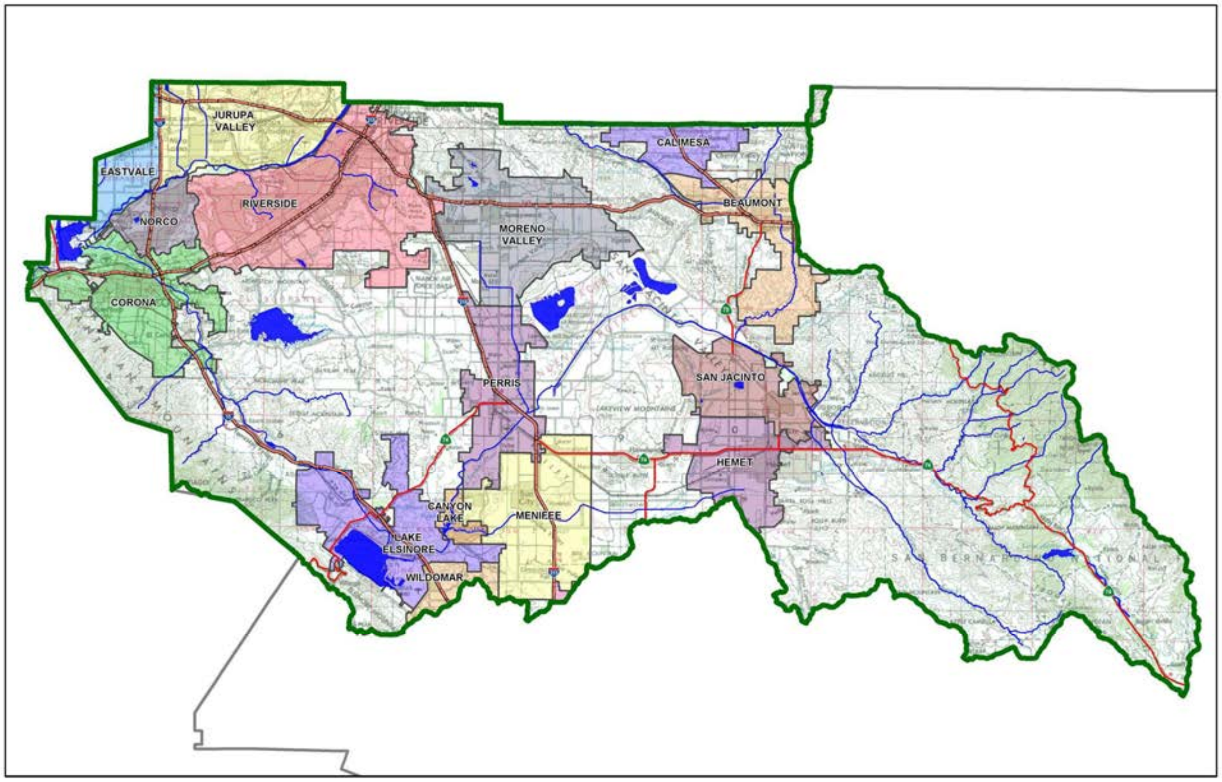
Project Specific Water Quality Management Plan

A Template for Projects located within the Santa Ana Watershed Region of Riverside County

Project Title: Flamingo Bay Project

Development No: TBD

Design Review/Case No: LWQ22-0012



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☒ Preliminary
☐ Final

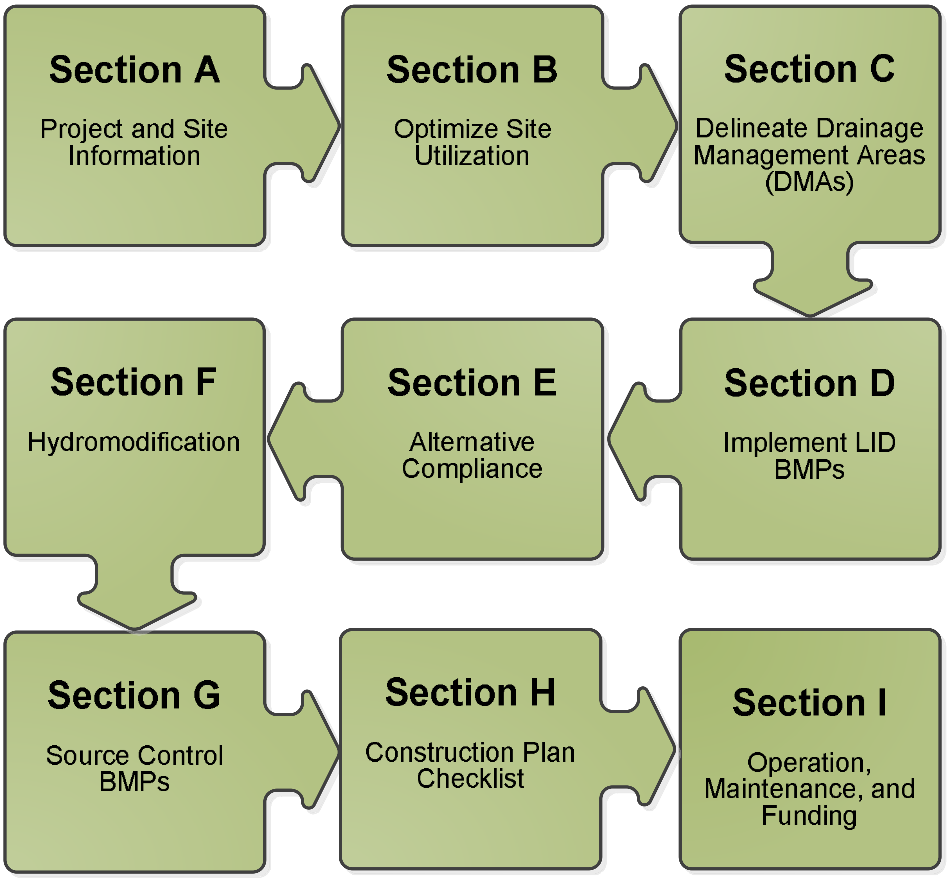
Original Date Prepared: 12/23/2021

Revision Date(s): 10/12/22

Prepared for Compliance with
Regional Board Order No. R8-2010-0033

A Brief Introduction

This Project-Specific WQMP Template for the Santa Ana Region has been prepared to help guide you in documenting compliance for your project. Because this document has been designed to specifically document compliance, you will need to utilize the WQMP Guidance Document as your "how-to" manual to help guide you through this process. Both the Template and Guidance Document go hand-in-hand, and will help facilitate a well prepared Project-Specific WQMP. Below is a flowchart for the layout of this Template that will provide the steps required to document compliance.



OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for Empire Construction Management, Inc. by Proactive Engineering Consultants, Inc. for the Flamingo Bay Project.

This WQMP is intended to comply with the requirements of City of Moreno Valley for 827 § 2.1, 2011 which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under City of Moreno Valley Water Quality Ordinance (Municipal Code Section Chapter 8.10).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner's Signature	Date
Owner's Printed Name	Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. R8-2010-0033 and any subsequent amendments thereto."

Preparer's Signature	Date
Preparer's Printed Name	Preparer's Title/Position

Preparer's Licensure:

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Section A: Project and Site Information

PROJECT INFORMATION	
Type of Project:	Residential
Planning Area:	R15 - Multifamily
Community Name:	TBD
Development Name:	TBD
PROJECT LOCATION	
Latitude & Longitude (DMS): 33o 54' 58.8" N 117o 12' 42.9"W	
Project Watershed and Sub-Watershed: Santa Ana Watershed	
APN(s): 484030013, 484030026	
Map Book and Page No.: Map Book 11, Page 10	
PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Multifamily Residential
Proposed or Potential SIC Code(s)	6513
Area of Impervious Project Footprint (SF)	176,808
Total Area of <u>proposed</u> Impervious Surfaces within the Project Limits (SF)/or Replacement	150,287
Does the project consist of offsite road improvements?	☐ Y ☒ N
Does the project propose to construct unpaved roads?	☐ Y ☒ N
Is the project part of a larger common plan of development (phased project)?	☐ Y ☒ N
EXISTING SITE CHARACTERISTICS	
Total area of <u>existing</u> Impervious Surfaces within the project limits (SF)	0
Is the project located within any MSHCP Criteria Cell?	☐ Y ☒ N
If so, identify the Cell number:	N/A
Are there any natural hydrologic features on the project site?	☐ Y ☒ N
Is a Geotechnical Report attached?	☒ Y ☐ N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	
What is the Water Quality Design Storm Depth for the project?	0.68"

A.1 Maps and Site Plans

When completing your Project-Specific WQMP, include a map of the local vicinity and existing site. In addition, include all grading, drainage, landscape/plant palette and other pertinent construction plans in Appendix 2. At a minimum, your WQMP Site Plan should include the following:

- Drainage Management Areas
- Proposed Structural BMPs
- Drainage Path
- Drainage Infrastructure, Inlets, Overflows
- Source Control BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces
- Standard Labeling

Use your discretion on whether or not you may need to create multiple sheets or can appropriately accommodate these features on one or two sheets. Keep in mind that the Co-Permittee plan reviewer must be able to easily analyze your project utilizing this template and its associated site plans and maps.

Drainage Areas Description:

The proposed improvement in the Flamingo Bay Project will include construction of multi-family apartments, parking lots, garages, green space, and underground utilities. The proposed storm drain system will consist of concrete gutters, bio-detention basins, and an underground detention basin. Runoff from the project site will sheet flow through concrete gutters to bio-detention basins, excess overflow will then be conveyed to an underground detention basin. The underground detention basin will control flow rates before discharging flows to Copper Cove Lane. The underground detention basin will utilize a parkway culvert to discharge runoff to Copper Cove Lane. The project area is divided into multiple DMAs as described below.

DMA A1

DMA A1 consists of roof, landscape, concrete and asphalt concrete areas. Runoff from the proposed buildings and landscape areas sheet flow to the proposed Bio-Detention Basin No. 1. Runoff flows in a southwest direction. Runoff within drive aisle is captured using proposed curb openings and conveyed to the proposed Bio-Detention Basin No. 1 and the proposed underground detention basin. The proposed Bio-Detention Basin No. 1 will capture the Water Quality Design Storm Depth and treat runoff. Bio-Detention Basin No. 1 has capacity to treat 789 cu-ft, and therefore will bypass 999 cu-ft to Bio-Detention No. 2. Bypassed volume from Bio-Detention No. 1 will overtop the proposed check dam and sheet flow to Bio-Detention No. 2 for treatment.

DMA A2

DMA A2 consists of roof, landscape, concrete, and asphalt concrete areas. Runoff from the proposed buildings and landscape areas sheet flow to the proposed Bio-Detention Basin No. 2. Runoff flows in a southwest direction. Runoff within drive aisle is captured using proposed curb openings and conveyed to the proposed Bio-Detention Basin No. 2 and the proposed underground detention basin. The proposed Bio-Detention Basin No. 2 will capture the Water Quality Design Storm Depth and treat bypassed runoff from Bio-Detention Basin No. 1. Bio-Detention Basin No. 2 has capacity to treat 711 cu-ft, and therefore will bypass 880 cu-ft to Bio-Detention No. 3. Bypassed volume from Bio-Detention No. 2 will overtop the proposed check dam and sheet flow to Bio-Detention No. 3 for treatment.

DMA A3

DMA A3 consists of roof, landscape, concrete, and asphalt concrete areas. Runoff from the proposed buildings and landscape areas sheet flow to the proposed Bio-Detention Basin No. 3. Runoff flows in a southwest direction. Runoff within drive aisle is captured using proposed curb openings and conveyed to the proposed Bio-Detention Basin No. 3 and the proposed underground detention basin. The proposed Bio-Detention Basin No. 3 will capture the Water Quality Design Storm Depth and treat bypassed runoff from Bio-Detention Basin No. 2. Bio-Detention Basin No. 3 has capacity to treat 711 cu-ft, and therefore will bypass 378 cu-ft to Bio-Detention No. 4. Bypassed volume from Bio-Detention No. 3 will overtop the proposed check dam and sheet flow to Bio-Detention No. 4 for treatment.

DMA A4

DMA A4 consists of roof, landscape, concrete, and asphalt concrete areas. Runoff from the proposed buildings and landscape areas sheet flow to the proposed Bio-Detention Basin No. 4. Runoff flows in a southwest direction. Runoff within drive aisle is captured using proposed curb openings and conveyed to the proposed Bio-Detention Basin No. 4 and the proposed underground detention basin. The proposed Bio-Detention Basin No. 4 will capture the Water Quality Design Storm Depth and treat bypassed runoff from Bio-Detention Basin No. 3. Bio-Detention Basin No. 3 has capacity to treat 628 cu-ft, and therefore will treat all runoff generated within DMA A4 and bypassed volume from Bio-Detention Basin No. 3.

DMA A5

DMA A5 consists of roof, landscape, concrete, and asphalt concrete areas. Runoff from the proposed buildings and landscape areas sheet flow to the proposed Bio-Detention Basin No. 5. Runoff flows in a southwest direction. Runoff within drive aisle is captured using proposed curb openings and conveyed to the proposed Bio-Detention Basin No. 5 and the proposed underground detention basin. The proposed Bio-Detention Basin No. 5 will capture the Water Quality Design Storm Depth and treat runoff. Bio-Detention Basin No. 5 has capacity to treat 242 cu-ft, and therefore will treat all runoff generated within DMA A5.

DMA A6

DMA A6 consists of roof, landscape, concrete, and asphalt concrete areas. Runoff from the proposed buildings and landscape areas sheet flow to the proposed Bio-Detention Basin No. 6. Runoff flows in a southwest direction. Runoff within drive aisle is captured using proposed curb openings and conveyed to the proposed Bio-Detention Basin No. 6 and the proposed underground detention basin. The proposed Bio-Detention Basin No. 6 will capture the Water Quality Design Storm Depth and treat runoff. Bio-Detention Basin No. 6 has capacity to treat 239 cu-ft, and therefore will treat all runoff generated within DMA A6.

DMA A7

DMA A7 consists of roof, landscape, concrete, and asphalt concrete areas. Runoff from the proposed buildings and landscape areas sheet flow to the proposed Bio-Detention Basin No. 7. Runoff flows in a southwest direction. Runoff within drive aisle is captured using proposed curb openings and conveyed to the proposed Bio-Detention Basin No. 7 and the proposed underground detention basin. The proposed Bio-Detention Basin No. 7 will capture the Water Quality Design Storm Depth and treat runoff. Bio-Detention Basin No. 7 has capacity to treat 747 cu-ft, and therefore will bypass 1,066 cu-ft to Bio-Detention No. 8. Bypassed volume from Bio-Detention No. 7 will overtop the proposed check dam and sheet flow to Bio-Detention No. 8 for treatment

DMA A8

DMA A8 consists of landscape, concrete, and asphalt concrete areas. Runoff from the proposed parking and landscape areas sheet flow to the proposed Bio-Detention Basin No. 8. Runoff flows in a southwest direction. Runoff within drive aisle is captured using proposed curb openings and conveyed to the proposed Bio-Detention Basin No. 8 and the proposed underground detention basin. The proposed Bio-Detention Basin No. 8 will capture the Water Quality Design Storm Depth and treat runoff. Bio-Detention Basin No. 8 has capacity to treat 675 cu-ft, and therefore will bypass 489 cu-ft to Bio-Detention No. 9. Bypassed volume from Bio-Detention No. 8 will overtop the proposed check dam and sheet flow to Bio-Detention No. 9 for treatment

DMA A9

DMA A9 consists of landscape, concrete, and asphalt concrete areas. Runoff from the proposed parking and landscape areas sheet flow to the proposed Bio-Detention Basin No. 9. Runoff flows in a southwest direction. Runoff within drive aisle is captured using proposed curb openings and conveyed to the proposed Bio-Detention Basin No. 9 and the proposed underground detention basin. The proposed Bio-Detention Basin No. 9 will capture the Water Quality Design Storm Depth and treat bypassed runoff from Bio-Detention Basin No. 9. Bio-Detention Basin No. 9 has capacity to treat 665 cu-ft, and therefore will treat all runoff generated within DMA A9 and bypassed volume from Bio-Detention Basin No. 8.

Storms greater than the Water Quality Design Storm Depth will bypass from Bio-Detention Basins No. 1 thru 9 will be conveyed to the detention basin utilizing a grated inlet at the end of the Bio-Detention Basin No. 9. Once the Bio-Detention Basins are operating at full capacity, runoff will overflow to the proposed grated inlet which conveys flows to the underground detention basin. An outlet control structure will then outlet flows from the underground detention basin to Copper Cove Lane.

DMA B

DMA B consists of roof, landscape, and concrete areas. Runoff from the proposed buildings and landscape areas and concrete areas sheet flow to the proposed Bio-Detention Basin No. 10. Runoff flows in a south direction. Runoff from DMA B sheet flows to the proposed Bio-Detention Basin No. 10.

The proposed Bio-Detention Basin No. 10 will capture the Water Quality Design Storm Depth and treat runoff. Overflow from Bio-Detention Basin No. 10 will be conveyed to the detention basin utilizing a grated inlet at the end of the Bio-Detention Basin. Once the bio-detention basin is full, runoff overflows to the proposed grated inlet which conveys flows to the underground detention basin. An outlet control structure will then outlet flows from the underground detention basin to Copper Cove Lane.

DMA C

DMA C includes runoff from the improved areas within Alessandro Boulevard. The main purpose of DMA C is to compute the DCV requirement for the improvements along Alessandro Boulevard. A proposed Bio-Detention Basin No. 11 treat offsite flows from Alessandro Boulevard. A small 3" PVC parkway drain in Alessandro Boulevard will route water quality runoff flows from Alessandro Boulevard to Bio-Detention Basin No. 11. Large storm events will bypass the proposed 3" parkway drain. Bio-Detention Basin No. 11 will connect to Bio-Detention No. 1 through a 6" PVC pipe.

DMA D

DMA D includes runoff from the improved areas within Copper Cove Lane and the project southeast entrance. The main purpose of DMA D is to compute the DCV requirement for the improvements along Copper Cove Lane and project site entrance. Due to grading constraints and infiltration rate limitations, it is unfeasible to treat the improved areas within DMA D. However, the proposed Bio-Detention Basin No. 11 has been oversized to compensate treatment requirements flows in lieu of treating flows from the DMA D.

Refer to WQMP Site plan for location of facilities.

A.2 Identify Receiving Waters

Using Table A.1 below, list in order of upstream to downstream, the receiving waters that the project site is tributary to. Continue to fill each row with the Receiving Water's 303(d) listed impairments (if any), designated beneficial uses, and proximity, if any, to a RARE beneficial use. Include a map of the receiving waters in Appendix 1.

Table A.1 Identification of Receiving Waters

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
San Jacinto River Reach 3	N/A	AGR, GWR, WILD, MUN, REC1, REC2, WARM, WILD	No RARE beneficial use within receiving water body
San Jacinto river reach 2	Nutrients	AGR, GWR, WILD, MUN, REC1, REC2, WARM	No RARE beneficial use within receiving water body
San Jacinto River Reach 1	N/A	AGR, GWR, WILD, MUN, REC1, REC2, WARM, WILD	No RARE beneficial use within receiving water body
Lake Elsinore	Nutrients Organic Enrichment/Low Dissolved Oxygen PCBs; Sediment Toxicity Unknown Toxicity,	REC1, REC2, WARM, WILD	No RARE beneficial use within receiving water body

	DDT		
Temescal Creek Reach 6	Indicator Bacteria	INTERMITTENT - GWR, REC1, REC2, WARM, WILD	No RARE beneficial use within receiving water body
Temescal Creek Reach 5	N/A	AGR, GWR, REC1, REC2, WARM, WILD, RARE	24 miles
Temescal Creek Reach 4	N/A	AGR, GWR, REC1, REC2, WARM, WILD, RARE	31 miles
Lee Lake	N/A	AGR, IND, GWR, REC1, REC2, WARM, WILD	No RARE beneficial use within receiving water body
Temescal Creek Reach 3	N/A	AGR, IND, GWR, REC1, REC2, WARM, WILD	No RARE beneficial use within receiving water body
Temescal Creek Reach 2	N/A	AGR, IND, GWR, REC1, REC2, WARM, WILD	No RARE beneficial use within receiving water body
Temescal Creek Reach 1a	pH	REC2, WARM, WILD	No RARE beneficial use within receiving water body
Temescal Creek Reach 1b	pH	REC2, WARM, WILD	No RARE beneficial use within receiving water body
Prado Park Lake	Nutrients, Pathogens,	REC1, REC2, COMM, WARM, WILD	No RARE beneficial use within receiving water body
Santa Ana River Reach 3	Copper, Lead, Pathogens	AGR, GWR, REC1, REC2, WARM, WILD, RARE, SPWN	No RARE beneficial use within receiving water body
Santa Ana River Reach 2	Indicator Bacteria	AGR, GWR, REC1, REC2, WARM, WILD, RARE, SPWN	50 miles
Santa Ana River Reach 1	N/A	REC1, REC2, WARM, WILD	No RARE beneficial use within receiving water body

A.3 Additional Permits/Approvals required for the Project:

Table A.2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	☐ Y	☒ N
US Army Corps of Engineers, CWA Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☒ Y	☐ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)* City of Moreno Valley Permits	☒ Y	☐ N

If yes is answered to any of the questions above, the Co-Permittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Section B: Optimize Site Utilization (LID Principles)

Review of the information collected in Section 'A' will aid in identifying the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, constraints might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. Opportunities might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for bioretention BMPs), and differences in elevation (which can provide hydraulic head). Prepare a brief narrative for each of the site optimization strategies described below. This narrative will help you as you proceed with your LID design and explain your design decisions to others.

The 2010 Santa Ana MS4 Permit further requires that LID Retention BMPs (Infiltration Only or Harvest and Use) be used unless it can be shown that those BMPs are infeasible. Therefore, it is important that your narrative identify and justify if there are any constraints that would prevent the use of those categories of LID BMPs. Similarly, you should also note opportunities that exist which will be utilized during project design. Upon completion of identifying Constraints and Opportunities, include these on your WQMP Site plan in Appendix 1.

Site Optimization

The following questions are based upon Section 3.2 of the WQMP Guidance Document. Review of the WQMP Guidance Document will help you determine how best to optimize your site and subsequently identify opportunities and/or constraints, and document compliance.

Did you identify and preserve existing drainage patterns? If so, how? If not, why?

Existing drainage patterns are preserved. In the existing condition, storm water runoff from the site is discharged to Copper Cove Lane. In the proposed condition, storm water runoff is routed to Copper Cove Lane.

Did you identify and protect existing vegetation? If so, how? If not, why?

Based on field visits, the vegetation on the site consists of native grass. Grading and site preparation and preservation will be prepared per Geotechnical report.

Did you identify and preserve natural infiltration capacity? If so, how? If not, why?

Infiltration capacity has been identified through infiltration tests within the project site. Runoff is routed to pervious surfaces to maximize infiltration capacity within the site.

Did you identify and minimize impervious area? If so, how? If not, why?

Impervious areas minimized by providing landscape areas within lots, and bioretention basins.

Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

Runoff from roofs will be diverted to landscape areas through the use of splash blocks, runoff from drive isles and parking areas will be conveyed to bio-detention basins.

Section C: Delineate Drainage Management Areas (DMAs)

Utilizing the procedure in Section 3.3 of the WQMP Guidance Document which discusses the methods of delineating and mapping your project site into individual DMAs, complete Table C.1 below to appropriately categorize the types of classification (e.g., Type A, Type B, etc.) per DMA for your project site. Upon completion of this table, this information will then be used to populate and tabulate the corresponding tables for their respective DMA classifications.

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s)[1]	Area (Sq. Ft.)	DMA Type
DMA A1	Mixed Surface	47,699	Type ‘D’
DMA A2	Mixed Surface	15,785	Type ‘D’
DMA A3	Mixed Surface	5,578	Type ‘D’
DMA A4	Mixed Surface	6,435	Type ‘D’
DMA A5	Mixed Surface	6,455	Type ‘D’
DMA A6	Mixed Surface	6,362	Type ‘D’
DMA A7	Mixed Surface	48,374	Type ‘D’
DMA A8	Mixed Surface	2,604	Type ‘D’
DMA A9	Mixed Surface	4,693	Type ‘D’
DMA B	Mixed Surface	13,457	Type ‘D’
DMA C	Mixed Surface	5,917	Type ‘D’
DMA D	Mixed Surface	13,449	Type ‘D’

[1] *Reference Table 2-1 in the WQMP Guidance Document to populate this column*

Table C.2 Type ‘A’, Self-Treating Areas

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)

Table C.3 Type ‘B’, Self-Retaining Areas

Self-Retaining Area				Type ‘C’ DMAs that are draining to the Self-Retaining Area		
DMA Name/ ID	Post-project surface type	Area (square feet)	Storm Depth (inches)	DMA Name / ID	[C] from Table C.4 =	Required Retention Depth (inches)
		[A]	[B]		[C]	[D]

Table C.4 Type ‘C’, Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet)	Post-project surface type	Runoff factor	Product	DMA name /ID	Area (square feet)	Ratio
	[A]		[B]	[C] = [A] x [B]		[D]	[C]/[D]

Table C.5 Type ‘D’, Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
DMA A/1	Bio-Detention Basin No. 1
DMA A/2	Bio-Detention Basin No. 2
DMA A/3	Bio-Detention Basin No. 3
DMA A/4	Bio-Detention Basin No. 4
DMA A/5	Bio-Detention Basin No. 5
DMA A/6	Bio-Detention Basin No. 6
DMA A/7	Bio-Detention Basin No. 7
DMA A/8	Bio-Detention Basin No. 8
DMA A/9	Bio-Detention Basin No. 9
DMA B	Bio-Detention Basin No. 10
DMA C	Bio-Detention Basin No. 11
DMA D	DMA D is created to calculate DCV requirements for offsite improvements and project entrance only, DCV requirements have been allocated to Bio-Detention Basin No. 11

Note: More than one drainage management area can drain to a single LID BMP, however, one drainage management area may not drain to more than one BMP.

Section D: Implement LID BMPs

D.1 Infiltration Applicability

Is there an approved downstream ‘Highest and Best Use’ for stormwater runoff (see discussion in Chapter 2.4.4 of the WQMP Guidance Document for further details)? ☐ Y ☒ N

If yes has been checked, Infiltration BMPs shall not be used for the site. If no, continue working through this section to implement your LID BMPs. It is recommended that you contact your Co-Permittee to verify whether or not your project discharges to an approved downstream ‘Highest and Best Use’ feature.

