<b>0.04</b>	<b>1.00</b>	<b>125</b>	<b>144</b>		<b>IMP Area</b>

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type:		IMP Name			
					D	IMP C	IMP Sizing factor	Rain Adjust -ment Factor	Minimum Area or Volume	Proposed Area or Volume
DMA C1	2,170	Roof	1	2,170						
<b>Total</b>				<b>2,170</b>	<b>0.04</b>	<b>1.00</b>	<b>87</b>	<b>92</b>		<b>IMP Area</b>

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type:		IMP Name				
					D	IMP D	IMP Sizing factor	Rain Adjust -ment Factor	Minimum Area or Volume	Proposed Area or Volume	IMP Area
DMA D1	4,810	AC/Conc. Pavement	1	4,810							
DMA D2	600	Landscape	1	60							
<b>Total</b>				<b>4,870</b>	<b>0.04</b>	<b>1.00</b>	<b>195</b>	<b>195</b>			

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type:		IMP Name				
					D	IMP E	IMP Sizing factor	Rain Adjust -ment Factor	Minimum Area or Volume	Proposed Area or Volume	IMP Area
DMA E1	2,345	Roof	1	2,345							
DMA E2 & E3	4,090	AC/Conc. Pavement	1	4,090							
DMA E4	245	Landscape	0.1	25							
<b>Total</b>				<b>6,460</b>	<b>0.04</b>	<b>1.00</b>	<b>258</b>	<b>270</b>			

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type:		IMP Name				
					D	IMP F	IMP Sizing factor	Rain Adjust -ment Factor	Minimum Area or Volume	Proposed Area or Volume	IMP Area
DMA F1	1,740	Roof	1	1,740							
<b>Total</b>				<b>1,740</b>	<b>0.04</b>	<b>1.00</b>	<b>70</b>	<b>85</b>			

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type:		IMP Name				
					D	IMP G	IMP Sizing factor	Rain Adjust -ment Factor	Minimum Area or Volume	Proposed Area or Volume	IMP Area
DMA G1	3,150	Roof	1	1,720							
<b>Total</b>				<b>1,720</b>	<b>0.04</b>	<b>1.00</b>	<b>69</b>	<b>89</b>			

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type:		IMP Name		
					D	IMP H			
DMA H1	1,085	Roof	1	1,085					
DMA H2 & H3	785	AC/Conc. Pavement	1	785	IMP Sizing factor	Rain Adjust -ment Factor	Minimum Area or Volume	Proposed Area or Volume	
DMA H4	1,955	Landscape	0.1	196					
<b>Total</b>				<b>2,066</b>		<b>0.04</b>	<b>1.00</b>	<b>83</b>	<b>117</b>

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type:		IMP Name		
					D	IMP I			
DMA I1	4,120	Roof	1	4,120					
DMA I2	115	AC/Conc. Pavement	1	115	IMP Sizing factor	Rain Adjust -ment Factor	Minimum Area or Volume	Proposed Area or Volume	
<b>Total</b>				<b>4,235</b>		<b>0.04</b>	<b>1.00</b>	<b>169</b>	<b>176</b>

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type:		IMP Name		
					D	IMP J			
DMA J1	1,740	AC/Conc. Pavement	1	1,740					
					IMP Sizing factor	Rain Adjust -ment Factor	Minimum Area or Volume	Proposed Area or Volume	
<b>Total</b>				<b>1,740</b>		<b>0.04</b>	<b>1.00</b>	<b>70</b>	<b>85</b>

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type:		IMP Name		
					D	IMP K			
DMA K1	1,990	Roof	1	1,990					
DMA K2	570	AC/Conc. Pavement	1	570	IMP Sizing factor	Rain Adjust -ment Factor	Minimum Area or Volume	Proposed Area or Volume	
DMA K3	610	Landscape	0.1	61					
<b>Total</b>				<b>2,621</b>		<b>0.04</b>	<b>1.00</b>	<b>105</b>	<b>126</b>