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Copermittee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Co-Permittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the WQMP Guidance Document. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? ☐ Y ☒ N

Infiltration Feasibility

Table D.1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the WQMP Guidance Document in Chapter 2.4.5. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D.1 Infiltration Feasibility

Does the project site…	YES	NO
…have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet of a water supply well?		X
If Yes, list affected DMAs:		
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		X
If Yes, list affected DMAs:		
…have measured in-situ infiltration rates of less than 1.6 inches / hour?	X	
If Yes, list affected DMAs: DMA A and DMA B		
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
…geotechnical report identify other site-specific factors that would preclude effective and safe infiltration?		X
Describe here:		

If you answered “Yes” to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs and you should proceed to the assessment for Harvest and Use below.

D.2 Harvest and Use Assessment

Please check what applies*:*

☐ Reclaimed water will be used for the non-potable water demands for the project.

☐Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Copermittee).

☐The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the Design Capture Volume will be infiltrated or evapotranspired.

If any of the above boxes have been checked, Harvest and Use BMPs need not be assessed for the site. If neither of the above criteria applies, follow the steps below to assess the feasibility of irrigation use, toilet use and other non-potable uses (e.g., industrial use).

There are no opportunities to implement Harvest and Use BMPs as there are no open space areas where captured runoff could be utilized to irrigate landscape areas.

Irrigation Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.

Total Area of Irrigated Landscape: 5,398 SF

Type of Landscaping (Conservation Design or Active Turf): Conservation Design consisting of native vegetation.

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 150,287 SF

Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-3 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).

Enter your EIATIA factor: 0.55 (By interpolating values in Table 2-3)

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.

Minimum required irrigated area: 82,658 SF

Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)

82,658 SF	5,398 SF

Toilet Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shut downs or other lapses in occupancy:

Projected Number of Daily Toilet Users: 285

Project Type: Residential

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 3.45 AC

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-1 in Chapter 2 to determine the minimum number or toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: 105 tu/ac (By interpolating Values)

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

Minimum number of toilet users: 362

Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required Toilet Users (Step 4)	Projected number of toilet users (Step 1)
362	285

Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

N/A

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the wet season and accounting for any periodic shut downs or other lapses in occupancy or operation.

Average Daily Demand:

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces:

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-3 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

Enter the factor from Table 2-3:

Step 4: Multiply the unit value obtained from Step 4 by the total of impervious areas from Step 3 to develop the minimum number of gallons per day of non-potable use that would be required.

Minimum required use:

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required non-potable use (Step 4)	Projected average daily use (Step 1)

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment, unless a site-specific analysis has been completed that demonstrates technical infeasibility as noted in D.3 below.

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.4.7 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

Select one of the following:

☒ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

D.4 Feasibility Assessment Summaries

From the Infiltration, Harvest and Use, Bioretention and Biotreatment Sections above, complete Table D.2 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
DMA A/1	☐	☐	☒	☐	☐
DMA A/2	☐	☐	☒	☐	☐
DMA A/3	☐	☐	☒	☐	☐
DMA A/4	☐	☐	☒	☐	☐
DMA A/5	☐	☐	☒	☐	☐
DMA A/6	☐	☐	☒	☐	☐
DMA A/7	☐	☐	☒	☐	☐
DMA A/8	☐	☐	☒	☐	☐
DMA A/9	☐	☐	☒	☐	☐
DMA B	☐	☐	☒	☐	☐
DMA C & D	☐	☐	☒	☐	☐

For those DMAs where LID BMPs are not feasible, provide a brief narrative below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section E below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

D.5 LID BMP Sizing

Each LID BMP must be designed to ensure that the Design Capture Volume will be addressed by the selected BMPs. First, calculate the Design Capture Volume for each LID BMP using the V_{BMP} worksheet in Appendix F of the LID BMP Design Handbook. Second, design the LID BMP to meet the required V_{BMP} using a method approved by the Copermittee. Utilize the worksheets found in the LID BMP Design Handbook or consult with your Copermittee to assist you in correctly sizing your LID BMPs. Complete Table D.3 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

Table D.3 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	**DMA Runoff Factor** [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
A/1	*47,699*	*Mixed Surface*	*0.85*	*0.66*	*31,542*			
						Design Storm Depth (in)	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	47,699				31,542	0.68	1,788	*789*

NOTES:
999 CU-FT ARE BYPASSED TO BB #2

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	**DMA Runoff Factor** [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
A/2	*15,785*	*Mixed Surface*	*0.85*	*0.66*	*10,438*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	15,785				10,438	0.68	592	*711*

NOTES:
CAPTURED VOLUME IN BB NO. 2 = 711 CU-FT

999 CU-FT FROM TO BB #1
DMA A2 DCV = 592 CU-FT
TOTAL VOLUME TO BB NO. 2 = 1,591 CU-FT

THUS, DCV BYPASSED TO BB NO. 3 = 880 CU-FT

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	**DMA Runoff Factor** [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
A/3	*5,578*	*Mixed Surface*	*0.85*	*0.66*	*3,689*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	5,578				3,689	0.68	209	*711*

NOTES:
CAPTURED VOLUME IN BB NO. 3 = 711 CU-FT

880 CU-FT FROM TO BB #2
DMA A3 DCV = 209 CU-FT
TOTAL VOLUME TO BB NO. 3 = 1,089 CU-FT

THUS, DCV BYPASSED TO BB NO. 4 = 378 CU-FT

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	**DMA Runoff Factor** [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
A/4	*6,435*	*Mixed Surface*	*0.85*	*0.66*	*4,255*	*Design Storm Depth (in)*	*Design Capture Volume,* V_{BMP} *(cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	6,435				4,255	0.68	242	*628*

NOTES:
CAPACITY VOLUME IN BB NO. 4 = 628 CU-FT

378 CU-FT FROM TO BB #3
DMA A4 DCV = 242 CU-FT
TOTAL VOLUME TO BB NO. 4 = 620 CU-FT

THUS, ALL RUNOFF IS CAPTURED WITHIN BB NO. 4

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	**DMA Runoff Factor** [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
A/5	*6,455*	*Mixed Surface*	*0.85*	*0.66*	*4,269*	*Design Storm Depth (in)*	*Design Capture Volume,* V_{BMP} *(cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	6,455				4,269	0.68	242	*242*

NOTES:

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	**DMA Runoff Factor** [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
A/6	*6,362*	*Mixed Surface*	*0.85*	*0.66*	*4,207*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	6,362				4,207	0.68	239	*239*

NOTES:

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	**DMA Runoff Factor** [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
A/7	*48,374*	*Mixed Surface*	*0.85*	*0.66*	*31,988*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	48,374				31,988	0.68	1,813	*747*

NOTES:
1,066 CU-FT ARE BYPASSED TO BB #8

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	**DMA Runoff Factor** [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
A/8	*2,604*	*Mixed Surface*	*0.85*	*0.66*	*1,722*			
						Design Storm Depth (in)	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	2,604				1,722	0.68	98	*675*

NOTES
CAPTURED VOLUME IN BB NO. 8 = 675 CU-FT

1,066 CU-FT FROM TO BB #7
DMA A8 DCV = 98 CU-FT
TOTAL VOLUME TO BB NO. 8 = 1,164 CU-FT

THUS, DCV BYPASSED TO BB NO. 9 = 489 CU-FT

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	**DMA Runoff Factor** [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
A/9	*4,693*	*Mixed Surface*	*0.85*	*0.66*	*3,103*			
						Design Storm Depth (in)	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	4,693				3,103	0.68	176	*665*

NOTES
CAPTURED VOLUME IN BB NO. 9 = 665 CU-FT

489 CU-FT FROM TO BB #8
DMA A9 DCV = 176 CU-FT
TOTAL VOLUME TO BB NO. 9 = 665 CU-FT

THUS, DCV IS CAPTURED WITHIN BB NO. 9

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	**DMA Runoff Factor** [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
B	*13,457*	*Mixed Surface*	*0.85*	*0.66*	*8,899*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	13,457				8,899	0.68	505	*505*

NOTES

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	**DMA Runoff Factor** [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
C	*5,917*	*Mixed Surface*	*0.85*	*0.66*	*3,913*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	5,917				3,913	0.68	222	*726*

NOTES

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	**DMA Runoff Factor** [C]	DMA Areas x Runoff Factor [A] x [C]	*Enter BMP Name / Identifier Here*		
D	*13,449*	*Mixed Surface*	*0.85*	*0.66*	*8,893*			
						Design Storm Depth (in)	*Design Capture Volume,* V_{BMP} *(cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	13,449				8,893	0.68	222	*726*

NOTES

CAPTURED VOLUME IN BB NO. 11 = 726 CU-FT

DMA D DCV = 504 CU-FT
TOTAL DESIGN VOLUME TO BB NO. 11 = 726 CU-FT

THUS, BB NO. 11 HAS ENOUGH CAPACITY TO TREAT 726 CU-FT

Section E: Alternative Compliance (LID Waiver Program)

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Copermittee). Check one of the following Boxes:

☒ LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- *Or* -

☐ The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Co-Permittee and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

E.1 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted your project's receiving waters and their associated EPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table E.1 below. If the identified General Pollutant Categories are the same as those listed for your receiving waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table E.1 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
☐ Detached Residential Development	P	N	P	P	N	P	P	P
☒ Attached Residential Development	P	N	P	P	N	P	P	P(2)
☐ Commercial/Industrial Development	P(3)	P	P(1)	P(1)	P(5)	P(1)	P	P
☐ Automotive Repair Shops	N	P	N	N	P(4, 5)	N	P	P
☐ Restaurants (>5,000 ft^2)	P	N	N	N	N	N	P	P
☐ Hillside Development (>5,000 ft^2)	P	N	P	P	N	P	P	P
☐ Parking Lots (>5,000 ft^2)	P(6)	P	P(1)	P(1)	P(4)	P(1)	P	P
☐ Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	☒	☐	☒	☒	☐	☒	☒	☒

P = Potential

N = Not Potential

(1) *A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected*

(2) *A potential Pollutant if the project includes uncovered parking areas; otherwise not expected*

(3) *A potential Pollutant is land use involving animal waste*

(4) *Specifically petroleum hydrocarbons*

(5) *Specifically solvents*

(6) *Bacterial indicators are routinely detected in pavement runoff*

E.2 Stormwater Credits

Projects that cannot implement LID BMPs but nevertheless implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A.

Table E.2 Water Quality Credits

Qualifying Project Categories	Credit Percentage[2]
N/A	N/A
Total Credit Percentage[1]	

[1] *Cannot Exceed 50%*

[2] *Obtain corresponding data from Table 3-8 in the WQMP Guidance Document*

E.3 Sizing Criteria

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information.

Table E.3 Treatment Control BMP Sizing

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	DMA Runoff Factor [C]	DMA Area x Runoff Factor [A] x [C]		*Enter BMP Name / Identifier Here*		
N/A	N/A	N/A	N/A	N/A	N/A	*Design Storm Depth (in)*	*Minimum Design Capture Volume or Design Flow Rate (cubic feet or cfs)*	*Total Storm Water Credit % Reduction*	*Proposed Volume or Flow on Plans (cubic feet or cfs)*
	N/A				N/A	N/A	N/A	N/A	N/A

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document

[E] is obtained from Exhibit A in the WQMP Guidance Document

[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12

[H] is from the Total Credit Percentage as Calculated from Table E.2 above

[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

E.4 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- High: equal to or greater than 80% removal efficiency
- Medium: between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table E.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID[1]	Priority Pollutant(s) of Concern to Mitigate[2]	Removal Efficiency Percentage[3]
N/A	N/A	N/A

[1] *Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.*

[2] *Cross Reference Table E.1 above to populate this column.*

[3] *As documented in a Co-Permittee Approved Study and provided in Appendix 6.*

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

Once you have determined that the LID design is adequate to address water quality requirements, you will need to assess if the proposed LID Design may still create a HCOC. Review Chapters 2 and 3 (including Figure 3-7) of the WQMP Guidance Document to determine if your project must mitigate for Hydromodification impacts. If your project meets one of the following criteria which will be indicated by the check boxes below, you do not need to address Hydromodification at this time. However, if the project does not qualify for Exemptions 1, 2 or 3, then additional measures must be added to the design to comply with HCOC criteria. This is discussed in further detail below in Section F.2.

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The Copermittee has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply.

HCOC EXEMPTION 2: The volume and time of concentration[1] of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the Co-Permittee

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, report results in Table F.1 below and provide your substantiated hydrologic analysis in Appendix 7.

Table F.1 Hydrologic Conditions of Concern Summary

	2 year – 24 hour		
	Pre-condition	Post-condition	% Difference
Time of Concentration	N/A	N/A	N/A
Volume (Cubic Feet)	N/A	N/A	N/A

---

[1] Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (for example, Prado Dam, Lake Elsinore, Canyon Lake, Santa Ana River, or other lake, reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Sensitivity Maps.

Does the project qualify for this HCOC Exemption? ☒ Y ☐ N

If Yes, HCOC criteria do not apply and note below which adequate sump applies to this HCOC qualifier:

The project ultimately discharges to Lake Elsinore and is identified on the co-permittee hydromodification sensitivity maps as an area not requiring mitigation. See map in Appendix 7.

F.2 HCOC Mitigation

If none of the above HCOC Exemption Criteria are applicable, HCOC criteria is considered mitigated if they meet one of the following conditions:

a. Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.

b. The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.

c. Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant, if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.

Be sure to include all pertinent documentation used in your analysis of the items a, b or c in Appendix 7.

Section G: Source Control BMPs

Source control BMPs include permanent, structural features that may be required in your project plans — such as roofs over and berms around trash and recycling areas — and Operational BMPs, such as regular sweeping and "housekeeping", that must be implemented by the site's occupant or user. The MEP standard typically requires both types of BMPs. In general, Operational BMPs cannot be substituted for a feasible and effective permanent BMP. Using the Pollutant Sources/Source Control Checklist in Appendix 8, review the following procedure to specify Source Control BMPs for your site:

1. *Identify Pollutant Sources*: Review Column 1 in the Pollutant Sources/Source Control Checklist. Check off the potential sources of Pollutants that apply to your site.

2. *Note Locations on Project-Specific WQMP Exhibit*: Note the corresponding requirements listed in Column 2 of the Pollutant Sources/Source Control Checklist. Show the location of each Pollutant source and each permanent Source Control BMP in your Project-Specific WQMP Exhibit located in Appendix 1.

3. *Prepare a Table and Narrative*: Check off the corresponding requirements listed in Column 3 in the Pollutant Sources/Source Control Checklist. In the left column of Table G.1 below, list each potential source of runoff Pollutants on your site (from those that you checked in the Pollutant Sources/Source Control Checklist). In the middle column, list the corresponding permanent, Structural Source Control BMPs (from Columns 2 and 3 of the Pollutant Sources/Source Control Checklist) used to prevent Pollutants from entering runoff. Add additional narrative in this column that explains any special features, materials or methods of construction that will be used to implement these permanent, Structural Source Control BMPs.

4. *Identify Operational Source Control BMPs:* To complete your table, refer once again to the Pollutant Sources/Source Control Checklist. List in the right column of your table the Operational BMPs that should be implemented as long as the anticipated activities continue at the site. Copermittee stormwater ordinances require that applicable Source Control BMPs be implemented; the same BMPs may also be required as a condition of a use permit or other revocable Discretionary Approval for use of the site.

Table G.1 Permanent and Operational Source Control Measures

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
On-site storm drain inlets	Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.	Property Owner (PO) will: Maintain and periodically repaint or replace inlet markings. Maintain drainage system per CASQA SC-44 Drainage System Maintenance. Provide stormwater pollution prevention information to new

		site owners, lessees, or operators. Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."
Landscape/ Outdoor Pesticide Use	Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. Consider using pest-resistant plants, especially adjacent to hardscape. To ensure successful establishment, select plans appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	PO will: Maintain landscaping using minimum or no pesticides. Provide IPM information to new owners, lessees and operators.
Roofing, gutters, and trims.	Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.	
Sidewalks		PO will set a Sweeping schedule for, sidewalks to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.
Pools, spas, ponds, decorative fountains, and other water features.	Sewer plumbing connections to sanitary sewers will be made according to local requirements.	See brochure included in Appendix 10. No pools are proposed at time of the subdivision construction; however, brochure will be provided for residents in the

		event pools are built in the future.
Condensate Drain Lines	Condensate drain lines may discharge to landscape areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.	

Section H: Construction Plan Checklist

Populate Table H.1 below to assist the plan checker in an expeditious review of your project. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)
BB NO .1	Bio-Detention Basin No. 1	See attached improvement plans.
BB NO .2	Bio-Detention Basin No. 2	See attached improvement plans.
BB NO .3	Bio-Detention Basin No. 3	See attached improvement plans.
BB NO .4	Bio-Detention Basin No. 4	See attached improvement plans.
BB NO .5	Bio-Detention Basin No. 5	See attached improvement plans.
BB NO .6	Bio-Detention Basin No. 6	See attached improvement plans.
BB NO .7	Bio-Detention Basin No. 7	See attached improvement plans.
BB NO .8	Bio-Detention Basin No. 8	See attached improvement plans.
BB NO. 9	Bio-Detention Basin No. 9	See attached improvement plans.
BB NO .10	Bio-Detention Basin No. 10	See attached improvement plans.
BB NO. 11	Bio-Detention Basin No. 11	See attached improvement plans.

Note that the updated table — or Construction Plan WQMP Checklist — is only a reference tool to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. Co-Permittee staff can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

Section I: Operation, Maintenance and Funding

The Copermittee will periodically verify that Stormwater BMPs on your site are maintained and continue to operate as designed. To make this possible, your Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance. Include a brief description of typical landscape maintenance for these areas.

Your local Co-Permittee will also require that you prepare and submit a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a Stormwater BMP Operation and Maintenance Plan are in Chapter 5 of the WQMP Guidance Document.

Maintenance Mechanism:	All proposed BMP's will be owned and maintained by the Property Owners Association (POA). The BMP's will serve only one site owner and will be accessible to inspectors.

Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

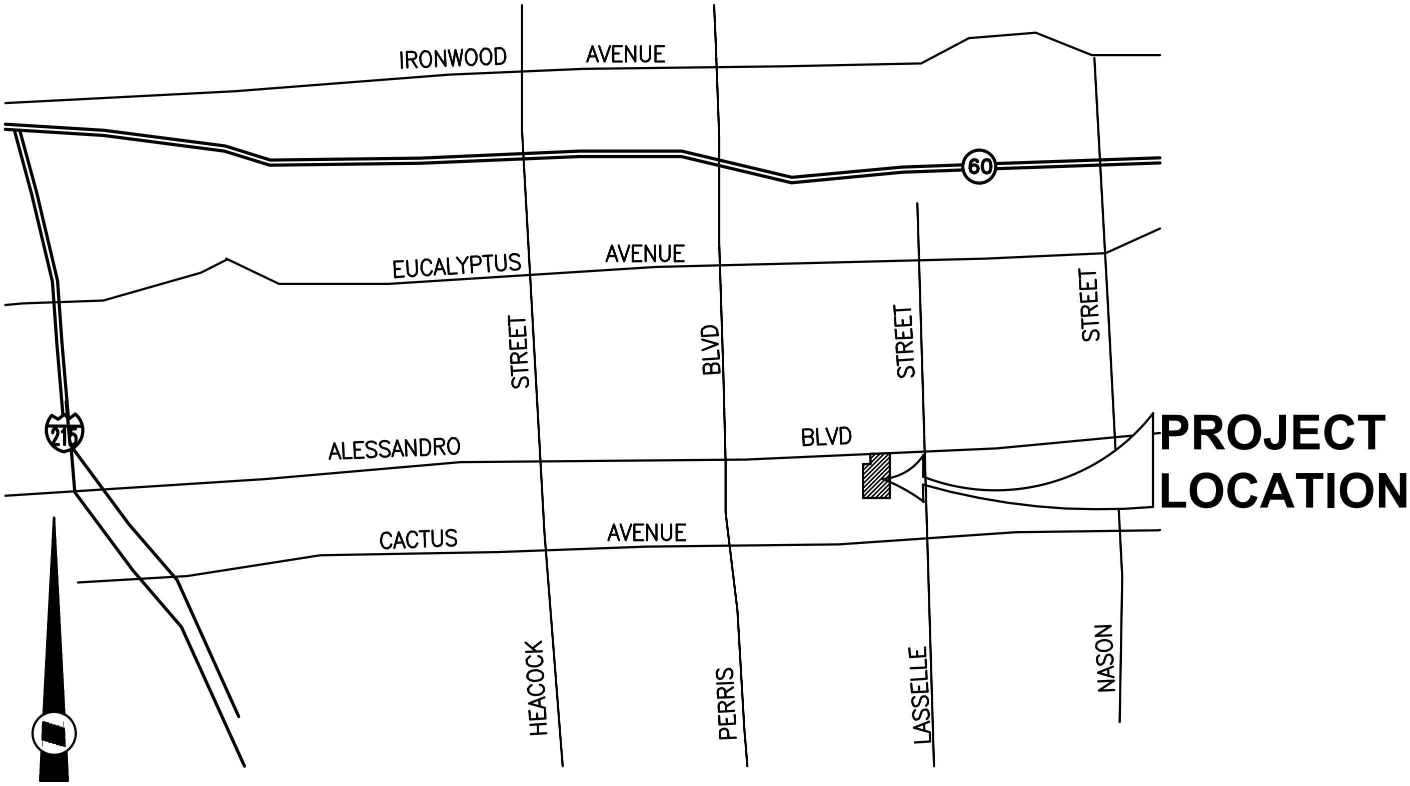
☒ Y ☐ N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map

LOCATION MAP

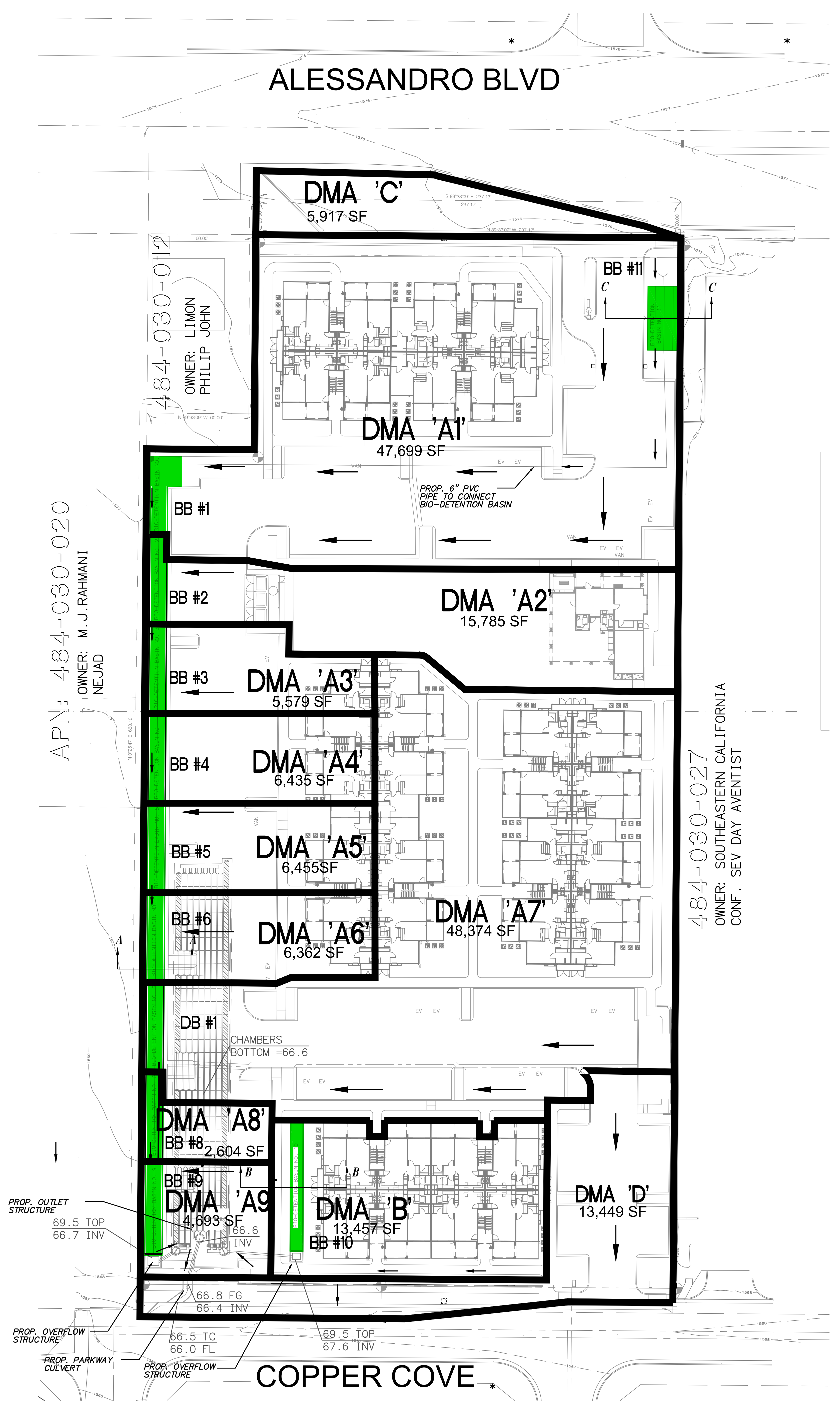


LOCATION MAP

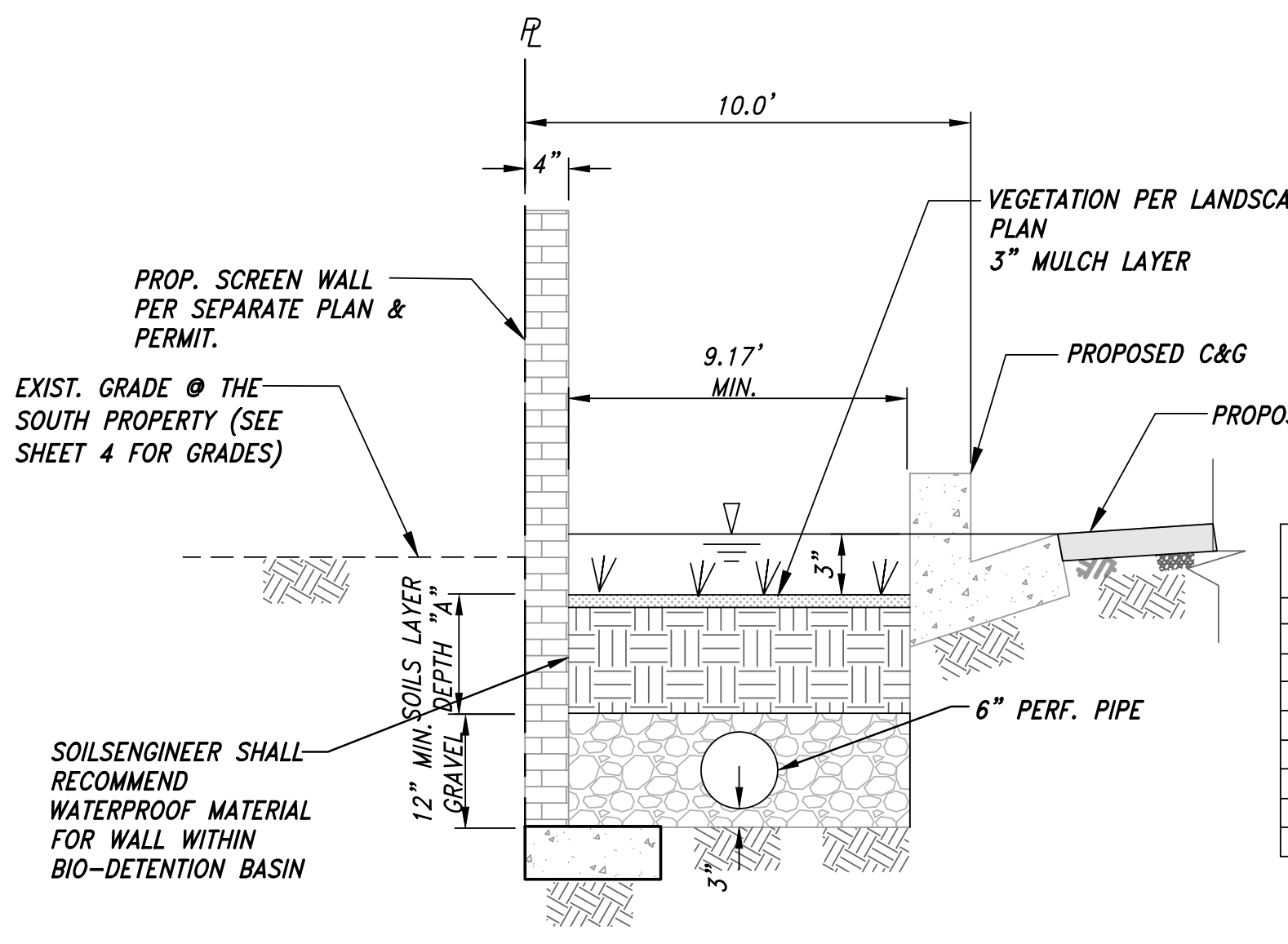
NOT TO SCALE

FIGURE 1

WQMP SITE PLAN



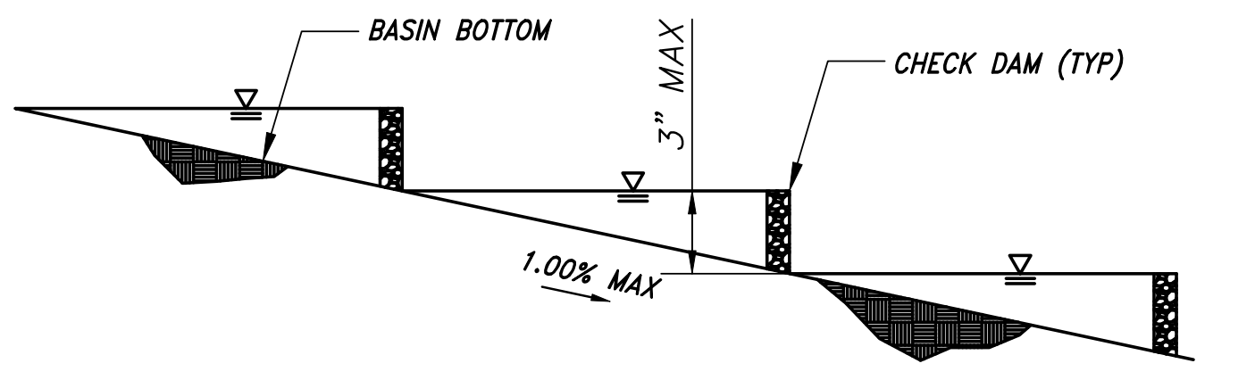
Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
On-site storm drain inlets	Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.	Property Owner (PO) will: Maintain and periodically repaint or replace inlet markings. Maintain drainage system per CASQA SC-44 Drainage System Maintenance. Provide stormwater pollution prevention information to new site owners, lessees, or operators. Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."
Landscape/ Outdoor Pesticide Use	Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. Consider using pest-resistant plants, especially adjacent to hardscape. To ensure successful establishment, select plans appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	PO will: Maintain landscaping using minimum or no pesticides. Provide IPM information to new owners, lessees and operators.
Roofing, gutters, and trims.	Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.	
Sidewalks		PO will set a Sweeping schedule for, sidewalks to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.
Pools, spas, ponds, decorative fountains, and other water features.	Sewer plumbing connections to sanitary sewers will be made according to local requirements.	See brochure included in Appendix 10. No pools are proposed at time of the subdivision construction; however, brochure will be provided for residents in the event pools are built in the future.
Condensate Drain Lines	Condensate drain lines may discharge to landscape areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.	



BIORETENTION BASIN ID	DEPTH "A" (INCHES)
1	27
2	27
3	27
4	27
5	27
6	27
7	30
8	24
9	24

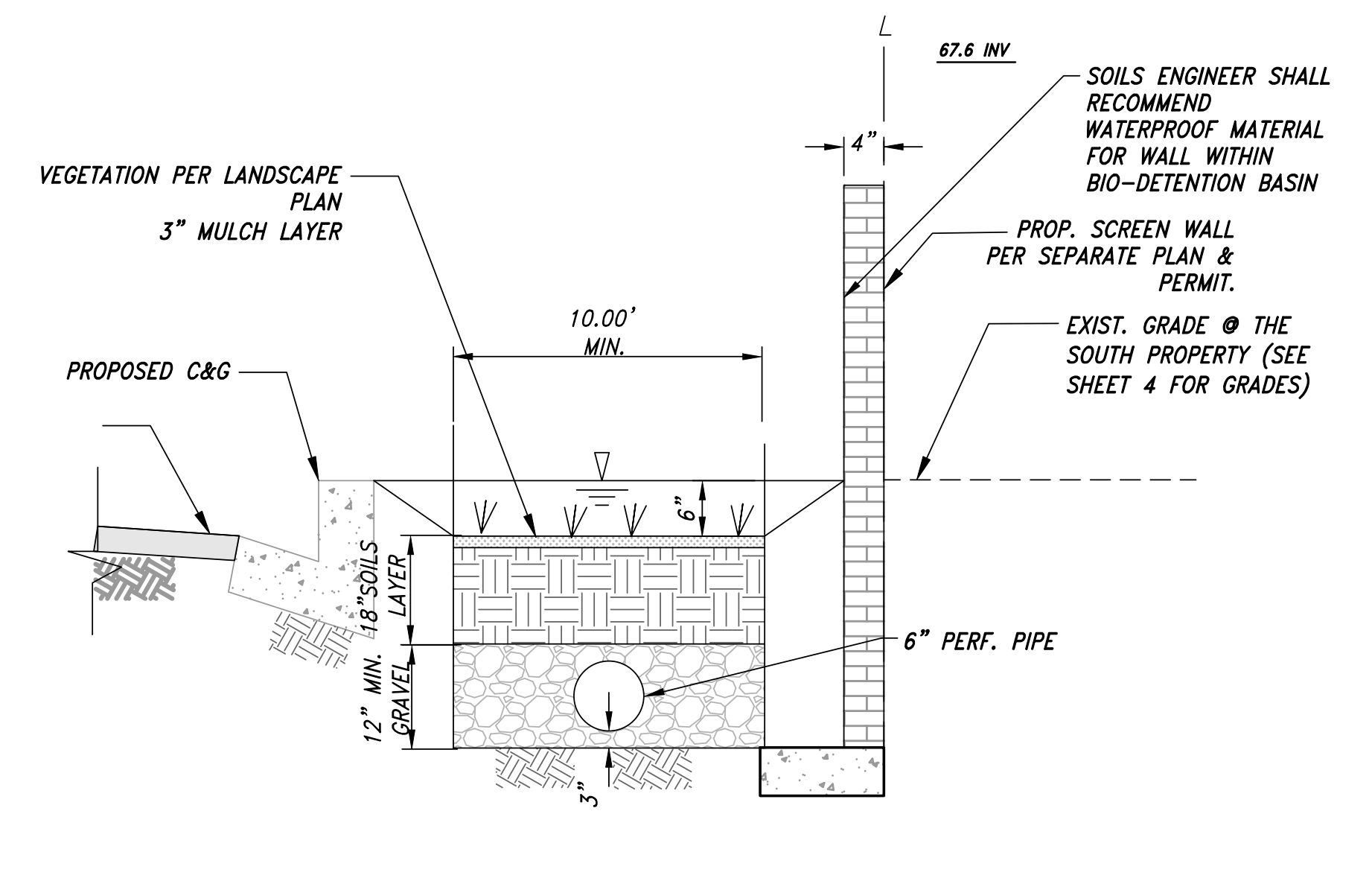
BIO-DETENTION BASIN # 1-9 (SECTION "A" - "A")

N.T.S



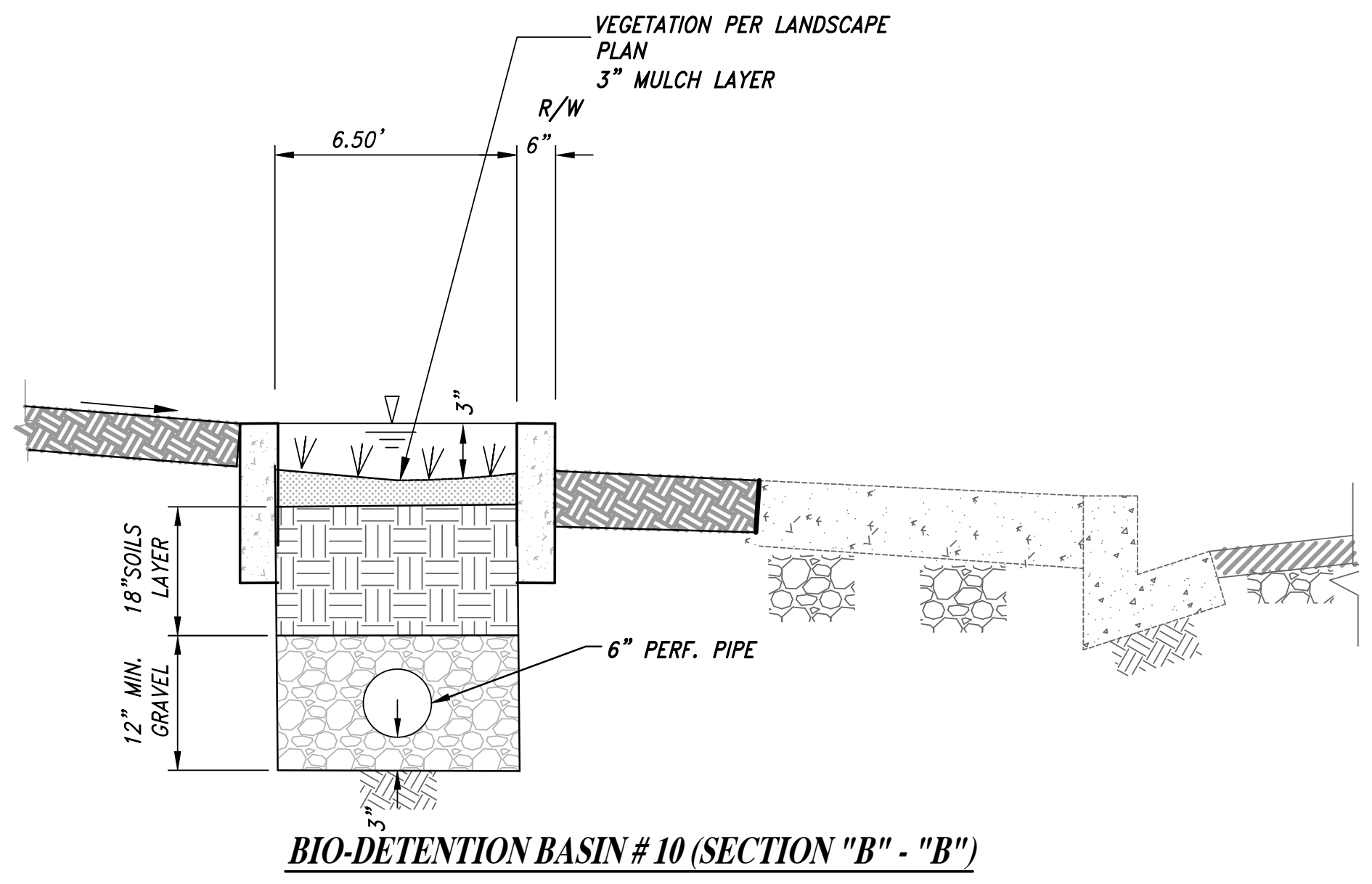
TYPICAL CHECK DAM DETAIL FOR BIORETENTION BASIN NO. 1

N.T.S



BIO-DETENTION BASIN # 11 (SECTION "C" - "C")

N.T.S



BIO-DETENTION BASIN # 10 (SECTION "B" - "B")

N.T.S

BIO-DETENTION BASIN DESIGN SUMMARY

DRAINAGE AREA ID	DRAINAGE AREA (SQ-FT)	% IMPERVIOUS	BIO-DETENTION ID NO.	DCV (CU-FT)	TOTAL DCV TO BIO-DETENTION (CU-FT) (DCV + BYPASSED VOLUME)	BMP VOLUME CAPACITY (CU-FT)	BYPASSED VOLUME (CU-FT)
A1	47,699	85	1	1788	1,788	789	999 TO BB NO. 2
A2	15,785	85	2	592	1591	711	880 TO BB NO. 3
A3	5,578	85	3	209	1,089	711	378 TO BB NO. 4
A4	6,435	85	4	242	620	628	0
A5	6,455	85	5	242	242	242	0
A6	6,362	85	6	239	239	239	0
A7	48,374	85	7	1813	1,813	747	1,066 TO BB NO. 8
A8	2,604	85	8	98	1,164	675	489 TO BB NO. 9
A9	4,693	85	9	176	665	665	0
B	13,457	85	10	505	505	505	0
C	5,917	85	11	222	222	726	0
D	13,449	85		504	504		

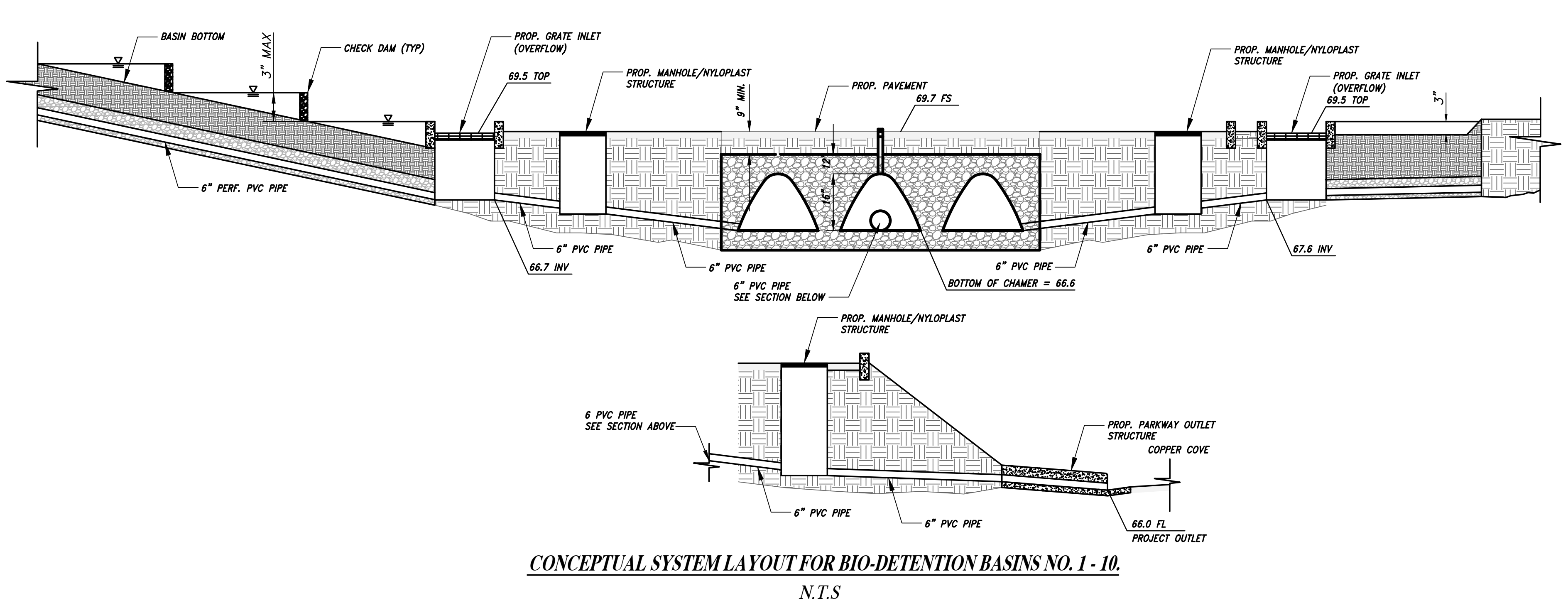
NOTES:

% IMPERVIOUS BASED ON THE RIVERSIDE COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT HYDROLOGY MANUAL FOR APARTMENT LAND USE WHICH IS 80%, A 5% INCREASE HAS BEEN ADDED TO THIS VALUE AS A CONSERVATIVE APPROACH. THUS, AN 85% IMPERVIOUSNESS HAS BEEN USED FOR ALL DMA'S. FINAL IMPERVIOUSNESS WILL BE DETERMINED DURING FINAL ENGINEERING WHEN PRECISE GRADING ELEVATIONS ARE KNOWN AND FINAL DRAINAGE AREAS ARE DETERMINED.

DUE TO GRADING CONSTRAINTS IT IS INFEASIBLE TO IMPLEMENT A BIORETENTION BMP WITHIN DMA D, AND THEREFORE BB NO. 11 HAS BEEN INCREASED IN SIZE TO OFFSET DCV REQUIREMENTS IN DMA D. BB NO. 11 WILL TREAT THE EQUIVALENT RUNOFF FROM ALLESSANDRO BL IN LIEU OF DMA D.

LEGEND

▬	DRAINAGE AREA BOUNDARY
DMA 'A'	DRAINAGE MANAGEMENT AREA (DMA) ID
←	FLOW PATH
BB #1	BIORETENTION BASIN NO.
DB #1	DETENTION BASIN NO.
🟩	BIORETENTION BASIN LOCATION



CONCEPTUAL SYSTEM LAYOUT FOR BIO-DETENTION BASINS NO. 1 - 10.

N.T.S

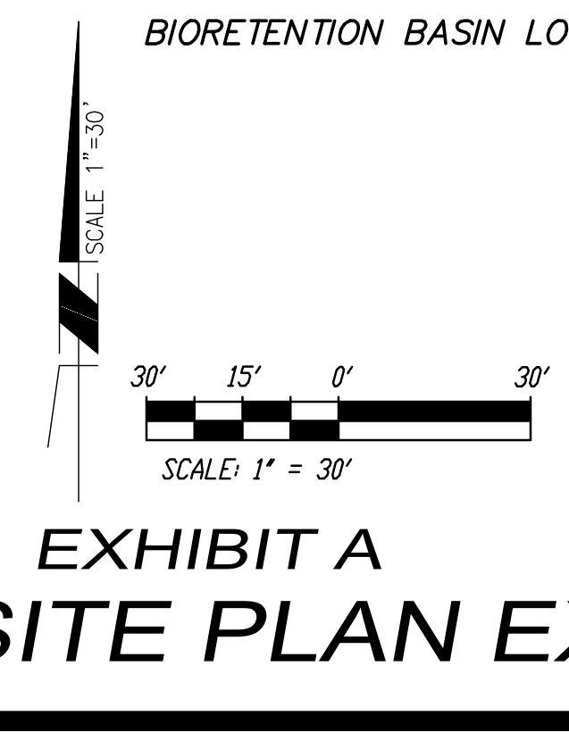


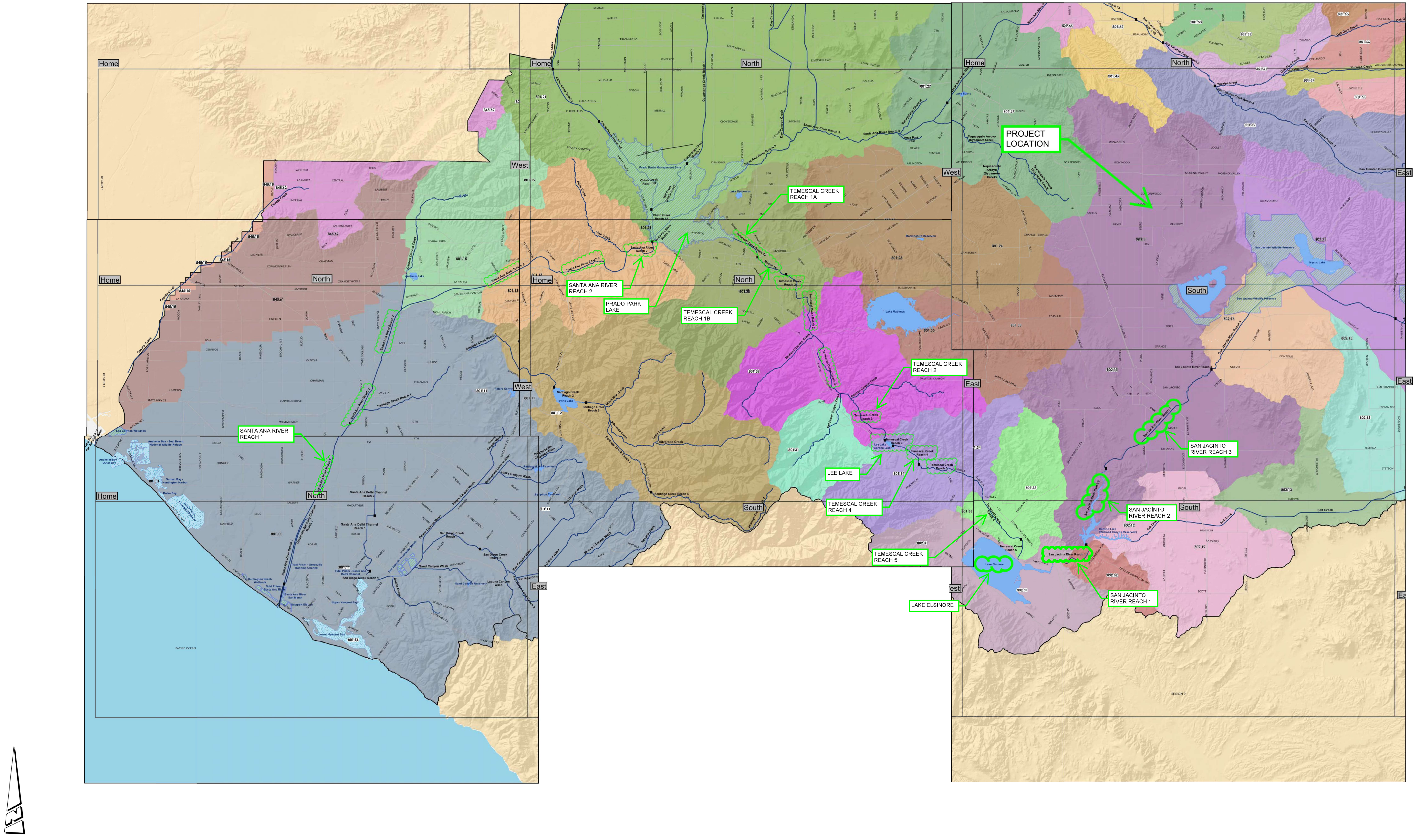
EXHIBIT A

WQMP SITE PLAN EXHIBIT

PROACTIVE
ENGINEERING CONSULTANTS
200 South Main Street, Suite 300
Corona, CA 92882 (951) 280-3300

DATE:10/12/2022

RECEIVING WATERS MAP



RECEIVING WATERS MAP

SACALE: 1" = 2MILES

2 1 0 2
MILES

JUNE 14, 2022

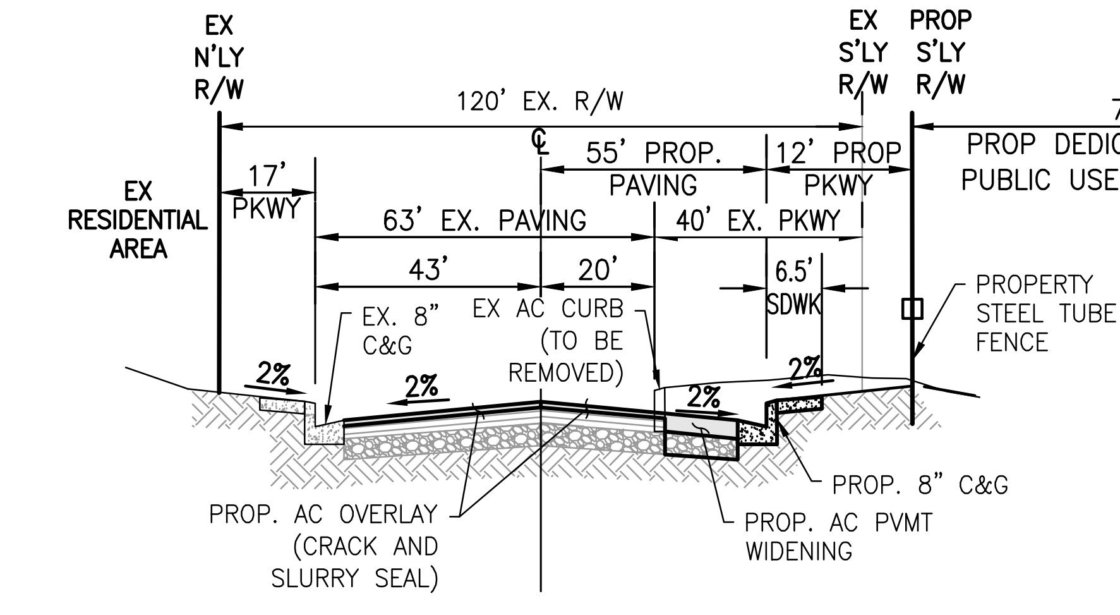
SOURCE:

Regional Water Quality Control Board
Region 8 Basin Plan map - Cal Water codes

Appendix 2: Construction Plans

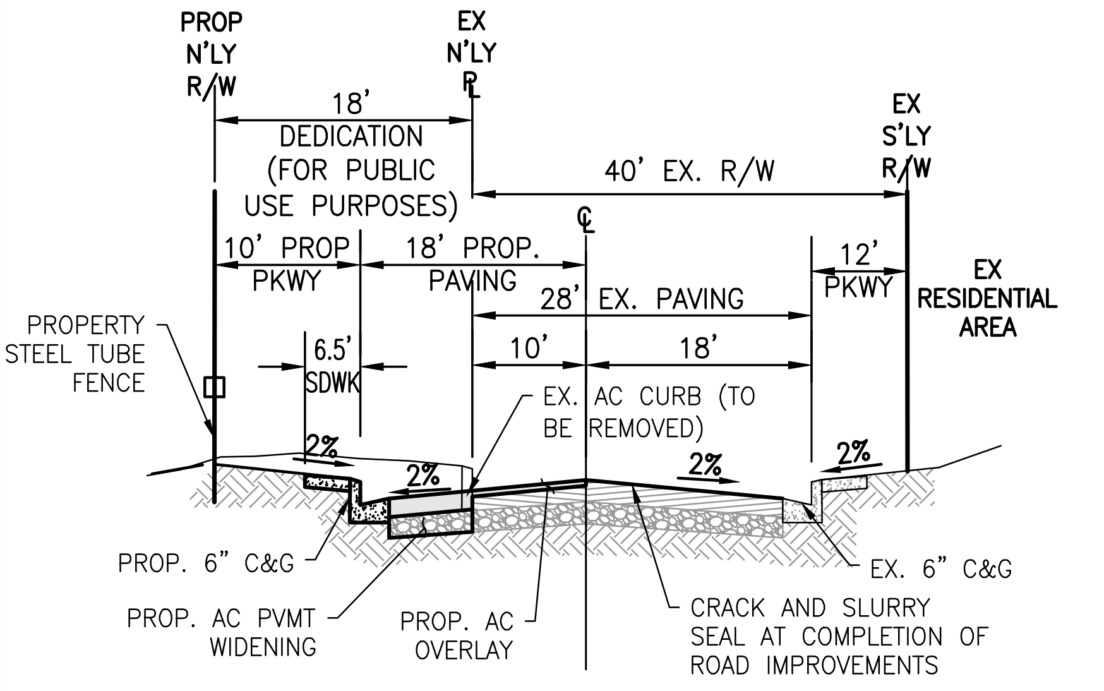
Grading and Drainage Plans

FLAMINGO BAY APARTMENTS
SITE PLAN
FOR RESIDENTIAL APARTMENTS PURPOSES IN THE CITY OF MORENO VALLEY



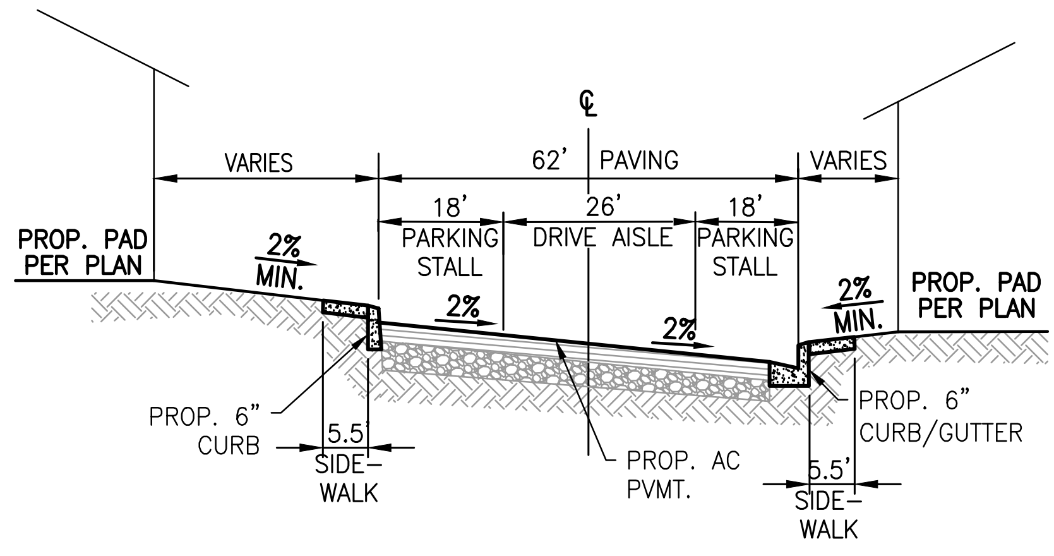
(A) ALESSANDRO BLVD (PUBLIC)

N.T.S. DIVIDED MAJOR ARTERIAL PER GENERAL PLAN CIRCULATION MAP
(IMPROVEMENTS PER MVSI-101A-0)



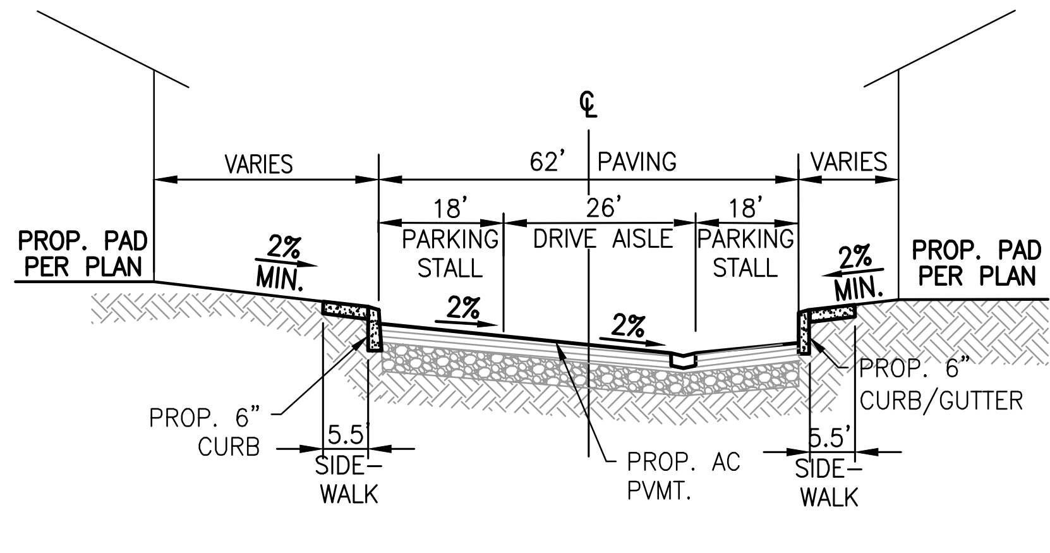
(B) COPPER COVE LANE (PUBLIC)

N.T.S. LOCAL STREET PER GENERAL PLAN CIRCULATION MAP
(IMPROVEMENTS PER MVSI-107A-0)



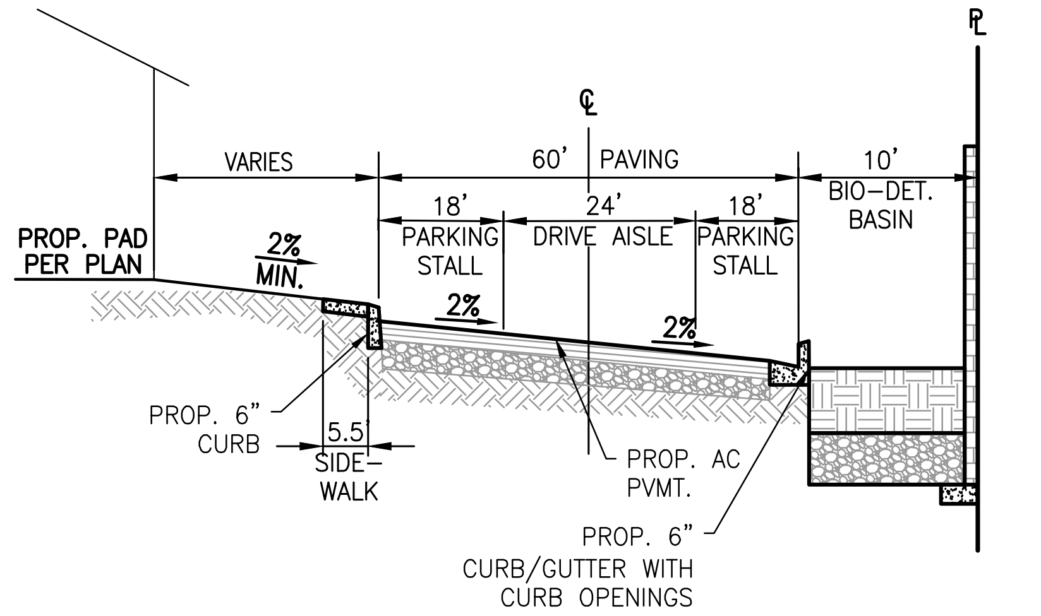
(C) PRIVATE DRIVE SECTION

N.T.S.



(.) PRIVATE DRIVE SECTION

N.T.S.



(E) PRIVATE DRIVE SECTION

N.T.S.

CONSTRUCTION NOTES

① PROPOSED PUBLIC CURB AND GUTTER
② PROPOSED PUBLIC SIDEWALK
③ PROPOSED AC PAVEMENT
④ PROPOSED DRIVEWAY PER CITY STD MVSI-112D-0 WITH CURB RAMPS PER CITY STD MVSI-114B-2 (AND CURRENT ADA STDS/CA CODE OF REGULATIONS TITLE 24-ACCESSIBILITY REGULATIONS)
⑥ EXISTING WATER METER TO BE REMOVED
⑦ EXISTING UTILITY POLE TO BE RELOCATED
⑨ INSTALL ST LIGHT PER CITY STD MVLT-400C-0
⑩ INSTALL ST LIGHT PER CITY STD MVLT-400A-2
⑪ GRIND AND OVERLAY AC
⑫ PROPOSED AC DIKE AND TRANSITIONING GUTTER
⑬ RAISED MEDIAN BY OTHERS
Ⓟ PROTECT IN PLACE

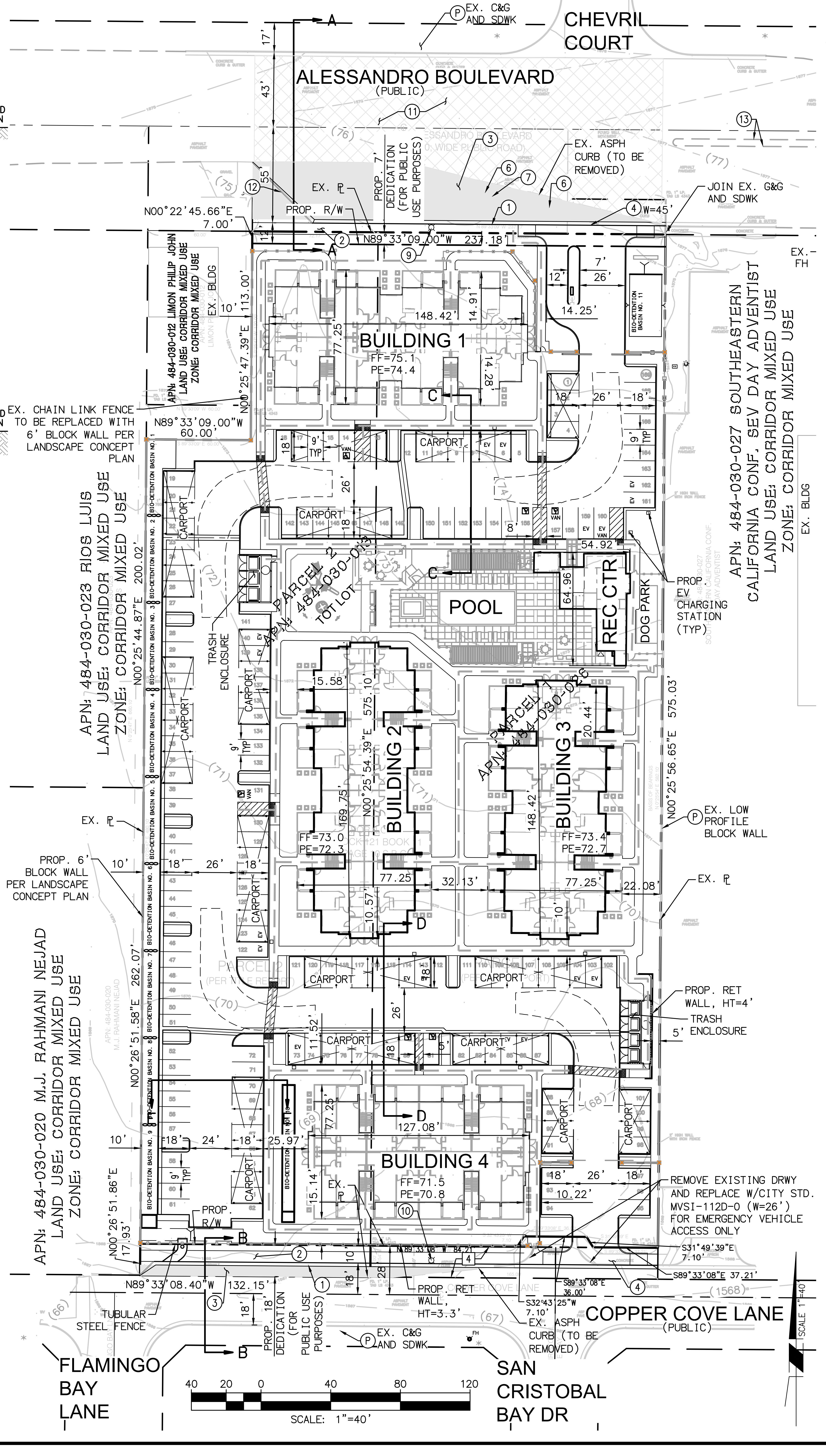
ABBREVIATIONS:

A.C.	ASPHALT CONCRETE	FG	FINISH GRADE	P/L	PROPERTY LINE
AC, AC.	ACRE	FL	FLOWLINE	PROP.	PROPOSED
A.B.	AGGREGATE BASE	FS	FINISHED SURFACE	PVT.	PRIVATE
BC	BEGIN OF CURVE	GB	GRADE BREAK	R/W, RW	RIGHT OF WAY
BCR	BEGIN OF CURB RETURN	HP	HIGH POINT	R	RIDGE
CB	CATCH BASIN	HOA	HOME OWNER ASSOCIATION	SCE	SOUTHERN CALIFORNIA EDISON
C/L, CL, ℄	CENTER LINE	IMPVT.	IMPROVEMENTS	SD	STORM DRAIN
CONC.	CONCRETE	L.F., LF	LINEAL FEET	S, SW, SS	SEWER
CY	CUBIC YARD	LN	LANE	SIM.	SIMILAR
D/L	DAYLIGHT	LP	LOW POINT	SF, S.F.	SQUARE FEET
DWY	DRIVEWAY	L.S.	LUMP SUM	TC	TOP OF CURB
E.A., EA	EACH	MAX	MAXIMUM	TRW	TOP OF RETAINING WALL
EC	END OF CURVE	MIN	MINIMUM	TYP.	TYPICAL
ECR	END OF CURB RETURN	MH	MANHOLE	VC	VERTICAL CURVE
EG	EXISTING GROUND	MP	MULTIPURPOSE	W, DW	WATER, DOMESTIC WATER
EX., EXIST.	EXISTING	NTS	NOT TO SCALE		
FH	FIREHYDRANT	PCC	POINT OF COMPOUND CURVE		
		PRC	POINT OF REVERSE CURVE		

LEGEND:

——— – ———	CENTERLINE	— — —	ACCESSIBLE PATH OF TRAVEL
————————	EXISTING PROPERTY LINE	═	WALKWAY
━━ ━ ━ ━━	RIGHT OF WAY	BUILDING 1	BUILDING NUMBER
——W——	PROPOSED DOMESTIC WATER	♿	ACCESSIBLE PARKING STALL
≡	PROPOSED STORM DRAIN	▭	BUILDING OUTLINE
——S——	PROPOSED SEWER	⬚	TRUCK TURNING ENVELOPE (FIRE AND GARBAGE)
—F——F—	PROPOSED FIRE WATER	▨	PROPOSED AC PAVEMENT (WIDENING)
0.5% ←	STREET GRADE & FLOW DIRECTION	▩	PROPOSED AC GRIND AND OVERLAY
——700——	PROPOSED CONTOUR		
——703——	EXISTING CONTOUR		
— —W— —	EXISTING WATER		
— —S— —	EXISTING SEWER		
▽ ▽	TOP OF SLOPE		
⊥ ⊥	TOE OF SLOPE		
—□——□—	STEEL TUBE FENCE		
— — — —	PERIMETER BLOCK WALL		
—— ——	LINE OF SIGHT		

Plotted: Oct 18, 2022 - 9:25am by: A_Griffith Drawing Name: Z:\10.101_Flamingo Bay Entitlement_Empire\Drawings\Site Plan\101.SP.001-SITE PLAN.dwg



SHEET INDEX

SITE PLAN	1
PRELIMINARY GRADING AND UTILITIES PLAN	2
CONCEPTUAL STRIPING PLAN	3

PROPERTY OWNER:

FB CRYSTAL COVE LLC
2280 WARDLOW CIRCLE STE 250
CORONA, CA 92878
ATTN: JAMES WALTERS
(909) 498-4939

APPLICANT:

EMPIRE CONSTRUCTION MANAGEMENT
2280 WARDLOW CIRCLE
CORONA, CA 92880
ATTN: BRIAN KING
(909) 499-6995

ENGINEER:

PROACTIVE ENGINEERING CONSULTANTS INC.
200 SOUTH MAIN STREET, SUITE 300
CORONA, CA 92882
ATTN: ATI ESKANDARI
(951) 280-3300

SITE ADDRESSES:

25843 AND 25817 ALESSANDRO BLVD, MORENO VALLEY, CA

UTILITIES:

WATER: EASTERN MUNICIPAL WATER DISTRICT
SEWER: EASTERN MUNICIPAL WATER DISTRICT
TELEPHONE: VERIZON AND SPECTRUM
NATURAL GAS: SOUTHERN CALIFORNIA GAS COMPANY
ELECTRICAL: MORENO VALLEY ELECTRIC UTILITY
FIRE PROTECTION: MORENO VALLEY FIRE DEPARTMENT

BENCHMARK:

RIVERSIDE COUNTY BENCHMARK: (M-40-4 RESET)

AT THE SOUTHEAST CORNER OF NASON STREET AND ALESSANDRO BOULEVARD; 56.0 FEET EAST OF CENTERLINE OF NASON STREET; 48 FEET SOUTH OF ALESSANDRO BOULEVARD; 3' WEST OF POLE #GT-70306, 1.0 FEET NORTH OF A 4"X4" MARKER POST; A BRASS DISK SET IN TOP OF A CONCRETE POST AND MARKED M-40-4 RESET 1976.

ELEVATION (FEET): 1588.421 (NGVD29)

BASIS OF BEARING:

BASIS OF BEARINGS
THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA STATE PLANE COORDINATE SYSTEM, CCS83, ZONE VI, BASED LOCALLY ON CONTROL STATIONS "PPBF", "CRFP", & "MLFP" NAD83 (NSRS2011) EPOCH 2010.00, RECORDS OF THE RIVERSIDE COUNTY SURVEYOR.
ALL DISTANCES SHOWN ARE GROUND DISTANCES UNLESS SPECIFIED OTHERWISE. GRID DISTANCES, MAY BE OBTAINED BY MULTIPLYING THE GROUND DISTANCE BY A COMBINATION FACTOR OF 0.99993551876.

LEGAL DESCRIPTION:

ALL THAT CERTAIN REAL PROPERTY SITUATED IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS: PARCEL 1 THE WESTERLY 2 1/2 ACRES OF THE EASTERLY 4 1/2 ACRES OF LOT 2 IN BLOCK 121 AS SHOWN BY MAP NO, 1 OF BEAR VALLEY AND ALESSANDRO DEVELOPMENT COMPANY, RECORDED IN BOOK 11, PAGE 10 OF MAPS, RECORDS OF SAN BERNARDINO COUNTY, CALIFORNIA BEING ALL OF SAID EASTERLY 4 1/2 ACRES. EXCEPTING THE EASTERLY 132.00 FEET THEREOF.

APN: 484-030-026

PARCEL 2: THAT PORTION OF LOT 2, BLOCK 121 AS SHOWN BY MAP NO. 1 OF BEAR VALLEY AND ALESSANDRO DEVELOPMENT COMPANY, AS SHOWN BY MAP RECORDED IN BOOK 11, PAGE 10 OF MAPS, SAN BERNARDINO COUNTY RECORDS, DESCRIBED AS FOLLOWS: BEGINNING ON THE NORTH LINE OF SAID LOT AT A POINT 231.00 FEET EAST OF THE NORTHWEST CORNER THEREOF; THENCE SOUTH PARALLEL WITH THE EAST LINE OF SAID LOT TO A POINT ON THE SOUTH LINE THEREOF, DISTANT 231.00 FEET EAST OF THE SOUTHWEST CORNER OF SAID LOT; THENCE EAST ALONG THE SOUTH LINE OF SAID LOT, 132.00 FEET TO THE SOUTHWEST CORNER OF THE EAST 4.5 ACRES OF SAID LOT; THENCE NORTH ALONG THE WEST LINE OF SAID EAST 4.5 ACRES TO A POINT ON THE NORTH LINE OF SAID LOT; THENCE WEST ALONG THE NORTH LINE OF SAID LOT, 132.00 FEET MORE OR LESS TO THE POINT OF BEGINNING. EXCEPTING THEREFROM THE NORTH 120.00 FEET OF THE WEST 60.00 FEET THEREOF.

APN: 484-030-013

BUILDING PLAN SUMMARY

	BLDG 1	BLDG 2	BLDG 3	BLDG 4	CLUBHOUSE
BUILDING TYPE	B	C	B	A	--
CONSTRUCTION CLASSIFICATION	TYPE V-B SPRINKLERED				
BUILDING AREA	8,353	9,395	8,353	8,353	2,588
UNITS/BUILDING	24	24	24	24	–
NUMBER OF STORIES	3	3	3	3	1
TOTAL FLOOR AREA	25,012	28,072	25,012	25,012	2,588

VICINITY MAP

NOT TO SCALE

EASEMENT SUMMARY:

1 WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.
-BLANKET IN NATURE
DISPOSITION: TO BE PROTECTED IN PLACE

4 AN IRREVOCABLE OFFER TO DEDICATE AN EASEMENT OVER A PORTION OF SAID LAND FOR PURPOSE(S):
PUBLIC STREET, ROAD OR HIGHWAY
RECORDING DATE: MAY 29, 2014
RECORDING NO: 2014-0197621, OFFICIAL RECORDS
AFFECTS: PARCEL 1
AND RE-RECORDING DATE: JULY 31, 2014
AND RE-RECORDING NO: 2014-028933, OFFICIAL RECORDS-SHOWN HEREIN
DISPOSITION: TO BE PROTECTED IN PLACE

SITE PLAN SUMMARY:

ACREAGE (LOTS 1 & 2)	3.86 AC		
ACREAGE (PUBLIC STREETS: ALESSANDRO BLVD AND COPPER COVE LANE)	0.10 AC		
TOTAL GROSS ACREAGE	3.96 AC		
TOTAL NET ACREAGE	3.96 - 0.10 = 3.86 ACRES		

DENSITY (96 UNITS/3.86 ACRES) = 24.8 DU/AC

TOTAL AREA	168,290	SF	(100.0 %)
LANDSCAPE AREA (OPEN SPACE) INCLUDES PLANTING, WALKWAYS, BIO-RETENTION BASINS, POOL AREA, TOT LOT, AND DOG PARK	71,931	SF	(42.7 %)
PAVED PARKING AREA	60,372	SF	(35.9 %)
BLDG COVERAGE AREA	35,987	SF	(21.4 %)

EXISTING LAND USE	CORRIDOR MIXED USE (CMU)
PROPOSED LAND USE	CMU-RESIDENTIAL
FEMA FLOOD ZONE	D (FIRM MAP NO. 06065C0765G)

PARKING SUMMARY

	REQUIRED SPACES	PROVIDED SPACES
REQUIRED:		
1.5 PKG/1 BDRM UNIT (48 UNITS)	72	
2 PKG/2 BDRM UNIT (48 UNITS)	96	
SUBTOTAL	168	
PROVIDED:		
CARPORT PKG (ASSIGNED)	96	97
OPEN PARKING (ASSIGNED AND UNASSIGNED)	72	72
ACCESSIBLE (TOTAL)*	5	6 (3 VAN)
CARPORT ACCESSIBLE (92 SPACES@2%)	2	2 (1 VAN)
ASSIGNED ACCESSIBLE (81 SPACES@2%)	2	3 (1 VAN)
UNASSIGNED ACCESSIBLE(20 SPACES@5%)	1	1 (1 VAN)
EV READY*		18 (1 VAN)
TOTAL	168	169 SPACES
PARKING RATIO (=169/96)		1.76 SPACES/UNIT

*ALREADY INCLUDED IN TOTAL COUNTS (FOR INFORMATIONAL PURPOSES)

LANDSCAPE COVERAGE RATIO

TOTAL LANDSCAPED AREA	1.70 AC
TOTAL AREA:	3.96 AC
LANDSCAPE COVERAGE RATIO: (=(1.70/3.96)X100)	42.9 %

GENERAL NOTES

1. SITE PLAN SHALL MEET ENGINEERING AND NPDES REQUIREMENTS.
2. DETAILED PROJECT DESCRIPTION: THE PROPOSED PROJECT INCLUDES FOUR (4) APARTMENT BUILDINGS WITH 88 UNITS FOR LEASE. THE SITE OF THE PROJECT WILL INCLUDE PARKING IN BOTH OPEN AND CARPORT SPACES, UNDERGROUND WET AND DRY UTILITIES, COMMUNITY WALKWAYS, ABOVE GROUND BIO-RETENTION BASINS, COMMUNITY POOL AND RECREATION AREA, AS WELL AS LANDSCAPED AREAS. THE PROJECT ALSO PROPOSES THE WIDENING OF ALESSANDRO BLVD AND COPPER COVE LANE WITHIN THE SITE PROPERTY LIMITS.