DMA Name	DMA Area (s.f.)	Post-project surface type	DMA Runoff factor	DMA Area × runoff factor	Soil Type: IMP Name			
					D	Self Treating		
DMA X1	275	AC/Conc. Pavement	0	0				
DMA X2	3,905	Landscape	0	0				
					IMP Sizing factor	Rain Adjust -ment Factor	Minimum Area or Volume	Proposed Area or Volume
<b>Total</b>				<b>0</b>				

**V. SOURCE CONTROL MEASURES**

A. Site Activities and potential sources of pollutants

The following activities planned for the project have potential to allow pollutants to enter runoff:

- 1) On-site drain inlets
- 2) Refuse disposal
- 3) Landscape maintenance
- 4) Fertilizers and pesticides used in landscaping area

To further reduce the potential to enter runoff, permanent and operational BMP's will be implemented as described in the following Table.

B. Source Control Table

Potential source of runoff pollutants	Permanent source control BMPs	Operational source control BMPs
On-site drain inlets	Inlets that could be accessed from paved areas, sidewalks and landscaped areas will be marked with a "No Dumping – Drains to Bay	<ul style="list-style-type: none"> <li>• Inlet markings will be inspected annually and replaced or renewed as needed</li> <li>• Owners will receive stormwater pollution prevention information to be provided by the County</li> <li>• Bioretention and related structures and features will be inspected and maintained as specified in the BMP Operation and Maintenance Plan</li> </ul>
Refuse areas	All dumpsters will be marked with a "Do not dump Hazardous Materials here" or similar	<ul style="list-style-type: none"> <li>• Adequate litter receptacles will be provided throughout the project site</li> <li>• Groundskeeping crew or contractor will inspect and clean up daily. Spills will be cleaned up using dry methods</li> </ul>

Landscaping/outdoor pesticide use	<ul style="list-style-type: none"> <li>• Landscaping will be designed to minimize required irrigation and runoff, to promote surface infiltration, and to minimize the use of fertilizers and pesticides that can contribute to storm water pollution</li> <li>• Plants will be selected appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant management</li> <li>• Plantings for swales will be selected to be appropriate to anticipated soil and moisture conditions</li> </ul>	<ul style="list-style-type: none"> <li>• All site landscaping is to be maintained by a professional landscaping contractor. Contract to state that landscaping is to be maintained using IPM principles, with minimal or no use of pesticides</li> <li>• Owners will receive integrated pest management information</li> </ul>
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C. Features, Materials, and Methods of Construction of Source Control BMP's

**VI. STORM WATER FACILITY MAINTENANCE**

A. Ownership and Responsibility for Maintenance in Perpetuity

All stormwater treatment facilities in this plan will be owned and maintained in perpetuity by the private owner of the subject property. The applicant accepts responsibility for interim operation and maintenance of the facilities until such time as this responsibility is formally transferred to the owner.

The property owner is required to provide a Stormwater Control Operation and Maintenance (O&M) Plan for review of the City of Pinole, and record an Operation and Maintenance Agreement, including and necessary rights-of-way, prior to issuance of a building permit. Additionally, the property owner will be required to annex into any financing mechanisms formed to insure that all costs associated with the perpetual Operation & Maintenance, administration and reporting of these water quality features (including costs associated with all required City of Pinole administration and reporting) are paid for by the property owner.

B. Summary of Maintenance Requirements for each Stormwater Facility

Bioretention and related facilities remove pollutants primarily by filtering runoff slowly through an active layer of soil. Routine maintenance is needed to insure that flow is unobstructed, that erosion is prevented, and that soils are held together by plant roots and are biologically active. Typical routine maintenance consists of the following:

- 1) Inspect inlets, exposure of soils, or other evidence of erosion. Clear any obstructions and remove any accumulations of sediment. Examine rock or other material used as a splash pad and replenish if necessary.
- 2) Inspect outlets for erosion or plugging.
- 3) Examine the vegetation to insure that it is healthy and dense enough to provide filtering and to protect soils from erosion. Replenish mulch as necessary, remove fallen leaves and debris, prune large shrubs or trees, and mow turf areas. Confirm that irrigation is adequate and not excessive. Replace dead plants and remove invasive vegetation.
- 4) Observe soil at the bottom of the bioretention planter or filter for uniform percolation throughout. If portions of the swale or filter do not drain within 48 hours after the end of the storm, the soil should be tilled and replanted. Remove any debris or accumulations of sediment.