DATE: 10/2022

SEAL:
THOMAS E. BRAUN
No. 41817
Exp. 3/31/2024

PREPARED BY (ENGINEER):
PROACTIVE
ENGINEERING CONSULTANTS
200 South Main Street, Suite 300
Corona, CA 92882 (951) 280-3300

THOMAS E. BRAUN
10/11/22
DATE

CITY OF MORENO VALLEY
FLAMINGO BAY APARTMENTS
SITE PLAN
SHEET 1 of 3
CITY ID No.
PEN22-0029

CONSTRUCTION NOTES

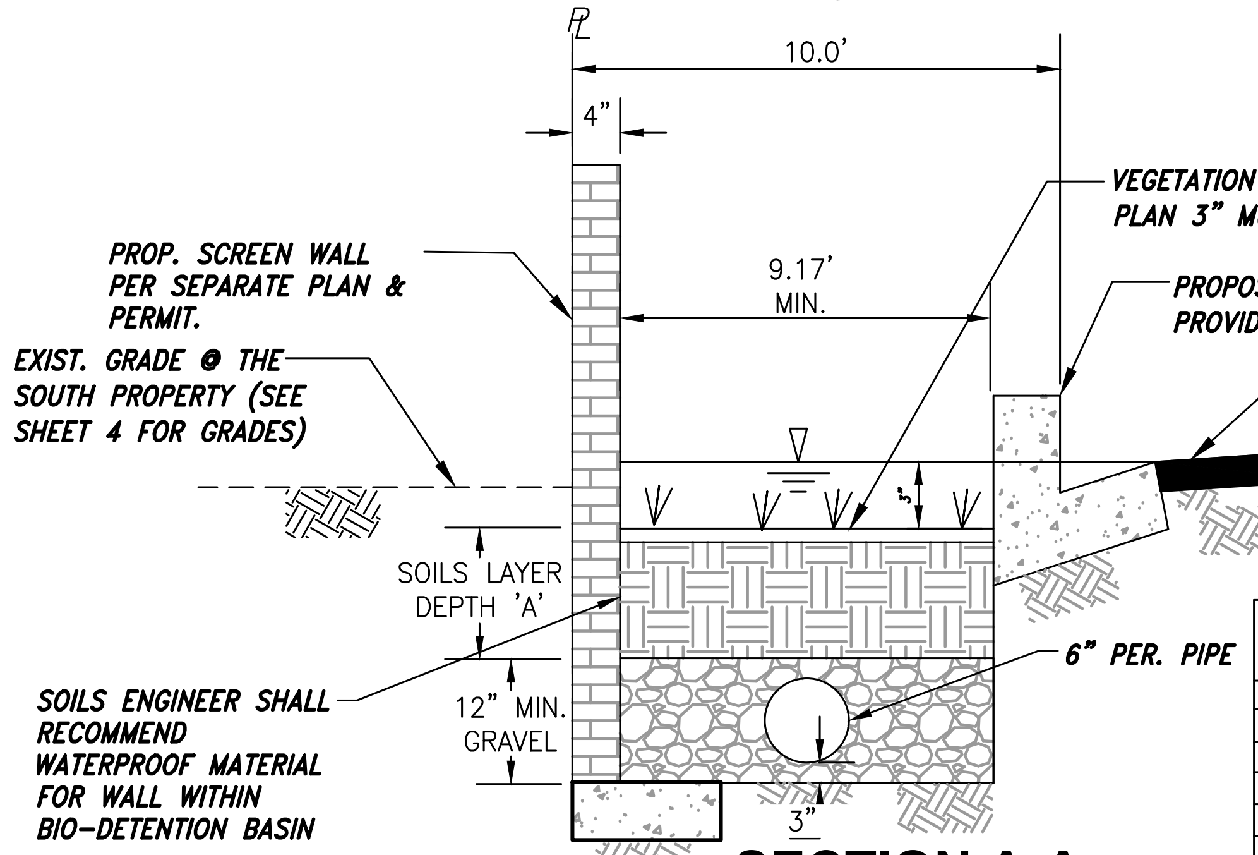
① PROPOSED PUBLIC CURB AND GUTTER
② PROPOSED PUBLIC SIDEWALK
③ PROPOSED AC PAVEMENT
④ PROPOSED DRIVEWAY PER CITY STD MVSI-112D-0 WITH CURB RAMPS PER CITY STD MVSI-114B-2 (AND CURRENT ADA STDS/CA CODE OF REGULATIONS TITLE 24-ACCESSIBILITY REGULATIONS)
⑤ PROPOSED PUBLIC SIDEWALK DRAIN (W=5')
⑥ EXISTING WATER METER TO BE REMOVED
⑦ EXISTING UTILITY POLE TO BE RELOCATED
⑧ DOMESTIC WATER APPURTENANCES
⑨ INSTALL ST LIGHT PER CITY STD MVLT-400C-0
⑩ INSTALL ST LIGHT PER CITY STD MVLT-400A-2
⑪ GRIND AND OVERLAY AC
⑫ PROPOSED AC DIKE AND TRANSITIONING GUTTER
⑬ RAISED MEDIAN BY OTHERS
⑭ PROPOSED WALL/FENCE PER LANDSCAPE ARCHITECT CONCEPT PLAN
⑮ PROPOSED CURB AND GUTTER
⑯ PROPOSED CURB ONLY
⑰ PROPOSED ACCESSIBLE PARKING STALL
⑱ PROPOSED CURB RAMP
⑲ PROPOSED TRASH ENCLOSURE
⑳ PROPOSED WALKWAY
㉑ PROPOSED OVERFLOW INLET (REFER TO PRELIMINARY WQMP EXHIBIT FOR DETAILS)
㉒ PROPOSED CROSS GUTTER
㉓ PROPOSED SIDWALK DRAIN
㉔ PROPOSED RETAINING WALL
㉕ PROPOSED BIORETENTION PLANTER (REFER TO PRELIMINARY WQMP EXHIBIT FOR DETAILS)
㉖ PROPOSED 12" PVC STORM DRAIN PIPE
㉗ PROPOSED 18" HDPE STORM DRAIN PIPE
㉘ PROPOSED 24" HDPE STORM DRAIN PIPE
㉙ CONSTRUCT CHECK DAM IN BIO-DETENTION BASIN
㉚ CURB OPENING TO DRAIN TO BIO-DETENTION BASIN, W=24".
Ⓟ PROTECT IN PLACE

FLAMINGO BAY APARTMENTS
PRELIMINARY GRADING AND UTILITIES PLAN
FOR RESIDENTIAL APARTMENTS PURPOSES IN THE CITY OF MORENO VALLEY

PROPERTY OWNER:
FB CRYSTAL COVE LLC
2280 WARDLOW CIRCLE STE 250
CORONA, CA 92878
ATTN: JAMES WALTERS
(909) 498-4939

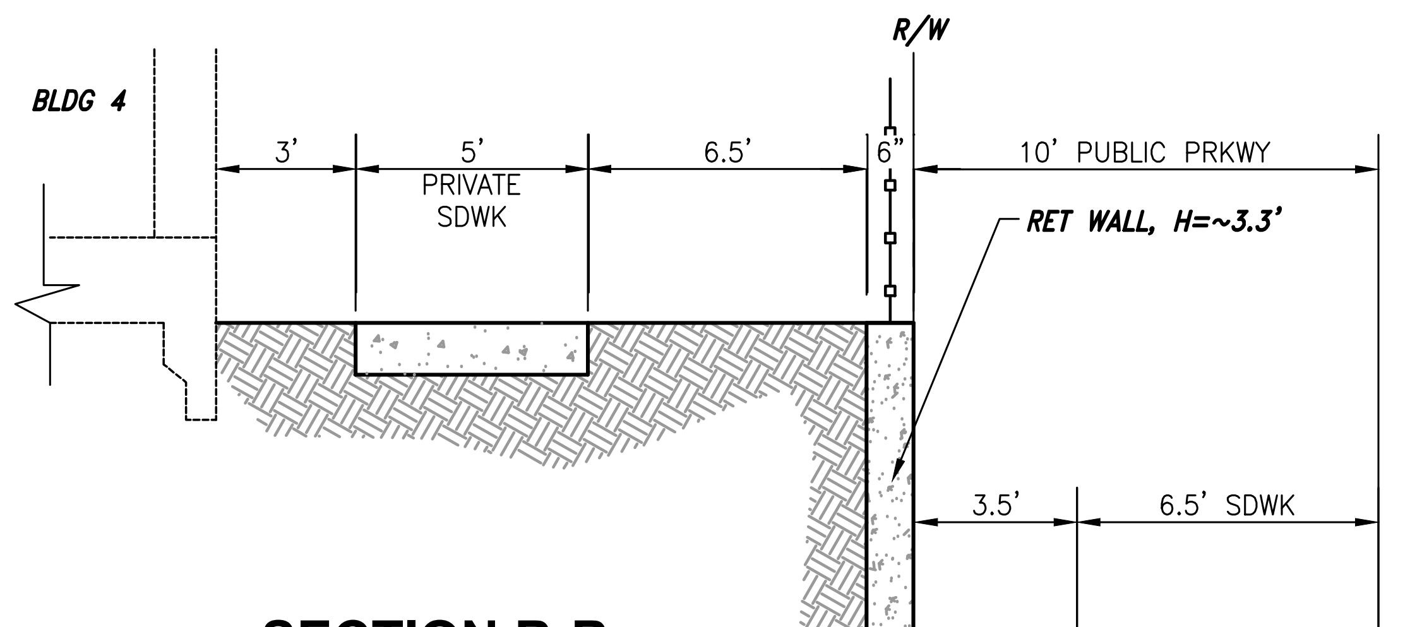
APPLICANT:
EMPIRE CONSTRUCTION MGMT
2280 WARDLOW CIRCLE
CORONA, CA 92880
ATTN: BRIAN KING
(909) 499-6995

ENGINEER:
PROACTIVE ENG CONSULTANTS INC.
200 SOUTH MAIN STREET, SUITE 300
CORONA, CA 92882
ATTN: ATI ESKANDARI
(951) 280-3300

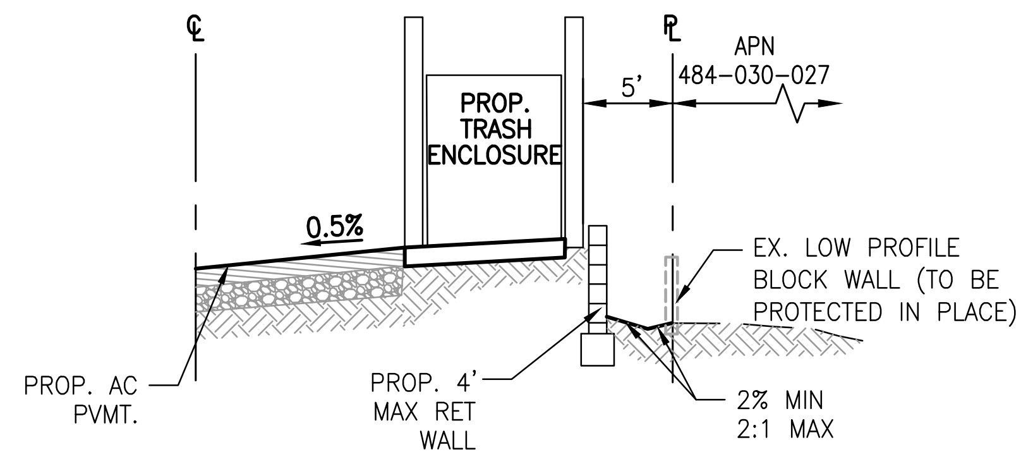


SECTION A-A
BIO-DETENTION BASIN #1-9
N.T.S.
SEE PRIVATE DRIVE SECTION ON SHEET 1 OF THIS PLAN

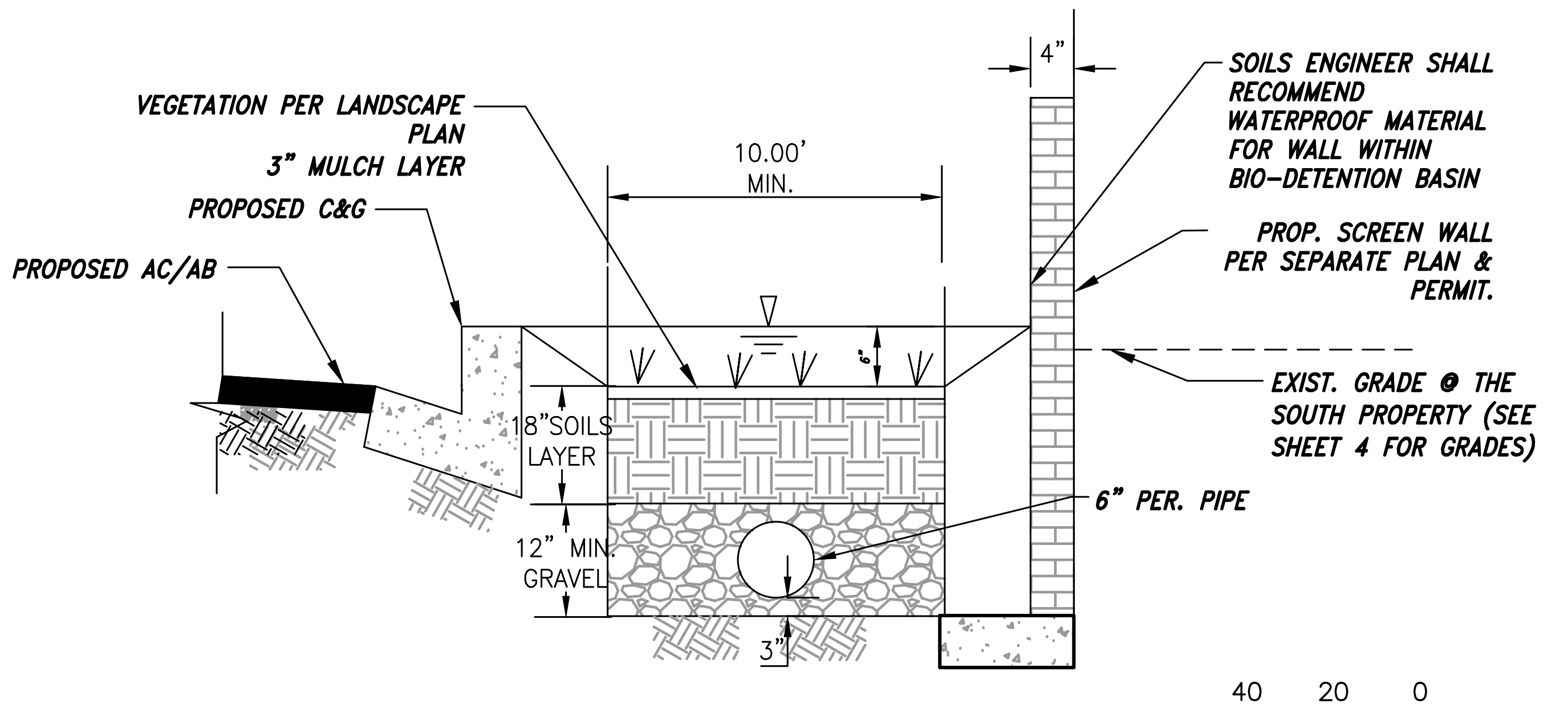
BIORETENTION BASIN ID	DEPTH "A" (INCHES)
1	27
2	27
3	27
4	27
5	27
6	27
7	30
8	24
9	24



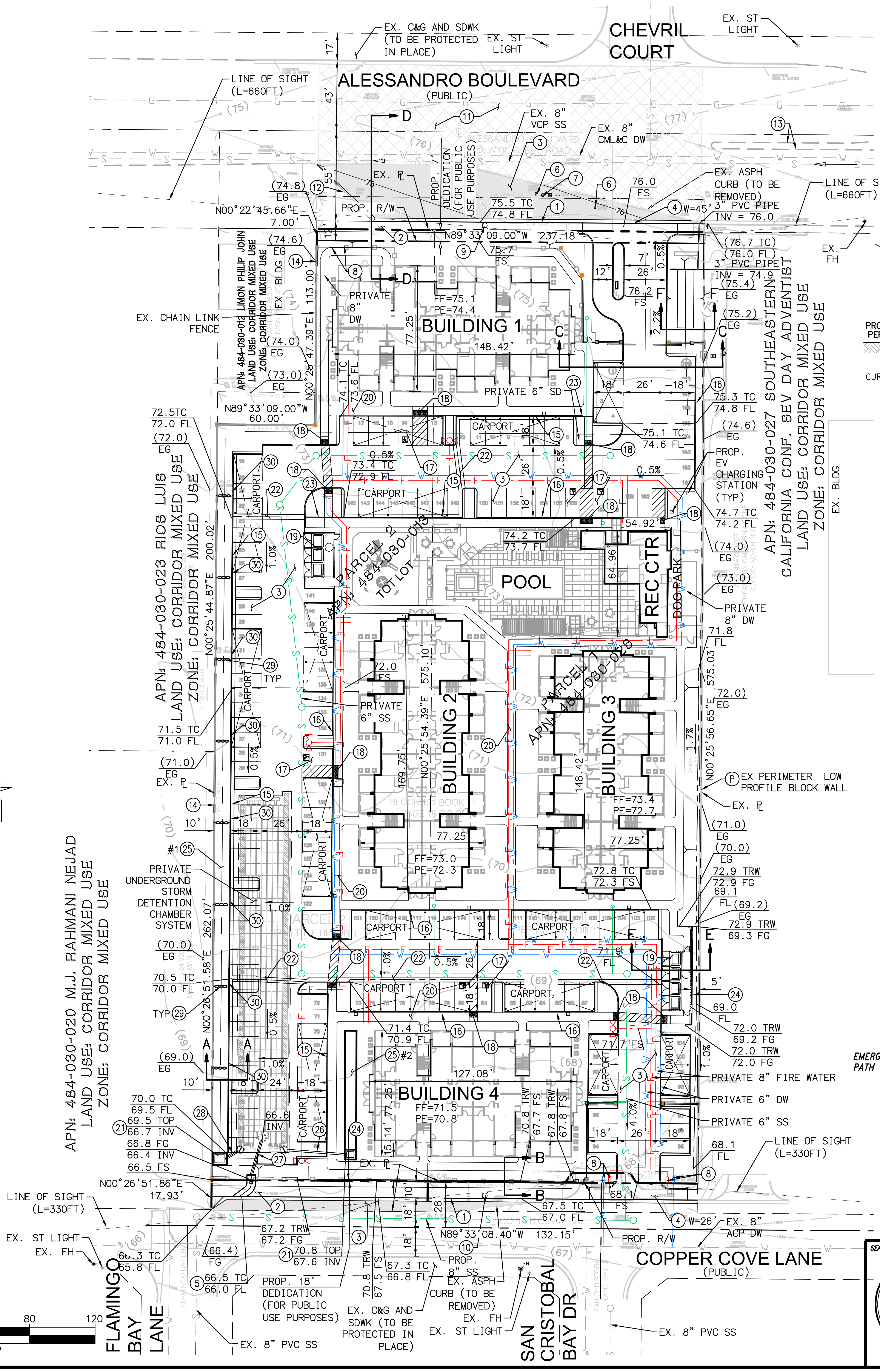
SECTION B-B
SOUTHERLY PL
N.T.S.
SEE COPPER COVE LANE STREET SECTION ON SHEET 1 OF THIS PLAN

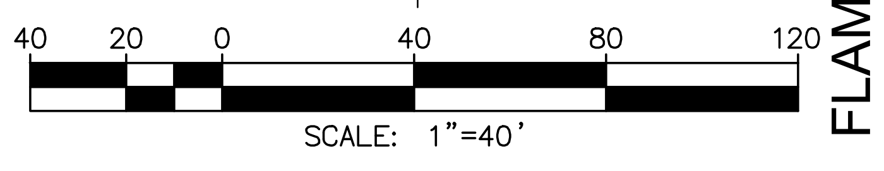


SECTION E-E
SOUTHEASTERLY PROPERTY EDGE
N.T.S.

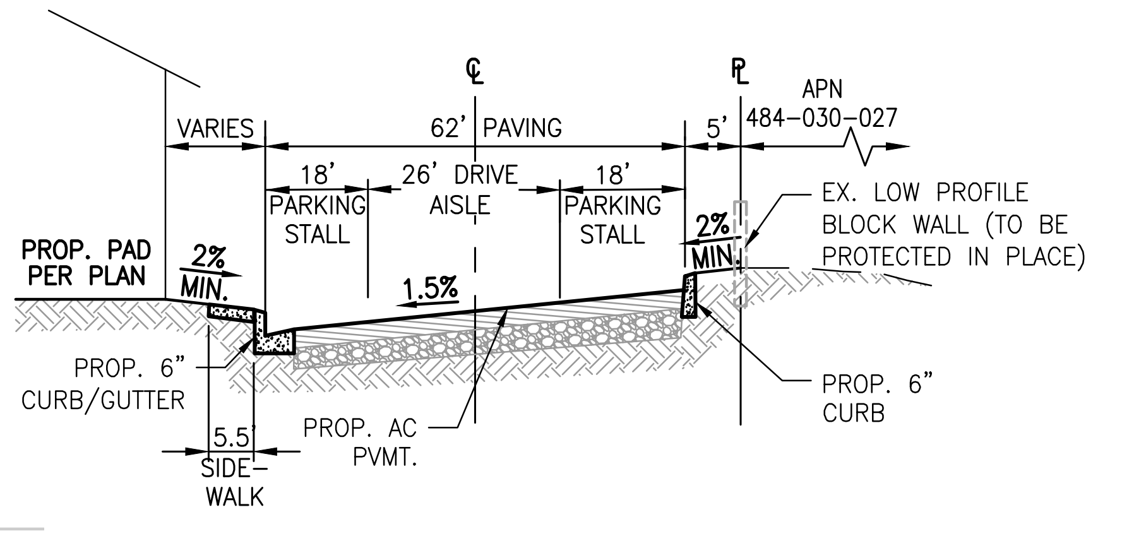


SECTION F-F
BIO-DETENTION BASIN #11
N.T.S.

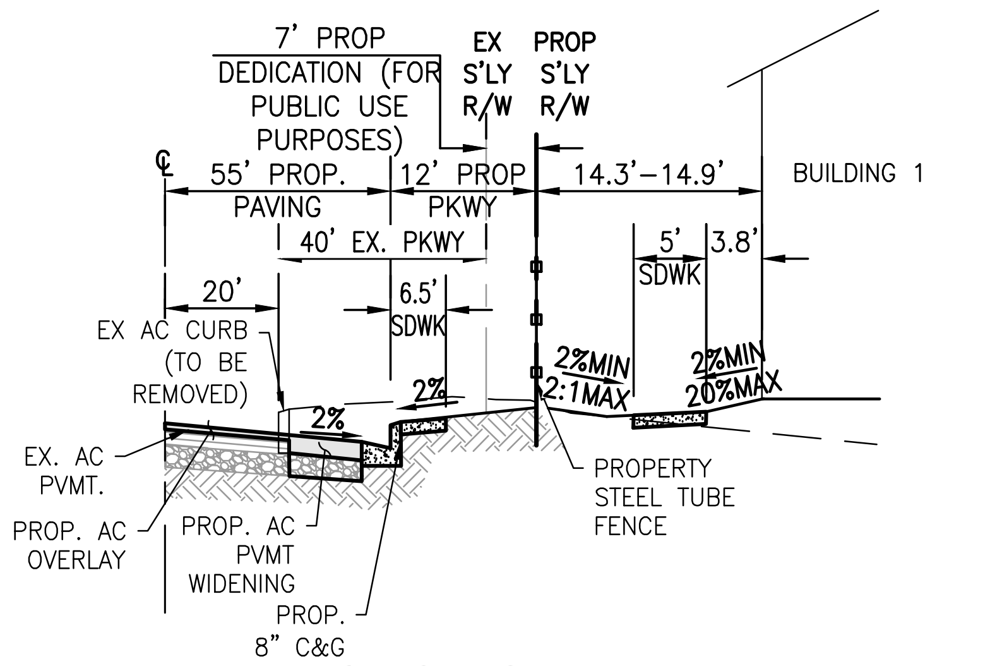




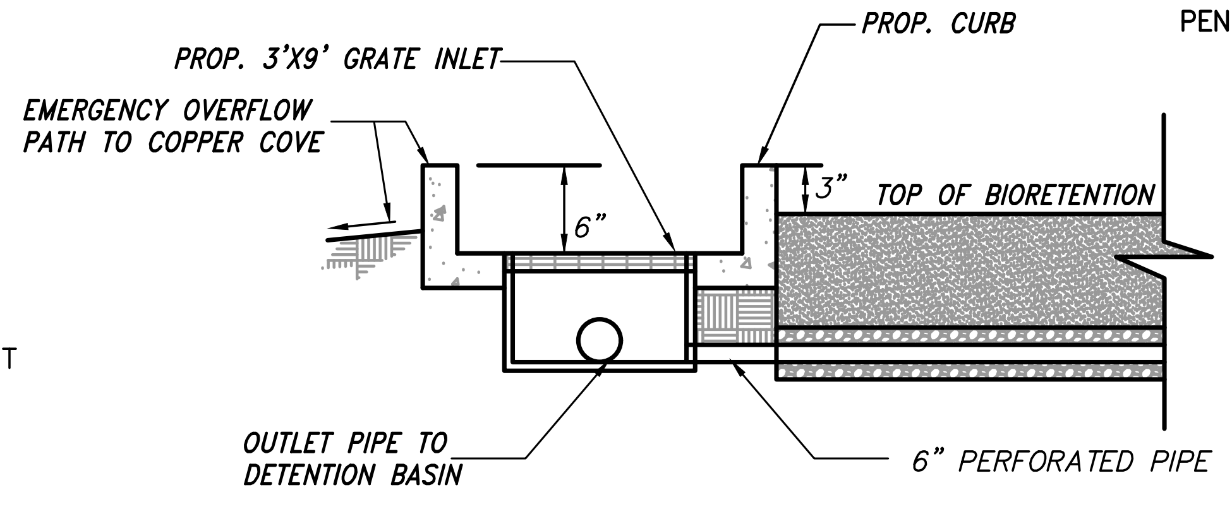
SCALE: 1"=40'



SECTION C-C
NORTHEASTERLY PROPERTY EDGE
N.T.S.



SECTION D-D
ALESSANDRO BLVD EDGE
N.T.S.
SEE ALESSANDRO BLVD STREET SECTION ON SHEET 1 OF THIS PLAN



TYPICAL OVERFLOW INLET DETAIL (SECTION VIEW)
NTS

SITE ADDRESSES:
25843 AND 25817 ALESSANDRO BLVD, MORENO VALLEY, CA

UTILITIES:
WATER: EASTERN MUNICIPAL WATER DISTRICT
SEWER: EASTERN MUNICIPAL WATER DISTRICT
TELEPHONE: VERIZON AND SPECTRUM
NATURAL GAS: SOUTHERN CALIFORNIA GAS COMPANY
ELECTRICAL: MORENO VALLEY ELECTRIC UTILITY
FIRE PROTECTION: MORENO VALLEY FIRE DEPARTMENT

BENCHMARK:
RIVERSIDE COUNTY BENCHMARK: (M-40-4 RESET)

AT THE SOUTHEAST CORNER OF NASON STREET AND ALESSANDRO BOULEVARD; 56.0 FEET EAST OF CENTERLINE OF NASON STREET; 48 FEET SOUTH OF ALESSANDRO BOULEVARD; 3' WEST OF POLE #GT-70306, 1.0 FEET NORTH OF A 4"X4" MARKER POST; A BRASS DISK SET IN TOP OF A CONCRETE POST AND MARKED M-40-4 RESET 1976.

ELEVATION (FEET): 1588.421 (NGVD29)

BASIS OF BEARING:
THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA STATE PLANE COORDINATE SYSTEM, CCS83, ZONE VI, BASED LOCALLY ON CONTROL STATIONS "PPBF", "CRFP", & "MLFP" NAD83 (NSRS2011) EPOCH 2010.00, RECORDS OF THE RIVERSIDE COUNTY SURVEYOR.
ALL DISTANCES SHOWN ARE GROUND DISTANCES UNLESS SPECIFIED OTHERWISE. GRID DISTANCES, MAY BE OBTAINED BY MULTIPLYING THE GROUND DISTANCE BY A COMBINATION FACTOR OF 0.99993551876.

LEGAL DESCRIPTION:
ALL THAT CERTAIN REAL PROPERTY SITUATED IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS: PARCEL 1 THE WESTERLY 2 1/2 ACRES OF THE EASTERLY 4 1/2 ACRES OF LOT 2 IN BLOCK 121 AS SHOWN BY MAP NO, 1 OF BEAR VALLEY AND ALESSANDRO DEVELOPMENT COMPANY, RECORDED IN BOOK 11, PAGE 10 OF MAPS, RECORDS OF SAN BERNARDINO COUNTY, CALIFORNIA BEING ALL OF SAID EASTERLY 4 1/2 ACRES. EXCEPTING THE EASTERLY 132.00 FEET THEREOF.

APN: 484-030-026

PARCEL 2: THAT PORTION OF LOT 2, BLOCK 121 AS SHOWN BY MAP NO. 1 OF BEAR VALLEY AND ALESSANDRO DEVELOPMENT COMPANY, AS SHOWN BY MAP RECORDED IN BOOK 11, PAGE 10 OF MAPS, SAN BERNARDINO COUNTY RECORDS, DESCRIBED AS FOLLOWS: BEGINNING ON THE NORTH LINE OF SAID LOT AT A POINT 231.00 FEET EAST OF THE NORTHWEST CORNER THEREOF; THENCE SOUTH PARALLEL WITH THE EAST LINE OF SAID LOT TO A POINT ON THE SOUTH LINE THEREOF, DISTANT 231.00 FEET EAST OF THE SOUTHWEST CORNER OF SAID LOT; THENCE EAST ALONG THE SOUTH LINE OF SAID LOT, 132.00 FEET TO THE SOUTHWEST CORNER OF THE EAST 4.5 ACRES OF SAID LOT; THENCE NORTH ALONG THE WEST LINE OF SAID EAST 4.5 ACRES TO A POINT ON THE NORTH LINE OF SAID LOT; THENCE WEST ALONG THE NORTH LINE OF SAID LOT, 132.00 FEET MORE OR LESS TO THE POINT OF BEGINNING. EXCEPTING THEREFROM THE NORTH 120.00 FEET OF THE WEST 60.00 FEET THEREOF.

APN: 484-030-013

GENERAL NOTES

ACREAGE (LOTS 1 & 2)	3.8 AC
ACREAGE (PUBLIC STREETS: ALESSANDRO BLVD AND COPPER COVE LANE)	0.1 AC
TOTAL GROSS ACREAGE	3.9 AC
TOTAL NET ACREAGE	3.9 – 0.1 = 3.8 ACRES

DENSITY (96 UNITS/3.8 ACRES) = 25.3 DU/AC

FEMA FLOOD ZONE	D (FIRM MAP NO. 06065C0765G)

PRELIMINARY EARTHWORK ESTIMATE

RAW CUT	4,300 CY
RAW FILL	3,900 CY
APPROXIMATE REMEDIAL GRADING (10% SHRINKAGE)	400 CY
TOTAL	0 CY*

* EXPECTED TO BALANCE, TO BE DETERMINED PENDING FINAL DESIGN AND SOILS EXPLORATION

IMPERVIOUS AREAS

EXISTING:	0 SF
PROPOSED:	~141,000 SF

TOPOGRAPHY SOURCE AND DATE:
TOPOGRAPHY PROVIDED BY DELTA SURVEY AND MAPPING AND DATED APRIL 29, 2021.

DATE: 10/2022

SEAL:
THOMAS E. BRAUN
No. 41817
Exp. 3/31/2024
CIVIL

PREPARED BY (ENGINEER):
PROACTIVE
ENGINEERING CONSULTANTS
200 South Main Street, Suite 300
Corona, CA 92882 (951) 280-3300

THOMAS E. BRAUN
10/11/22
DATE

CITY OF MORENO VALLEY
FLAMINGO BAY APARTMENTS
PRELIMINARY GRADING AND UTILITIES PLAN

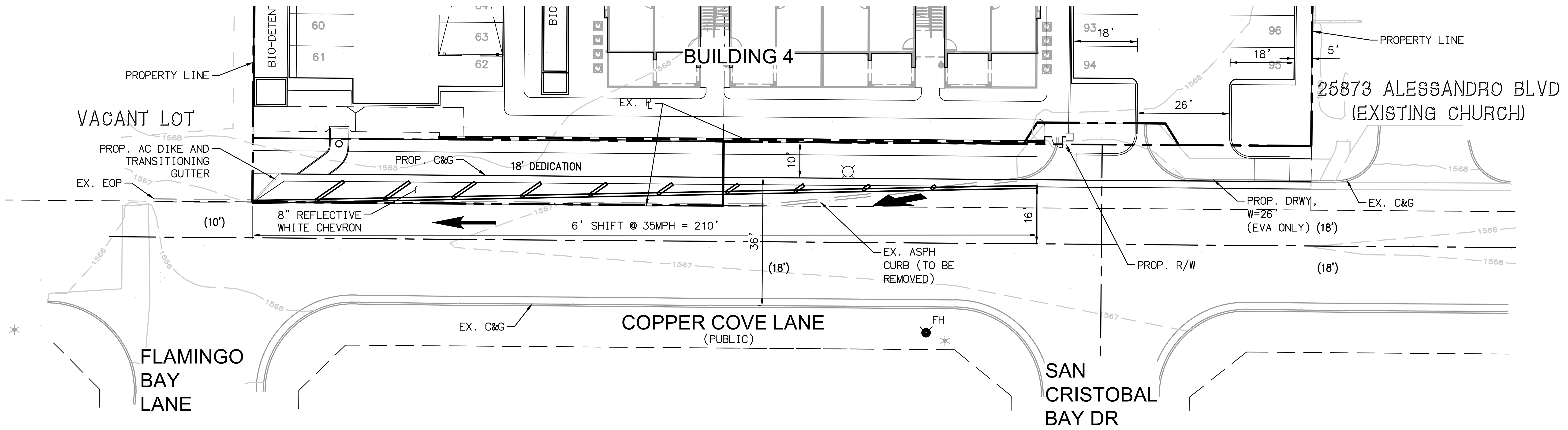
SHEET 2 of 3
CITY ID No. PEN22-0029

Plotted: Oct 18, 2022 – 9:25am by: A_Griffith Drawing Name: Z:\10.101_Flamingo Bay Entitlement_Empire\Drawings\Site Plan\101.SP.002-GRADING.dwg

FLAMINGO BAY APARTMENTS
CONCEPTUAL STRIPING PLAN
FOR RESIDENTIAL APARTMENTS PURPOSES IN THE CITY OF MORENO VALLEY

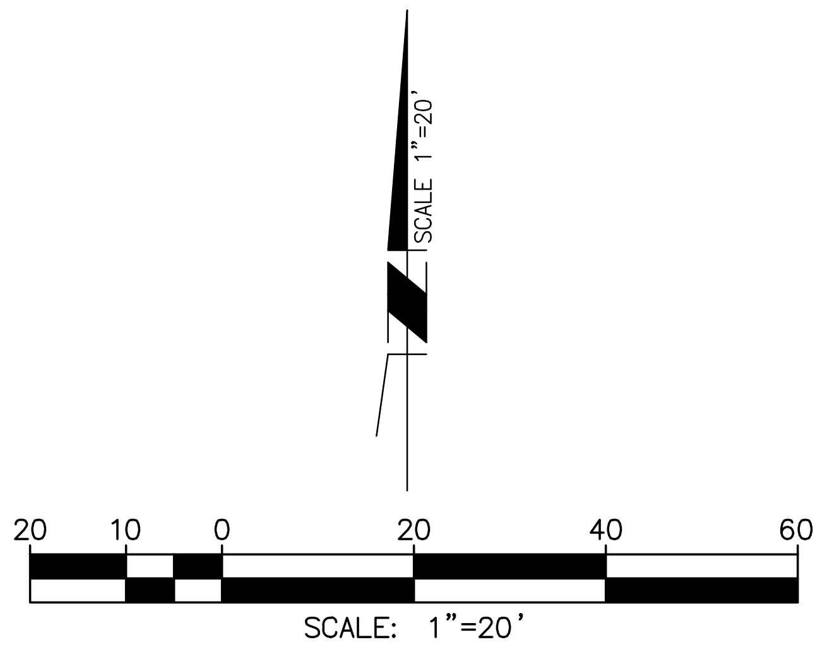
ALESSANDRO BLVD (NORTH SITE ENTRANCE):

SCALE: 1"=20'



COPPER COVE LANE (SOUTH SITE ENTRANCE):

SCALE: 1"=20'



DATE: 8/2022

SEAL:

No. 41817
Exp. 3/31/2024
THOMAS E. BRAUN
CIVIL

PREPARED BY (ENGINEER):

PROACTIVE
ENGINEERING CONSULTANTS
200 South Main Street, Suite 300
Corona, CA 92882 (951) 280-3300

THOMAS E. BRAUN
10/11/22
DATE

CITY OF MORENO VALLEY

FLAMINGO BAY APARTMENTS

CONCEPTUAL STRIPING PLAN

SHEET 3 of 3

CITY ID No.
PEN22-0029

Plotted: Oct 18, 2022 – 9:25am by: A_Griffith Drawing Name: Z:\10.101_Flamingo Bay Entitlement_Empire\Drawings\Site Plan\101.SP.003-STRIPING.dwg

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

SOILS REPORT

GEO ENVIRON
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING CONSULTANTS, INC.
4071 E. La Palma Ave., Ste. B, Anaheim, Ca 92807 • (714) 632-3190 • Fax (714) 632-3191

Job No. 21-1108P-1
May 17, 2021

Rahman Engineering
13611 12th St,Unit B
Chino, CA 91710

Subject: **Report of Percolation Testing for the Proposed Infiltration System, Between Alessandro Blvd & Copper Cove Lane, APN #484-030-026, 484-030-013, Moreno Valley, California**

Gentlemen,

In accordance with your request, we have performed a percolation testing with regard to the proposed infiltration system. The intent of this report is to evaluate the feasibility of the proposed system to be constructed at the subject site.

The gross percolation rate of the subsurface soils was found to be 0.14 inch per hour. The bottom of the proposed infiltration system is estimated to be within 5.0 feet below the existing natural grade. The percolation testing and the relevant calculations were performed using the method per the Riverside County Manuel.

SITE GEOLOGY & GROUNDWATER

The site is underlain by **older alluvium, classified as sandy silt to a depth approximately 7.5 feet, very dense in consistency; then silty Clay, stiff to very stiff to 15 feet, the maximum depth explored.** A more detailed description of the earth materials encountered is presented on the log borings in Appendix 'B'. **Groundwater was not encountered** during this investigation, and expected to be deep.

PERCOLATION INVESTIGATION

A preliminary set of percolation tests were performed in order to determine the suitability of the surface soils as an absorb medium for seepage beds. Two (2) soil borings of 8 inches diameters were drilled to satisfy this investigation. The borings were drilled to depths of 10.0 feet below existing surface within the subject site to conduct percolation tests. One additional boring was drilled to depth of 15.0 feet below existing surface to determine depth to groundwater or any impervious layer. Two consecutive tests were taken at 25 minute increments, which found that water seeped away less than 6 inches. Thus, the test hole was presaturated over night. After the presaturation was completed, water level measurements were started. From a fixed reference point, the drop in water levels were measured over a 30 minute periods for an hour. The drop that occurred during the final reading was used calculate the percolation rate.

TEST RESULTS

The gross percolation rates of the subsurface soils was found to be 0.14 inches per hour.

CONCLUSION

The gross percolation rates of the subsurface soils was found to be 0.14 inches per hour. It is Geo Environ's opinion that the entire site is not suitable for storm water infiltration BMPs. This judgment is based upon the infiltration rate of 0.14 inches per hour, which does not meet the Riverside County guidelines. In consideration of the site evaluation- it is Geo Environ's opinion that the site is not suitable for application of full stormwater infiltration BMP's and alternatives should be explored such as retention systems, biofiltration systems or other approved system.

CLOSURE & LIMITATIONS

The findings, conclusions, and recommendations presented reflect our best estimate of subsurface conditions based on the data obtained from a limited subsurface exploration performed during the field study. The conclusions and recommendations are based on generally accepted geotechnical engineering principles and practices. No further warranties are implied nor made.

This opportunity to be of service is appreciated. If you have any further questions regarding this matter, please contact our office at your earliest convenience.

Respectfully submitted,

Geo Environ Eng. Consultants, Inc.

Jabed Masud, MSCE
Principal

REGISTERED PROFESSIONAL ENGINEER
ESMAIL RASTEGARI
No. 43332
Exp.03/30/2024
CIVIL
STATE OF CALIFORNIA

Esmail Rastegari, P.E.
Principal

JM/ER/gm

Attachments:
Drawings
Boring Logs
Percolation Test Data

PERCOLATION TEST DATA SHEET

Date: *5/12/21*
Project No: *21-1108P*
Depth to Test Hole (Dt) : *10 ft.*

Project Name: *Commercial Development*
Tested By: *F.M*
USCS Soil Classification: *ML*

Test Hole ID: B-2
Test Hole Dimensions *(inches/ feet)*
Diameters: *8 inch.*

Rectangular:

CALCULATION OF INFILTRATION RATE

Trial No.	Start Time	Stop Time	/\t Time Interval (min)	Di Initial Depth to Water(inch)	Df Final Depth to water (inch)	/\D Change in Water Level (inch)	Greater than or Equal to 6'?*
1	9:00	9:25	25.00	12	20	8	Y
2	9:30	9:55	25.00	20	24	4	N

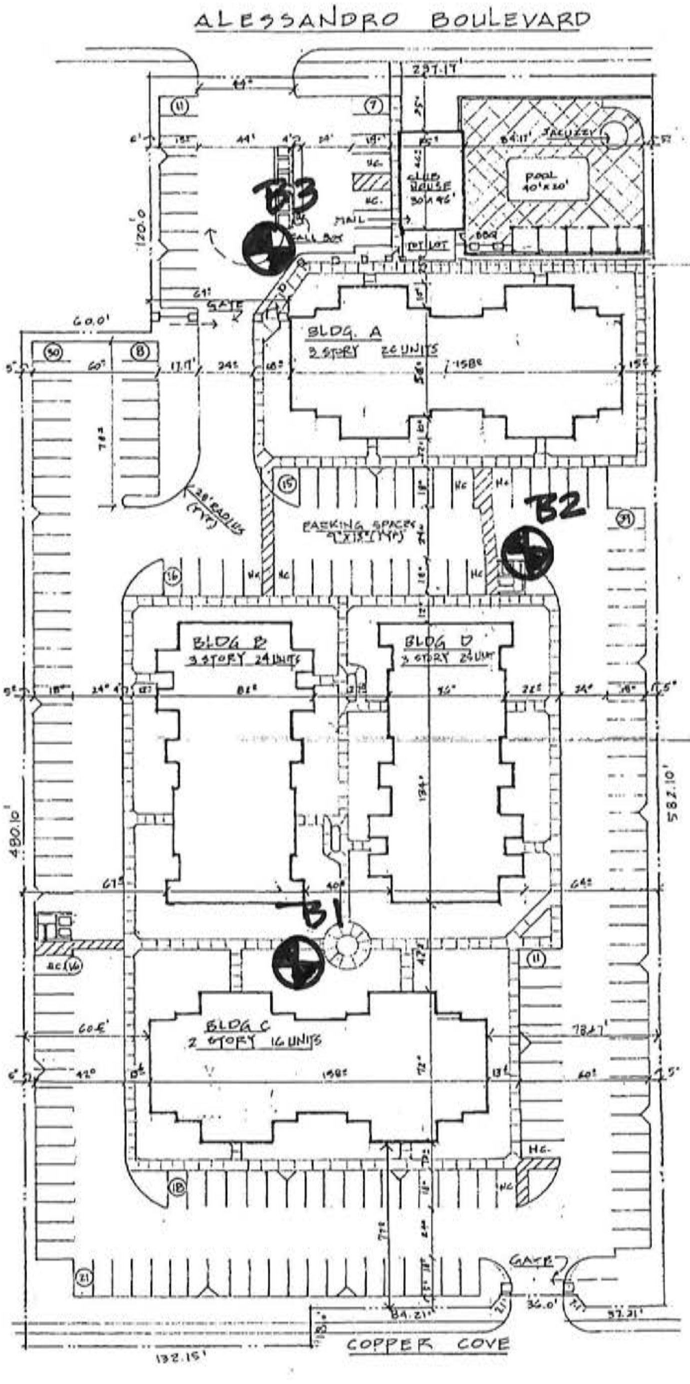
*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Other wise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	Stop Time	/\t Time Interval (min)	Di Initial Depth to Water(inch)	Df Final Depth to water (inch)	/\D Change in Water Level (inch)	Percolation Rate (min./in)
1	8:00	8:30	30	12	21	9.00	3.33
2	9:00	9:30	30	21	27	6.00	5.00
3	10:00	10:30	30	27	32.5	5.50	5.45
4	11:00	11:30	30	32.5	37.4	4.90	6.12
5	12:00	12:30	30	37.4	41.40	4.00	7.50
6	13:00	13:30	30	41.4	45.30	3.90	7.69
7	14:00	14:30	30	45.3	49.10	3.80	7.89
8	15:00	15:30	30	49.1	52.40	3.30	9.09
9	16:00	16:30	30	52.4	55.00	2.60	11.54
10	17:00	17:30	30	55	57.00	2.00	15.00
11	18:00	18:30	30	57	58.30	1.30	23.08
12	19:00	19:30	30	58.3	59.4	1.10	27.27

TEST HOLE NO: B-2

TEST HOLE NO: B-2	
Time Interval: t (min)	30
Initial Depth to Water (in), Di	58.3
Final Depth to Water (in), Df	59.4
Total Depth of Test Hole (in): Dt	120
Test Hole Radius, r (in)	8
Hi, initial ht of water @ selected time interval	
Hi = (Dt - Di)	61.7
Hf, final ht. Of water @ selected time interval	
Hf = (Dt- Df)	60.60
/\H (change in ht. over the time interval = (Hi- Hf)	1.1
H (avg) = (Hi + Hf)/ 2	61.15
It = Test Infiltration Rate	
^h*60*R	528.00
^T(R+2*Havg)	3909.00
Rate	0.14

Gross Infiltration Rate= 0.14 in/hr



FLAMINGO BAY

MORENO VALLEY

UNIT COUNT		PARKING REQ'D	
1 BED X 1 BATH	24	1.5/UNIT :	36
2 BED X 2 BATH	64	2.0/UNIT :	128
TOTAL UNITS	88	GUEST : .25/UNIT	22
		TOTAL REQ'D	186
		PROVIDED	192

COMMON AREA REQ'D 300 SF/UNIT 26,400 SF.
PROVIDED 38,400 SF.

ADA. PARKING REQ'D:

VAN ACCESSIBLE 9'x 8'-17'	4
STADARD 9 + 5'-14'	6
TOTAL	10

2 TRASH ENCLOSURES WITH ROOFS
2-4 CU. YD BINS EACH

PRIVATE AREAS REQ'D
PATIO'S 150 SF
BALCONY 100 SF

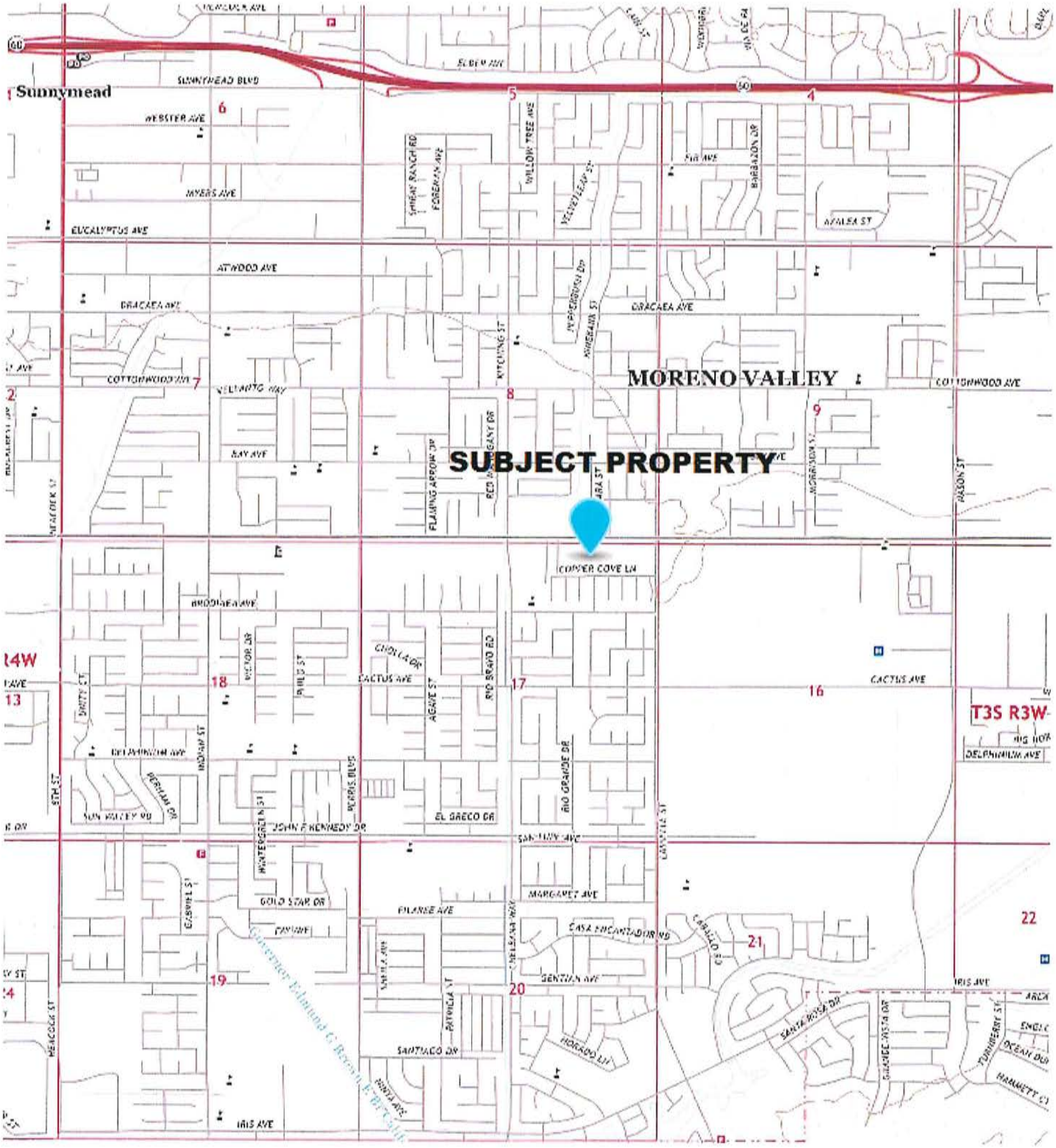
LANDSCAPING
35% OF NET SITE AREA

SITE PLAN
1" = 30'
0 15' 30'

FAIRBROOK

B1
⊕ SOIL BORING

GEO ENVIRON
GEOTECHNICAL & ENVIRONMENTAL ENG. CONSULTANTS, INC
4071 E. LA PALMA AVE., STE B
ANAHEIM, CA 92807


SUBJECT PROPERTY
MORENO VALLEY
Sunnymead
SUNNYMEAD BLVD
WEBSTER AVE
MYERS AVE
EUCALYPTUS AVE
ATWOOD AVE
DRACAEA AVE
COTTONWOOD AVE
BAY AVE
COPPER COVE LN
BRODIAEA AVE
CACTUS AVE
DELPHINIUM AVE
JOHN F KENNEDY DR
SAN MICHELE AVE
MARGARET AVE
GOLD STAR DR
PILARSE AVE
CASA ENCANTADOR RD
GENTIAN AVE
SANTIAGO DR
IRIS AVE
SANTA ROSA DR
EL GRECO DR
FIR AVE
AZALEA ST
ELDER AVE
WILLOW TREE AVE
FLAMING ARROW DR
RED MAHOGANY DR
KITCHING ST
RIO BRAVO RD
RIO GRANDE DR
AGAVE ST
PERRIS BLVD
MORRISON ST
NASON ST
LASSELLE ST
HEACOCK ST
INDIAN ST
GABRIEL ST
PATRICIA ST
SUN VALLEY RD
6TH ST
Governor Edmund G. Brown E Rd Calif
T3S R3W
R4W
60
4
5
6
7
8
9
13
16
17
18
19
20
21
22