- 5) Abate any potential vectors by filling in the ground and around swale and by insuring that there are no areas where water stands longer than 48 hours following a storm. If mosquito larvae are present and persistent contact the County Vector Control District for information and advice. Mosquito larvicides should be applied only when absolutely necessary and then only by a licensed individual or contractor.

## VII. CONSTRUCTION PLAN C.3 CHECKLIST

STORMWATER CONTROL PLAN REFERENCE	BMP DESCRIPTION	PLAN SHEET NUMBER
CCCo IMP Summary Report Bioretention Detail & Exhibit	Vegetated Flow-Through Planter Bioswale Detail	Civil Sheet C1.1
Source Control Table V.B.	On-site drain inlets to be marked With "no dumping" message	Stormwater Control Plan
Source Control Table V.B.	Plant selection to minimize irrigation, minimize use of fertilizers and pesticides, and for pest resistance.	Landscape Plans
Source Control Table V.B.	Adequate litter receptacles throughout project area	Architectural Plans

## VIII. OWNER'S CERTIFICATION

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.

# APPENDIX A

**Project Name:** 825 Drake Avenue  
**Project Type:** Treatment Only  
**APN:** 052-112-03  
**Drainage Area:** 44,158  
**Mean Annual Precipitation:** 33.0

## Self-Treating DMAs

DMA Name	Area (sq ft)
DMA X1	275.0
DMA X2	3,905.0

## IV. Areas Draining to IMPs

**IMP Name:** IMP A  
**IMP Type:** Flow-Through Planter  
**Soil Group:** IMP A

DMA Name	Area (sq ft)	Post Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	IMP Sizing			
DMA A1	3,150	Conventional Roof	1.00	3,150	IMP Sizing Factor	Rain Adjustment Factor	Minimum Area or Volume	Proposed Area or Volume
DMA A2	690	Concrete or Asphalt	1.00	690				
DMA A3	775	Landscape	0.10	78				
<b>Total</b>				3,918				
				<b>Area</b>	0.040	1.000	157	168

**IMP Name:** IMP B  
**IMP Type:** Flow-Through Planter  
**Soil Group:** IMP B

DMA Name	Area (sq ft)	Post Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	IMP Sizing			
DMA B1	3,125	Conventional Roof	1.00	3,125	IMP Sizing Factor	Rain Adjustment Factor	Minimum Area or Volume	Proposed Area or Volume
<b>Total</b>				3,125				
				<b>Area</b>				

**IMP Name:** IMP C  
**IMP Type:** Flow-Through Planter  
**Soil Group:** IMP C

DMA Name	Area (sq ft)	Post Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	IMP Sizing			
DMA C1	2,170	Conventional Roof	1.00	2,170	IMP Sizing	Rain	Minimum	Proposed



<b>Total</b>	2,170	<b>Factor</b>	<b>Adjustment Factor</b>	<b>Area or Volume</b>	<b>Area or Volume</b>
<b>Area</b>		0.040	1.000	87	92

**IMP Name: IMP D**

**IMP Type: Flow-Through Planter**

**Soil Group: IMP D**

DMA Name	Area (sq ft)	Post Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	IMP Sizing	IMP Sizing Factor	Rain Adjustment Factor	Minimum Area or Volume	Proposed Area or Volume
DMA D1	4,810	Concrete or Asphalt	1.00	4,810					
DMA D2	600	Landscape	0.10	60					
<b>Total</b>				4,870					
<b>Area</b>									