Appendix 4: Historical Site Conditions

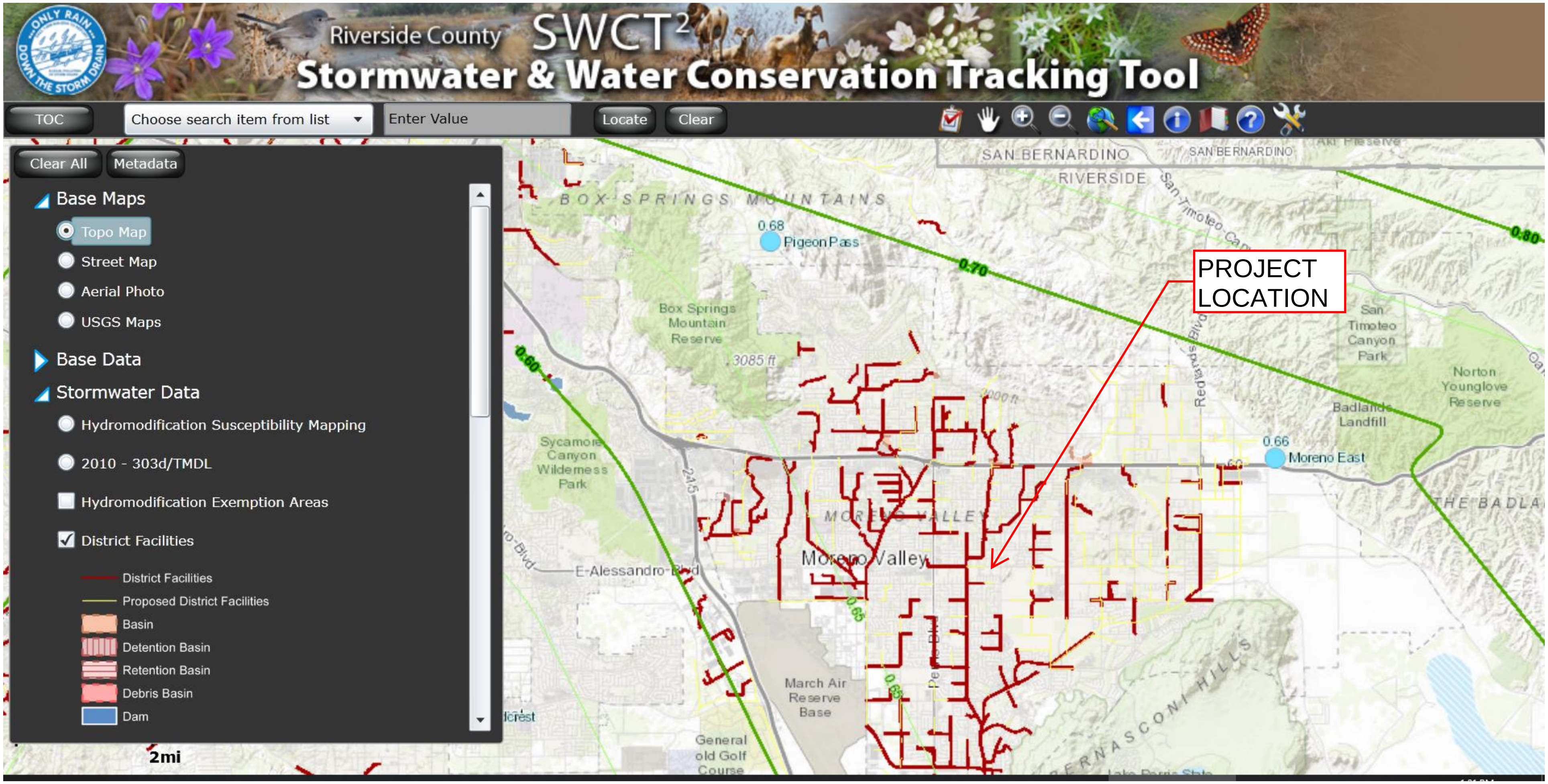
Phase I Environmental Site Assessment or Other Information on Past Site Use

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation



PROJECT LOCATION

◢ Base Maps
- ● Topo Map
- ○ Street Map
- ○ Aerial Photo
- ○ USGS Maps

▶ Base Data

◢ Stormwater Data
- ○ Hydromodification Susceptibility Mapping
- ○ 2010 - 303d/TMDL
- ☐ Hydromodification Exemption Areas
- ☑ District Facilities

━	District Facilities
━	Proposed District Facilities
🟧	Basin
▥	Detention Basin
▤	Retention Basin
🟥	Debris Basin
🟦	Dam

BMP DESIGN VOLUME CALCULATIONS

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend:	
🟦	Required Entries
▨	Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name PROACTIVE ENGINEERING CONSULTANTS

Date 6/22/2022

Designed by SAM AGUILAR

Case No

Company Project Number/Name FLAMINGO BAY - MV

BMP Identification

BMP NAME / ID Bioretention Basin No. 1

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth,
from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.68 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
A1	*47,699*	*Mixed Surface Types*	*0.85*	*0.66*	*31541.9*			
	47699	*Total*			31541.9	0.68	*1787.4*	789

Proposed Volume must be greater than the Design Capture Volume

Notes: 999 CU-FT ARE BYPASSED TO BB #2

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries
Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name PROACTIVE ENGINEERING CONSULTANTS
Date 12/6/2021
Designed by SAM AGUILAR
Case No
Company Project Number/Name FLAMINGO BAY - MV

BMP Identification

BMP NAME / ID Bioretention Basin No. 2

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth,
from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.68 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
A1	*15,785*	*Mixed Surface Types*	*0.85*	*0.66*	*10438.1*			
	15785	*Total*			10438.1	0.68	*591.5*	*711*

Notes:

CAPTURED VOLUME IN BB NO. 2 = 711 CU-FT

999 CU-FT FROM TO BB #1
DMA A2 DCV = 592 CU-FT
TOTAL VOLUME TO BB NO. 2 = 1,591 CU-FT

THUS, DCV BYPASSED TO BB NO. 3 = 880 CU-FT

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries
Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name PROACTIVE ENGINEERING CONSULTANTS
Date 6/22/2022
Designed by SAM AGUILAR
Case No
Company Project Number/Name FLAMINGO BAY - MV

BMP Identification

BMP NAME / ID Bioretention Basin No. 3

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth,
from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.68 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
A3	*5,578*	*Mixed Surface Types*	*0.85*	*0.66*	*3688.6*			
	5578	*Total*			3688.6	0.68	*209*	*711*

Notes:

CAPTURED VOLUME IN BB NO. 3 = 711 CU-FT

880 CU-FT FROM TO BB #2
DMA A3 DCV = 209 CU-FT
TOTAL VOLUME TO BB NO. 3 = 1,089 CU-FT

THUS, DCV BYPASSED TO BB NO. 4 = 378 CU-FT

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: 🟦 Required Entries
▨ Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name	PROACTIVE ENGINEERING CONSULTANTS	Date	6/22/2022
Designed by	SAM AGUILAR	Case No	
Company Project Number/Name	FLAMINGO BAY - MV		

BMP Identification

BMP NAME / ID Bioretention Basin No. 4

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth,
from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.68 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
A4	*6,435*	*Mixed Surface Types*	*0.85*	*0.66*	*4255.3*			
	6435	*Total*			4255.3	0.68	*241.1*	*628*

Notes:

CAPACITY VOLUME IN BB NO. 4 = 628 CU-FT

378 CU-FT FROM TO BB #3
DMA A4 DCV = 242 CU-FT
TOTAL VOLUME TO BB NO. 4 = 620 CU-FT

THUS, ALL RUNOFF IS CAPTURED WITHIN BB NO. 4

Santa Ana Watershed - BMP Design Volume, $\mathbf{V}_{\mathbf{BMP}}$

(Rev. 10-2011)

Legend:

▭	Required Entries
▨	Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name PROACTIVE ENGINEERING CONSULTANTS

Date 6/22/2022

Designed by SAM AGUILAR

Case No

Company Project Number/Name FLAMINGO BAY - MV

BMP Identification

BMP NAME / ID Bioretention Basin No. 5

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth,
from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.68 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
A5	*6,455*	*Mixed Surface Types*	*0.85*	*0.66*	*4268.5*			
	6455	*Total*			4268.5	0.68	*241.9*	*242*

Notes:

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: 🟦 Required Entries
▨ Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name	PROACTIVE ENGINEERING CONSULTANTS	Date	6/22/2022
Designed by	SAM AGUILAR	Case No	
Company Project Number/Name	FLAMINGO BAY - MV		

BMP Identification

BMP NAME / ID Bioretention Basin No. 6

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth,
from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.68 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
A6	*6,362*	*Mixed Surface Types*	*0.85*	*0.66*	*4207*			
	6362	*Total*			4207	0.68	*238.4*	*239*

Notes:

Santa Ana Watershed - BMP Design Volume, $\mathbf{V_{BMP}}$

(Rev. 10-2011)

Legend: 🟦 Required Entries
▨ Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name PROACTIVE ENGINEERING CONSULTANTS
Date 6/22/2022
Designed by SAM AGUILAR
Case No
Company Project Number/Name FLAMINGO BAY - MV

BMP Identification

BMP NAME / ID Bioretention Basin No. 7

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth,
from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.68 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
A7	*48,374*	*Mixed Surface Types*	*0.85*	*0.66*	*31988.2*			
	48374	*Total*			31988.2	0.68	*1812.7*	747

Notes:

1,066 CU-FT ARE BYPASSED TO BB #8

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend:	
🟦	Required Entries
▨	Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name PROACTIVE ENGINEERING CONSULTANTS
Date 6/22/2022
Designed by SAM AGUILAR
Case No
Company Project Number/Name FLAMINGO BAY - MV

BMP Identification

BMP NAME / ID Bioretention Basin No. 8

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth,
from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.68 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
A8	*2,604*	*Mixed Surface Types*	*0.85*	*0.66*	*1721.9*			
	2604	*Total*			1721.9	0.68	*97.6*	*675*

Notes:

CAPTURED VOLUME IN BB NO. 8 = 675 CU-FT

1,066 CU-FT FROM TO BB #7
DMA A8 DCV = 98 CU-FT
TOTAL VOLUME TO BB NO. 8 = 1,164 CU-FT

THUS, DCV BYPASSED TO BB NO. 9 = 489 CU-FT

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: 🟦 Required Entries
▨ Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name PROACTIVE ENGINEERING CONSULTANTS
Date 6/22/2022
Designed by SAM AGUILAR
Case No
Company Project Number/Name FLAMINGO BAY - MV

BMP Identification

BMP NAME / ID Bioretention Basin No. 9

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth,
from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.68 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
A9	*4,693*	*Mixed Surface Types*	*0.85*	*0.66*	*3103.3*			
	4693	*Total*			3103.3	0.68	*175.9*	*665*

Notes:

CAPTURED VOLUME IN BB NO. 9 = 665 CU-FT

489 CU-FT FROM TO BB #8
DMA A9 DCV = 176 CU-FT
TOTAL VOLUME TO BB NO. 9 = 665 CU-FT

THUS, DCV IS CAPTURED WITHIN BB NO. 9

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: 🟦 Required Entries
▨ Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name PROACTIVE ENGINEERING CONSULTANTS
Date 6/22/2022
Designed by SAM AGUILAR
Case No
Company Project Number/Name FLAMINGO BAY - MV

BMP Identification

BMP NAME / ID Bioretention Basin No. 10

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth,
from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.68 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
B	*13,457*	*Mixed Surface Types*	*0.85*	*0.66*	*8898.7*			
	13457		*Total*		8898.7	0.68	*504.3*	*505*

Notes:

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend:	▭	Required Entries
	▨	Calculated Cells

(Note this worksheet shall ***only*** *be used in conjunction with BMP designs from the* ***LID BMP Design Handbook****)*

Company Name	PROACTIVE ENGINEERING CONSULTANTS	Date	12/6/2021
Designed by	SAM AGUILAR	Case No	

Company Project Number/Name: FLAMINGO BAY - MV

BMP Identification

BMP NAME / ID: Bioretention Basin No. 11

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth,
from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.68 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
C	*5,917*	*Mixed Surface Types*	*0.85*	*0.66*	*3912.7*			
	5917		*Total*		3912.7	0.68	*221.7*	*726*

Notes:

CAPTURED VOLUME IN BB NO. 11 = 726 CU-FT

DMA D DCV = 504 CU-FT
TOTAL VOLUME TO BB NO. 11 = 726 CU-FT

THUS, BB NO. 11 HAS ENOUGH CAPACITY TO TREAT 726 CU-FT

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend:	
🟦	Required Entries
▨	Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name PROACTIVE ENGINEERING CONSULTANTS
Date 12/6/2021
Designed by SAM AGUILAR
Case No
Company Project Number/Name FLAMINGO BAY - MV

BMP Identification

BMP NAME / ID Bioretention Basin No. 11

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.68 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
D	*13,449*	*Mixed Surface Types*	*0.85*	*0.66*	*8893.4*			
	13449	*Total*			8893.4	0.68	*504*	*726*

Notes:

BIORETENTION BASIN SIZING CALCULATIONS

Bioretention Facility - Design Procedure	BMP ID BASIN NO 1	Legend:	Required Entries 🟦 Calculated Cells ▨

Company Name: Proactive Engineering Consultants, Inc.
Date: 12/23/2021
Designed by: Sam Aguilar
County/City Case No.:

Design Volume

Enter the area tributary to this feature A_T= 1.1 acres

Enter V_{BMP} determined from Section 2.1 of this Handbook V_{BMP}= 789 ft^3

Type of Bioretention Facility Design

● Side slopes required (parallel to parking spaces or adjacent to walkways)
○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer d_S = 2.3 ft

Top Width of Bioretention Facility, excluding curb w_T = 9.2 ft

Total Effective Depth, d_E

$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$ d_E = 1.50 ft

Minimum Surface Area, A_m

$$A_M\,(ft^2) = \frac{V_{BMP}\,(ft^3)}{d_E\,(ft)}$$

A_M = 527 ft^2

Proposed Surface Area A= 527 ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility z = 4 :1

Diameter of Underdrain 6 inches

Longitudinal Slope of Site (3% maximum) 0.5 %

6" Check Dam Spacing 0 feet

Describe Vegetation:

Notes:

Bioretention Facility - Design Procedure	BMP ID	Legend:	Required Entries	🟦
	BASIN NO 2		Calculated Cells	▨

Company Name: Proactive Engineering Consultants, Inc. Date: 6/22/2022

Designed by: Sam Aguilar County/City Case No.:

Design Volume

Enter the area tributary to this feature A_T= 0.4 acres

Enter V_{BMP} determined from Section 2.1 of this Handbook V_{BMP}= 711 ft^3

Type of Bioretention Facility Design

● Side slopes required (parallel to parking spaces or adjacent to walkways)

○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer d_S = 2.3 ft

Top Width of Bioretention Facility, excluding curb w_T = 9.2 ft

Total Effective Depth, d_E

$$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$$

d_E = 1.50 ft

Minimum Surface Area, A_m

$$A_M\ (ft^2) = \frac{V_{BMP}\ (ft^3)}{d_E\ (ft)}$$

A_M = 475 ft^2

Proposed Surface Area A= 475 ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility z = 4 :1

Diameter of Underdrain 6 inches

Longitudinal Slope of Site (3% maximum) 0.5 %

6" Check Dam Spacing 0 feet

Describe Vegetation:

Notes:

Bioretention Facility - Design Procedure	BMP ID BASIN NO 3	Legend:	Required Entries	🟦
			Calculated Cells	▨

Company Name: Proactive Engineering Consultants, Inc.
Date: 6/22/2022
Designed by: Sam Aguilar
County/City Case No.:

Design Volume

Enter the area tributary to this feature A_T= 0.1 acres

Enter V_{BMP} determined from Section 2.1 of this Handbook V_{BMP}= 711 ft^3

Type of Bioretention Facility Design

● Side slopes required (parallel to parking spaces or adjacent to walkways)

○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer d_S = 2.3 ft

Top Width of Bioretention Facility, excluding curb w_T = 9.2 ft

Total Effective Depth, d_E

$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$ d_E = 1.50 ft

Minimum Surface Area, A_m

$$A_M\ (ft^2) = \frac{V_{BMP}\ (ft^3)}{d_E\ (ft)}$$

A_M = 475 ft^2

Proposed Surface Area A= 475 ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility z = 4 :1

Diameter of Underdrain 6 inches

Longitudinal Slope of Site (3% maximum) 0.5 %

6" Check Dam Spacing 0 feet

Describe Vegetation:

Notes:

Bioretention Facility - Design Procedure	BMP ID BASIN NO 4	Legend:	Required Entries 🟦 Calculated Cells ▨

Company Name: Proactive Engineering Consultants, Inc. Date: 6/22/2022

Designed by: Sam Aguilar County/City Case No.:

Design Volume

Enter the area tributary to this feature $A_T=$ 0.1 acres

Enter V_{BMP} determined from Section 2.1 of this Handbook $V_{BMP}=$ 628 ft^3

Type of Bioretention Facility Design

● Side slopes required (parallel to parking spaces or adjacent to walkways)

○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer $d_S=$ 2.3 ft

Top Width of Bioretention Facility, excluding curb $w_T=$ 9.2 ft

Total Effective Depth, d_E

$$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$$

$d_E=$ 1.50 ft

Minimum Surface Area, A_m

$$A_M\,(ft^2) = \frac{V_{BMP}\,(ft^3)}{d_E\,(ft)}$$

$A_M=$ 419 ft^2

Proposed Surface Area $A=$ 475 ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility $z=$ 4 :1

Diameter of Underdrain 6 inches

Longitudinal Slope of Site (3% maximum) 0.5 %

6" Check Dam Spacing 0 feet

Describe Vegetation:

Notes:

Bioretention Facility - Design Procedure	BMP ID	Legend:	Required Entries	🟦
	BASIN NO 5		Calculated Cells	▨

Company Name: Proactive Engineering Consultants, Inc.
Date: 6/22/2022
Designed by: Sam Aguilar
County/City Case No.:

Design Volume

Enter the area tributary to this feature $A_T =$ 0.1 acres

Enter V_{BMP} determined from Section 2.1 of this Handbook $V_{BMP} =$ 242 ft^3

Type of Bioretention Facility Design

● Side slopes required (parallel to parking spaces or adjacent to walkways)
○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer $d_S =$ 2.3 ft

Top Width of Bioretention Facility, excluding curb $w_T =$ 9.2 ft

Total Effective Depth, d_E

$$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$$

$d_E =$ 1.50 ft

Minimum Surface Area, A_m

$$A_M\,(ft^2) = \frac{V_{BMP}\,(ft^3)}{d_E\,(ft)}$$

$A_M =$ 162 ft^2

Proposed Surface Area $A =$ 475 ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility $z =$ 4 :1

Diameter of Underdrain 6 inches

Longitudinal Slope of Site (3% maximum) 0.5 %

6" Check Dam Spacing 0 feet

Describe Vegetation:

Notes:

Bioretention Facility - Design Procedure	BMP ID	Legend:	Required Entries	🟦
	BASIN NO 6		Calculated Cells	▨

Company Name: Proactive Engineering Consultants, Inc.

Date: 6/22/2022

Designed by: Sam Aguilar

County/City Case No.:

Design Volume

Enter the area tributary to this feature A_T= 0.1 acres

Enter V_{BMP} determined from Section 2.1 of this Handbook V_{BMP}= 239 ft^3

Type of Bioretention Facility Design

● Side slopes required (parallel to parking spaces or adjacent to walkways)

○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer d_S = 2.3 ft

Top Width of Bioretention Facility, excluding curb w_T = 9.2 ft

Total Effective Depth, d_E

$$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$$

d_E = 1.50 ft

Minimum Surface Area, A_m

$$A_M\ (ft^2) = \frac{V_{BMP}\ (ft^3)}{d_E\ (ft)}$$

A_M = 160 ft^2

Proposed Surface Area A= 475 ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility z = 4 :1

Diameter of Underdrain 6 inches

Longitudinal Slope of Site (3% maximum) 0.5 %

6" Check Dam Spacing 0 feet

Describe Vegetation:

Notes:

Bioretention Facility - Design Procedure	BMP ID BASIN NO 7	Legend:	Required Entries Calculated Cells

Company Name: Proactive Engineering Consultants, Inc.

Date: 12/23/2021

Designed by: Sam Aguilar

County/City Case No.:

Design Volume

Enter the area tributary to this feature A_T= 1.1 acres

Enter V_{BMP} determined from Section 2.1 of this Handbook V_{BMP}= 747 ft^3

Type of Bioretention Facility Design

● Side slopes required (parallel to parking spaces or adjacent to walkways)

○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer d_S = 2.5 ft

Top Width of Bioretention Facility, excluding curb w_T = 9.2 ft

Total Effective Depth, d_E

$$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$$

d_E = 1.57 ft

Minimum Surface Area, A_m

$$A_M\,(ft^2) = \frac{V_{BMP}\,(ft^3)}{d_E\,(ft)}$$

A_M = 475 ft^2

Proposed Surface Area A= 475 ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility z = 4 :1

Diameter of Underdrain 6 inches

Longitudinal Slope of Site (3% maximum) 0.5 %

6" Check Dam Spacing 0 feet

Describe Vegetation:

Notes:

Bioretention Facility - Design Procedure	BMP ID BASIN NO 8	Legend:	Required Entries 🟦 Calculated Cells ▨

Company Name: Proactive Engineering Consultants, Inc.
Date: 6/22/2022
Designed by: Sam Aguilar
County/City Case No.:

Design Volume

Enter the area tributary to this feature A_T= 0.1 acres

Enter V_{BMP} determined from Section 2.1 of this Handbook V_{BMP}= 675 ft^3

Type of Bioretention Facility Design

● Side slopes required (parallel to parking spaces or adjacent to walkways)

○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer d_S = 2.0 ft

Top Width of Bioretention Facility, excluding curb w_T = 9.2 ft

Total Effective Depth, d_E

$$d_E = (0.3) \text{ x } d_S + (0.4) \text{ x } 1 - (0.7/w_T) + 0.5$$

d_E = 1.42 ft

Minimum Surface Area, A_m

$$A_M \text{ (ft}^2\text{)} = \frac{V_{BMP} \text{ (ft}^3\text{)}}{d_E \text{ (ft)}}$$

A_M = 475 ft^2

Proposed Surface Area A= 475 ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility z = 4 :1

Diameter of Underdrain 6 inches

Longitudinal Slope of Site (3% maximum) 0.5 %

6" Check Dam Spacing 0 feet

Describe Vegetation:

Notes:

Bioretention Facility - Design Procedure	BMP ID BASIN NO 9	Legend:	Required Entries ☐ Calculated Cells ▨

Company Name: Proactive Engineering Consultants, Inc.
Date: 12/23/2021
Designed by: Sam Aguilar
County/City Case No.:

Design Volume

Enter the area tributary to this feature	A_T=	0.1	acres
Enter V_{BMP} determined from Section 2.1 of this Handbook	V_{BMP}=	665	ft^3

Type of Bioretention Facility Design

● Side slopes required (parallel to parking spaces or adjacent to walkways)

○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer	d_S =	2.0	ft
Top Width of Bioretention Facility, excluding curb	w_T =	9.2	ft
Total Effective Depth, d_E $d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$	d_E =	1.42	ft
Minimum Surface Area, A_m $A_M\ (ft^2) = \dfrac{V_{BMP}\ (ft^3)}{d_E\ (ft)}$	A_M =	468	ft^2
Proposed Surface Area	A=	471	ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility	z =	4	:1
Diameter of Underdrain		6	inches
Longitudinal Slope of Site (3% maximum)		0.5	%
6" Check Dam Spacing		0	feet

Describe Vegetation:

Notes:

Bioretention Facility - Design Procedure

BMP ID: BASIN NO 10

Legend: Required Entries 🟦 Calculated Cells ▨

Company Name: Proactive Engineering Consultants, Inc.

Date: 6/22/2022

Designed by: Sam Aguilar

County/City Case No.:

Design Volume

Enter the area tributary to this feature A_T= 0.3 acres

Enter V_{BMP} determined from Section 2.1 of this Handbook V_{BMP}= 505 ft^3

Type of Bioretention Facility Design

● Side slopes required (parallel to parking spaces or adjacent to walkways)

○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer d_S = 1.5 ft

Top Width of Bioretention Facility, excluding curb w_T = 6.0 ft

Total Effective Depth, d_E

$$d_E = (0.3) \text{ x } d_S + (0.4) \text{ x } 1 - (0.7/w_T) + 0.5$$

d_E = 1.23 ft

Minimum Surface Area, A_m

$$A_M\ (ft^2) = \frac{V_{BMP}\ (ft^3)}{d_E\ (ft)}$$

A_M = 410 ft^2

Proposed Surface Area A= 468 ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility z = 4 :1

Diameter of Underdrain 6 inches

Longitudinal Slope of Site (3% maximum) 0.5 %

6" Check Dam Spacing 0 feet

Describe Vegetation:

Notes:

Bioretention Facility - Design Procedure	BMP ID BASIN NO 11	Legend:	Required Entries 🟦 Calculated Cells ▨

Company Name: Proactive Engineering Consultants, Inc.