**IMP Name: IMP E**

**IMP Type: Flow-Through Planter**

**Soil Group: IMP E**

DMA Name	Area (sq ft)	Post Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	IMP Sizing	IMP Sizing Factor	Rain Adjustment Factor	Minimum Area or Volume	Proposed Area or Volume
DMA E1	2,345	Conventional Roof	1.00	2,345					
DMA E2	3,380	Concrete or Asphalt	1.00	3,380					
DMA E3	710	Concrete or Asphalt	1.00	710					
DMA E4	245	Landscape	0.10	25					
<b>Total</b>				6,460					
<b>Area</b>					0.040	1.000	258	270	

**IMP Name: IMP F**

**IMP Type: Flow-Through Planter**

**Soil Group: IMP F**

DMA Name	Area (sq ft)	Post Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	IMP Sizing	IMP Sizing Factor	Rain Adjustment Factor	Minimum Area or Volume	Proposed Area or Volume
DMA F1	1,740	Conventional Roof	1.00	1,740					
<b>Total</b>				1,740					
<b>Area</b>					0.040	1.000	70	85	

**IMP Name: IMP G**

**IMP Type: Flow-Through Planter**

**Soil Group: IMP G**

DMA Name	Area (sq ft)	Post Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	IMP Sizing

DMA G1	1,720	Conventional Roof	1.00	1,720	<b>IMP Sizing Factor</b>	<b>Rain Adjustment Factor</b>	<b>Minimum Area or Volume</b>	<b>Proposed Area or Volume</b>
<b>Total</b>			1,720					
				<b>Area</b>	0.040	1.000	69	89

**IMP Name: IMP H**  
**IMP Type: Flow-Through Planter**  
**Soil Group: IMP H**

DMA Name	Area (sq ft)	Post Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	<b>IMP Sizing Factor</b>	<b>Rain Adjustment Factor</b>	<b>Minimum Area or Volume</b>	<b>Proposed Area or Volume</b>
DMA H1	1,085	Conventional Roof	1.00	1,085				
DMA H2	500	Concrete or Asphalt	1.00	500				
DMA H3	285	Concrete or Asphalt	1.00	285				
DMA H4	1,955	Landscape	0.10	196				
<b>Total</b>				2,066				
				<b>Area</b>	0.040	1.000	83	117

**IMP Name: IMP I**  
**IMP Type: Flow-Through Planter**  
**Soil Group: IMP I**

DMA Name	Area (sq ft)	Post Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	<b>IMP Sizing Factor</b>	<b>Rain Adjustment Factor</b>	<b>Minimum Area or Volume</b>	<b>Proposed Area or Volume</b>
DMA I1	4,120	Conventional Roof	1.00	4,120				
DMA I2	115	Concrete or Asphalt	1.00	115				
<b>Total</b>				4,235				
				<b>Area</b>	0.040	1.000	169	176

**IMP Name: IMP J**  
**IMP Type: Flow-Through Planter**  
**Soil Group: IMP J**

DMA Name	Area (sq ft)	Post Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	<b>IMP Sizing Factor</b>	<b>Rain Adjustment Factor</b>	<b>Minimum Area or Volume</b>	<b>Proposed Area or Volume</b>
DMA J1	1,740	Concrete or Asphalt	1.00	1,740				
<b>Total</b>				1,740				
				<b>Area</b>	0.040	1.000	70	85

**IMP Name: IMP K**  
**IMP Type: Flow-Through Planter**  
**Soil Group: IMP K**

DMA Name	Area (sq ft)	Post Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	IMP Sizing			
DMA K1	1,990	Conventional Roof	1.00	1,990	IMP Sizing Factor	Rain Adjustment Factor	Minimum Area or Volume	Proposed Area or Volume
DMA K2	570	Concrete or Asphalt	1.00	570				
DMA K3	610	Landscape	0.10	61				
<b>Total</b>				2,621				
				<b>Area</b>	0.040	1.000	105	126

Report generated on 4/1/2020 12:00:00 AM by the Contra Costa Clean Water Program IMP Sizing Tool software (version 1.3.1.0).