Date: 6/22/2022

Designed by: Sam Aguilar

County/City Case No.:

Design Volume

Enter the area tributary to this feature A_T= 0.4 acres

Enter V_{BMP} determined from Section 2.1 of this Handbook V_{BMP}= 726 ft^3

Type of Bioretention Facility Design

● Side slopes required (parallel to parking spaces or adjacent to walkways)

○ No side slopes required (perpendicular to parking space or Planter Boxes)

Bioretention Facility Surface Area

Depth of Soil Filter Media Layer d_S = 1.5 ft

Top Width of Bioretention Facility, excluding curb w_T = 22.5 ft

Total Effective Depth, d_E

$$d_E = (0.3) \times d_S + (0.4) \times 1 - (0.7/w_T) + 0.5$$

d_E = 1.32 ft

Minimum Surface Area, A_m

$$A_M\ (ft^2) = \frac{V_{BMP}\ (ft^3)}{d_E\ (ft)}$$

A_M = 551 ft^2

Proposed Surface Area A= 661 ft^2

Bioretention Facility Properties

Side Slopes in Bioretention Facility z = 4 :1

Diameter of Underdrain 6 inches

Longitudinal Slope of Site (3% maximum) 0.5 %

6" Check Dam Spacing 0 feet

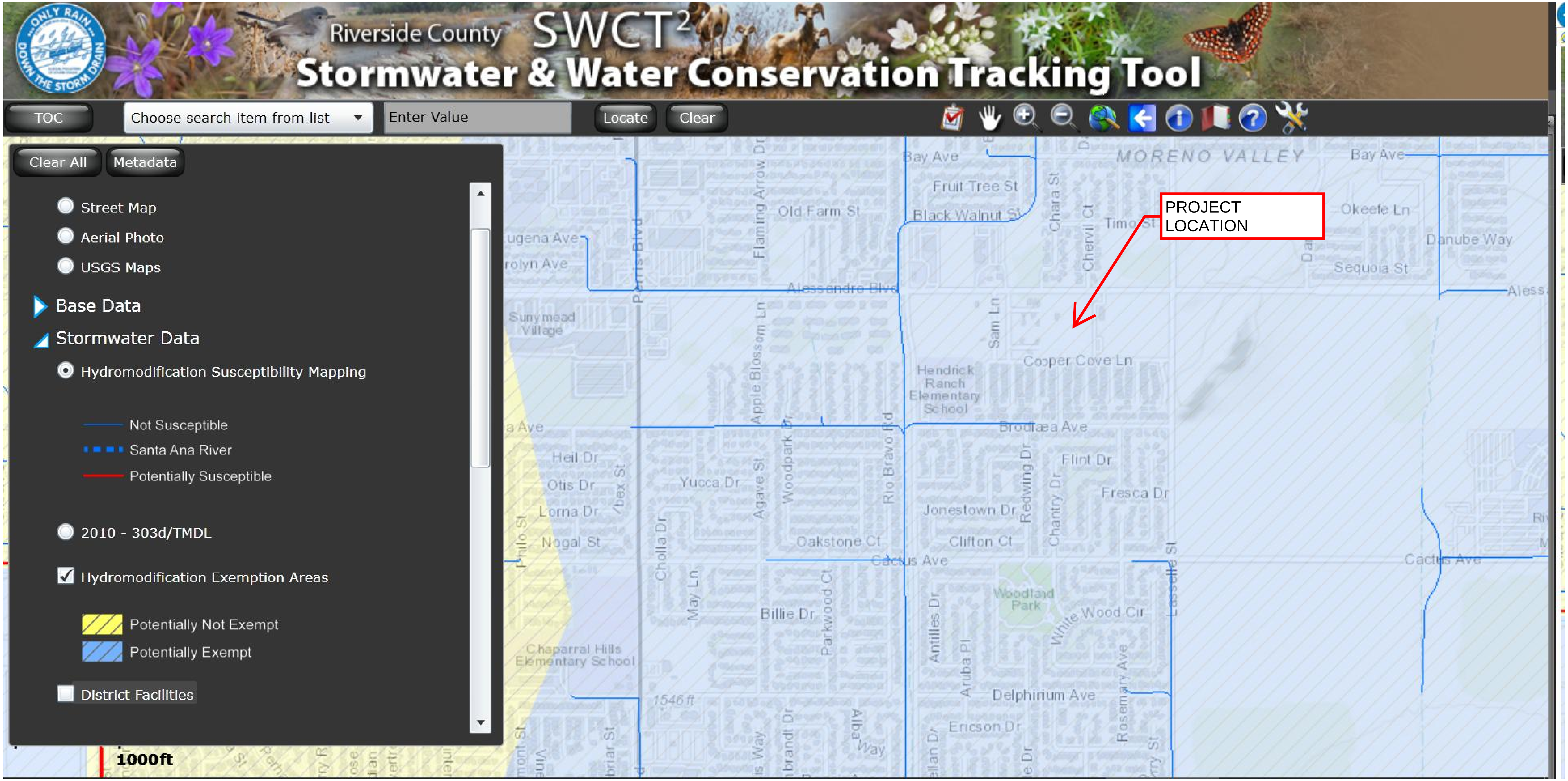
Describe Vegetation:

Notes:

Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern

DRAINAGE MAP



- ○ Street Map
- ○ Aerial Photo
- ○ USGS Maps

▶ Base Data

◢ Stormwater Data

- ● Hydromodification Susceptibility Mapping
  - — Not Susceptible
  - ▪▪▪ Santa Ana River
  - — Potentially Susceptible
- ○ 2010 - 303d/TMDL
- ☑ Hydromodification Exemption Areas
  - ▨ Potentially Not Exempt
  - ▨ Potentially Exempt
- ☐ District Facilities

PROJECT LOCATION

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

How to use this worksheet (also see instructions in Section G of the WQMP Template):

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your WQMP Exhibit.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in your WQMP. Use the format shown in Table G.1on page 23 of this WQMP Template. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	**... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE**		
1 Potential Sources of Runoff Pollutants	**2 Permanent Controls—Show on WQMP Drawings**	**3 Permanent Controls—List in WQMP Table and Narrative**	**4 Operational BMPs—Include in WQMP Table and Narrative**
☒ **A.** On-site storm drain inlets	☒ Locations of inlets.	☒ Mark all inlets with the words “Only Rain Down the Storm Drain” or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.	☒ Maintain and periodically repaint or replace inlet markings. ☒ Provide stormwater pollution prevention information to new site owners, lessees, or operators. ☐ See applicable operational BMPs in Fact Sheet SC-44, “Drainage System Maintenance,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com ☒ Include the following in lease agreements: “Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains.”
☐ **B.** Interior floor drains and elevator shaft sump pumps		☐ State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	☐ Inspect and maintain drains to prevent blockages and overflow.
☐ **C.** Interior parking garages		☐ State that parking garage floor drains will be plumbed to the sanitary sewer.	☐ Inspect and maintain drains to prevent blockages and overflow.

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	**2 Permanent Controls—Show on WQMP Drawings**	**3 Permanent Controls—List in WQMP Table and Narrative**	**4 Operational BMPs—Include in WQMP Table and Narrative**
☐ **D1.** Need for future indoor & structural pest control		☐ Note building design features that discourage entry of pests.	☐ Provide Integrated Pest Management information to owners, lessees, and operators.
☒ **D2.** Landscape/ Outdoor Pesticide Use	☐ Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained. ☒ Show self-retaining landscape areas, if any. ☐ Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.)	State that final landscape plans will accomplish all of the following. ☐ Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. ☒ Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. ☐ Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. ☒ Consider using pest-resistant plants, especially adjacent to hardscape. ☒ To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	☒ Maintain landscaping using minimum or no pesticides. ☐ See applicable operational BMPs in "What you should know for…..Landscape and Gardening" at http://rcflood.org/stormwater/Error! Hyperlink reference not valid. ☒ Provide IPM information to new owners, lessees and operators.

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	**2 Permanent Controls—Show on WQMP Drawings**	**3 Permanent Controls—List in WQMP Table and Narrative**	**4 Operational BMPs—Include in WQMP Table and Narrative**
☒ **E.** Pools, spas, ponds, decorative fountains, and other water features.	☐ Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)	If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	☐ See applicable operational BMPs in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/
☐ **F.** Food service	☐ For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment. ☐ On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	☐ Describe the location and features of the designated cleaning area. ☐ Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.	☐ See the brochure, "The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://rcflood.org/stormwater/ Provide this brochure to new site owners, lessees, and operators.
☐ **G.** Refuse areas	☐ Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas. ☐ If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area. ☐ Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	☐ State how site refuse will be handled and provide supporting detail to what is shown on plans. ☐ State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	☐ State how the following will be implemented: Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	**2 Permanent Controls—Show on WQMP Drawings**	**3 Permanent Controls—List in WQMP Table and Narrative**	**4 Operational BMPs—Include in WQMP Table and Narrative**
☐ **H.** Industrial processes.	☐ Show process area.	☐ If industrial processes are to be located on site, state: “All process activities to be performed indoors. No processes to drain to exterior or to storm drain system.”	☐ See Fact Sheet SC-10, “Non-Stormwater Discharges” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com See the brochure “Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities” at http://rcflood.org/stormwater/

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on WQMP Drawings**	**3** **Permanent Controls—List in WQMP Table and Narrative**	**4** **Operational BMPs—Include in WQMP Table and Narrative**
☐ **I.** Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)	☐ Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area. ☐ Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults. ☐ Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.	Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains. Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for: ▪ Hazardous Waste Generation ▪ Hazardous Materials Release Response and Inventory ▪ California Accidental Release (CalARP) ▪ Aboveground Storage Tank ▪ Uniform Fire Code Article 80 Section 103(b) & (c) 1991 ▪ Underground Storage Tank www.cchealth.org/groups/hazmat/	☐ See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	**… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE**		
1 Potential Sources of Runoff Pollutants	**2 Permanent Controls—Show on WQMP Drawings**	**3 Permanent Controls—List in WQMP Table and Narrative**	**4 Operational BMPs—Include in WQMP Table and Narrative**
☐ **J.** Vehicle and Equipment Cleaning	☐ Show on drawings as appropriate: **(1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses.** **(2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use).** **(3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer.** **(4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.**	☐ **If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.**	Describe operational measures to implement the following (if applicable): ☐ **Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system.** Refer to "Outdoor Cleaning Activities and Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/ ☐**Car dealerships and similar may rinse cars with water only.**

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☐ **K.** Vehicle/Equipment Repair and Maintenance	☐ Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater. ☐ Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas. ☐ Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.	☐ State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area. ☐ State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements. ☐ State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.	In the Stormwater Control Plan, note that all of the following restrictions apply to use the site: ☐ No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains. ☐ No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately. ☐ No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment. Refer to "Automotive Maintenance & Car Care Best Management Practices for Auto Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations". Brochure can be found at http://rcflood.org/stormwater/ Refer to Outdoor Cleaning Activities and Professional Mobile Service Providers for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	**… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE**		
1 Potential Sources of Runoff Pollutants	**2 Permanent Controls—Show on WQMP Drawings**	**3 Permanent Controls—List in WQMP Table and Narrative**	**4 Operational BMPs—Include in WQMP Table and Narrative**
☐ **L.** Fuel Dispensing Areas	☐ Fueling areas[6] shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable. ☐ Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area[1].] The canopy [or cover] shall not drain onto the fueling area.		☐ The property owner shall dry sweep the fueling area routinely. ☐ See the Fact Sheet SD-30 , "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

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[6] The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	**… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE**		
1 Potential Sources of Runoff Pollutants	**2 Permanent Controls—Show on WQMP Drawings**	**3 Permanent Controls—List in WQMP Table and Narrative**	**4 Operational BMPs—Include in WQMP Table and Narrative**
☐ **M.** Loading Docks	☐ Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer. ☐ Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation. ☐ Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		☐ Move loaded and unloaded items indoors as soon as possible. ☐ See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	**2 Permanent Controls—Show on WQMP Drawings**	**3 Permanent Controls—List in WQMP Table and Narrative**	**4 Operational BMPs—Include in WQMP Table and Narrative**
☐ **N.** Fire Sprinkler Test Water		☐ Provide a means to drain fire sprinkler test water to the sanitary sewer.	☐ See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at <u>www.cabmphandbooks.com</u>
O. Miscellaneous Drain or Wash Water or Other Sources ☐ Boiler drain lines ☒ Condensate drain lines ☐ Rooftop equipment ☐ Drainage sumps ☒ Roofing, gutters, and trim. ☐ Other sources		☐ Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. ☒ ☐ Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. ☐ Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment. ☐ Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. ☒ Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff. Include controls for other sources as specified by local reviewer.	

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☒ **P.** Plazas, sidewalks, and parking lots.			☒ Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

TO BE COMPLETED DURING FINAL ENGINEERING

Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

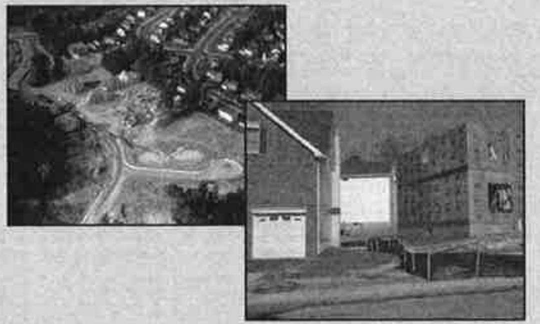
DURING CONSTRUCTION

Stormwater and the Construction Industry

Protect Natural Features

- Minimize clearing.
- Minimize the amount of exposed soil.
- Identify and protect areas where existing vegetation, such as trees, will not be disturbed by construction activity.
- Protect streams, stream buffers, wild woodlands, wetlands, or other sensitive areas from any disturbance or construction activity by fencing or otherwise clearly marking these areas.

Construction Phasing

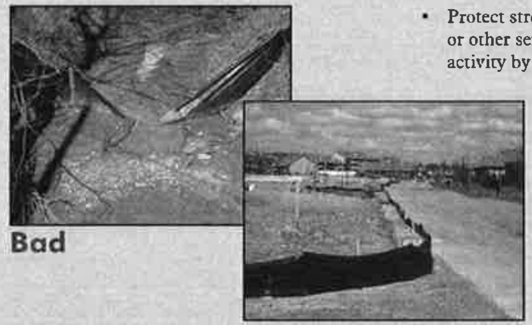


- Sequence construction activities so that the soil is not exposed for long periods of time.
- Schedule or limit grading to small areas.
- Install key sediment control practices before site grading begins.
- Schedule site stabilization activities, such as landscaping, to be completed immediately after the land has been graded to its final contour.

Vegetative Buffers

- Protect and install vegetative buffers along waterbodies to slow and filter stormwater runoff.
- Maintain buffers by mowing or replanting periodically to ensure their effectiveness.

Silt Fencing



- Inspect and maintain silt fences after each rainstorm.
- Make sure the bottom of the silt fence is buried in the ground.
- Securely attach the material to the stakes.
- Don't place silt fences in the middle of a waterway or use them as a check dam.
- Make sure stormwater is not flowing around the silt fence.

Site Stabilization

- Vegetate, mulch, or otherwise stabilize all exposed areas as soon as land alterations have been completed.

Maintain your BMPs!

IN RIVERSIDE COUNTY ....Call 1-800-506-2555
TO REPORT ILLEGAL STORMDRAIN DISPOSAL

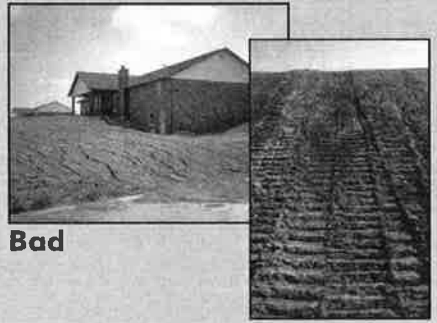
E-mail: Flood.fcnpdes@co.riverside.ca.us
Visit our website: www.floodcontrol.co.riverside.ca.us

Brought to you by the Storm Water/Clean Water Pollution Protection Program.....
REMEMBER, ONLY RAIN IN THE STORMDRAIN!

Construction Entrances

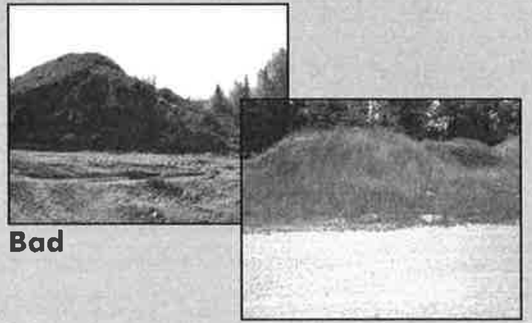
- Remove mud and dirt from the tires of construction vehicles before they enter a paved roadway.
- Properly size entrance BMPs for all anticipated vehicles.
- Make sure that the construction entrance does not become buried in soil.

Slopes



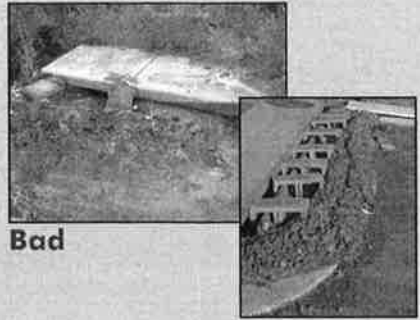
- Rough grade or terrace slopes.
- Break up long slopes with sediment barriers, or under drain, or divert stormwater away from slopes.

Dirt Stockpiles



- Cover or seed all dirt stockpiles.

Storm Drain Inlet Protection



- Use rock or other appropriate material to cover the storm drain inlet to filter out trash and debris.
- Make sure the rock size is appropriate (usually 1 to 2 inches in diameter).
- If you use inlet filters, maintain them regularly.

www.epa.gov/npdes/menuofbmps

Stormwater and the **Construction Industry**

Planning and Implementing Erosion and Sediment Control Practices

The construction industry is a critical participant in the nation's efforts to protect streams, rivers, lakes, wetlands, and oceans. Through the use of best management practices (BMPs), construction site operators are the key defense against erosion and sedimentation.

As stormwater flows over a construction site, it picks up pollutants like sediment, debris, and chemicals. High volumes of stormwater can also cause stream bank erosion, and destroy downstream aquatic habitat. Preventing soil erosion and sedimentation is an important responsibility at all construction sites.

In addition to the environmental impact, uncontrolled erosion can have a significant financial impact on a construction project. It costs money and time to repair gullies, replace vegetation, clean sediment-clogged storm drains, replace poorly installed BMPs, and mitigate damage to other people's property or to natural resources.

Best Management Practice (BMP)

A BMP is a method used to prevent or control stormwater runoff and the discharge of pollutants, including sediment, into local waterbodies. Silt fences, inlet protection, and site-stabilization techniques are typical BMPs on a construction site.

Operator

An operator is someone who has control over and the ability to modify construction plans and specifications (e.g. owner, general contractor)

or

Someone who has control over the day-to-day operations at a site (e.g., owner, general contractor) that are necessary to ensure compliance with the permit requirements. It is the responsibility of a construction site owner or operator to contain stormwater runoff and prevent erosion during all stages of a project.

There may be more than one person at a site who meets these definitions and must apply for permit coverage. (States may have different definitions of the term "operator.")

So what's being done about polluted runoff?

The Clean Water Act includes the National Pollutant Discharge Elimination System (NPDES) permitting program. As of January 2003, 44 states and territories are authorized to issue NPDES stormwater permits. If your state isn't authorized to operate the NPDES stormwater permit program, EPA issues the permits. Permits vary from state to state, so contact your state or EPA for specific information. Your permitting authority has specific information on your state's NPDES stormwater permit program. In general, construction permits require construction operators to do all of the following:

- Develop and implement a stormwater pollution prevention plan
- Submit a permit application or notice of intent (NOI)
- Comply with the permit, including maintaining BMPs and inspecting the site

Under the NPDES program, construction activities that disturb 1 or more acres are required to obtain stormwater permit coverage. States have different names for the plans that construction operators must develop, such as

- Stormwater pollution prevention plan
- Erosion and sediment control plan
- Erosion control and stormwater management plan
- Stormwater management plan
- Water pollution control plan
- Pollution prevention plan

This document uses the term "*Plan*."

I think I need a permit... Where do I start?

All land-disturbing activities, including clearing, grading, and excavation, that disturb 1 **or more acres** are required to be covered under a state or EPA-issued NPDES construction stormwater permit **prior to land disturbance**. Permit requirements vary by state. Begin by researching the specific requirements in your state. You might already be subject to local erosion and sediment control requirements, but that doesn't release you from the requirements of the NPDES program at the state or EPA level. Although you must comply with both sets of requirements, in most cases they have been designed to be complementary. Contact your permitting authority to find out exactly what you need to do. A good place to start your search is the Construction Industry Compliance Assistance web site at http://www.envcap.org/cica.

The NPDES permit requirements include small construction activities that are part of a larger common plan of development or sale, such as a single lot within a larger subdivision. For developments with multiple operators, all operators must have permit coverage for their individual parts of the larger development, no matter how large or small each operation happens to be. When there are multiple operators at one site, they're encouraged to develop and share one comprehensive Plan and obtain permit coverage as co-permitees.

The **owner or operator** of the construction site is responsible for complying with the requirements of the permit. Responsibilities include developing a Plan, obtaining permit coverage, implementing BMPs, and stabilizing the site at the end of the construction activity.

Construction sites that discharge unpermitted stormwater are in violation of the Clean Water Act and may be subject to fines of up to $27,500 a day per violation.

Determine your eligibility

All construction activity that disturbs 1 or more acres of land, as well as activity that disturbs less than 1 acre but is part of a larger common plan of development, must obtain permit coverage.

Read and understand your stormwater permit requirements

Get a copy of the permit for construction activities and a permit application (or notice of intent form) from your state or EPA permitting authority.

Develop a Plan

Most states do not require you to submit your Plan. However, you do need to keep the Plan on site. If that's impractical, you may post a notice that tells where the Plan is kept so it can be accessed by the permitting authority and other interested parties.

You'll need to post a copy of your completed application on site. Put it in a place where the public can see it so they'll know your site is covered by an NPDES permit!

Apply for permit coverage

Once you understand your permit requirements and have developed a Plan, you can submit a stormwater permit application (or notice of intent) to your permitting authority. This must be done before beginning any land disturbance on the site. Some states require a few days of lead time, so check with your permitting authority. Once you've submitted the application, you must satisfy the conditions of the permit.

Implement the Plan

Be prepared to implement the BMPs in your Plan before construction begins. Ensure that BMPs are properly maintained, and upgrade and repair them as necessary.

Developing and Implementing a Plan

You must have a Plan that includes erosion and sediment control and pollution prevention BMPs. These Plans require

- Advance planning and training to ensure proper implementation of the BMPs
- Erosion and sediment control BMPs in place until the area is permanently stabilized
- Pollution prevention BMPs to keep the construction site "clean"
- Regular inspection of the construction site to ensure proper installation and maintenance of BMPs

Fortunately, the practices and measures that must be included in your Plan are already part of the standard operating procedures at many construction sites.

Six steps are associated with developing and implementing a stormwater Plan. There's a wealth of information available on developing pollution prevention plans. Please contact your permitting authority for help in finding additional guidance materials, or visit www.epa.gov/npdes/stormwater. A sample construction plan is available at www.epa.gov/npdes/pubs/sample_swppp.pdf.

1. Site Evaluation and Design Development

- ■ **Collect site information**
- ■ **Develop site plan design**
- ■ **Prepare pollution prevention site map**

The first step in preparing a Plan is to define the characteristics of the site and the type of construction that will occur. This involves collecting site information, identifying natural features that should be protected, developing a site plan design, describing the nature of the construction activity, and preparing a pollution prevention site map.

2. Assessment

- ■ **Measure the site area**
- ■ **Determine the drainage areas**
- ■ **Calculate the runoff coefficient**

The next step is assessing the impact the project will have on stormwater runoff. Determine the drainage areas and estimate the runoff amounts and velocities. For more information on calculating the runoff coefficient, go to www.epa.gov/npdes/pubs/chap02_conguide.pdf, page 11.

3. Control Selection and Plan Design

- ■ **Review and incorporate state or local requirements**
- ■ **Select erosion and sediment controls**
- ■ **Select other controls**
- ■ **Select stormwater management controls**
- ■ **Indicate the location of controls on the site map**
- ■ **Prepare an inspection and maintenance plan**
- ■ **Coordinate controls with construction activity**
- ■ **Prepare sequence of major activities**

In the third step you'll actually document your procedures to prevent and control polluted stormwater runoff. You must delineate areas that will not be disturbed, including critical natural areas like streamside areas, floodplains, and trees. You must also identify the measures (or BMPs) you'll use to protect these areas.

Phasing your project to minimize the amount of exposed soil at any given time is a highly effective way to prevent erosion. Erosion control measures designed to prevent soil from being mobilized include diversions to route stormwater away from exposed soils and stabilization with vegetation, mulch, and geotextiles. Sedimentation control measures designed to remove sediment from stormwater or prevent it from leaving the site include silt fences, sediment traps, and diversions.

You'll need to select erosion and sediment controls—including stabilization measures for protecting disturbed areas and structural controls for diverting runoff and removing sediment—that are appropriate for your particular site. The appropriateness of the control measures will depend on several factors, but will be influenced most directly by the site characteristics. Some stabilization measures you might consider are temporary seeding, permanent seeding, and mulching. Structural control measures include earth dikes, silt fences, and sediment traps. No single BMP will meet all of the erosion and sedimentation control needs of a construction site. A combination of BMPs is necessary. For more information on the types of BMPs appropriate for your construction site, see the BMP fact sheet series available at www.epa.gov/npdes/menuofbmps.

Soil erosion control tips...

- Design the site to infiltrate stormwater into the ground and to keep it out of storm drains. Eliminate or minimize the use of stormwater collection and conveyance systems while maximizing the use of stormwater infiltration and bioretention techniques.
- Minimize the amount of exposed soil on site.
    - To the extent possible, plan the project in stages to minimize the amount of area that is bare and subject to erosion. The less soil exposed, the easier and cheaper it will be to control erosion.
    - Vegetate disturbed areas with permanent or temporary seeding immediately upon reaching final grade.
    - Vegetate or cover stockpiles that will not be used immediately.
- Reduce the velocity of stormwater both onto and away from the project area.
    - Interceptors, diversions, vegetated buffers, and check dams are a few of the BMPs that can be used to slow down stormwater as it travels across and away from the project site.
    - Diversion measures can also be used to direct flow away from exposed areas toward stable portions of the site.
    - Silt fences and other types of perimeter filters should never be used to reduce the velocity of runoff.
- Protect defined channels immediately with measures adequate to handle the storm flows expected.
    - Sod, geotextile, natural fiber, riprap, or other stabilization measures should be used to allow the channels to carry water without causing erosion. Use softer measures like geotextile or vegetation where possible to prevent downstream impacts.
- Keep sediment on site.
    - Place aggregate or stone at construction site vehicle exits to accommodate at least two tire revolutions of large construction vehicles. Much of the dirt on the tires will fall off before the vehicle gets to the street.
    - Regular street sweeping at the construction entrance will prevent dirt from entering storm drains. Do not hose paved areas.
    - Sediment traps and basins are temporary structures and should be used in conjunction with other measures to reduce the amount of erosion.
- Maintaining all BMPs is critical to ensure their effectiveness during the life of the project.
    - Regularly remove collected sediment from silt fences, berms, traps, and other BMPs.
    - Ensure that geotextiles and mulch remain in place until vegetation is well established.
    - Maintain fences that protect sensitive areas, silt fences, diversion structures, and other BMPs.

Other BMPs and Activities to Control Polluted Runoff

You'll need to select other controls to address potential pollutant sources on your site. Construction materials, debris, trash, fuel, paint, and stockpiles become pollution sources when it rains. Basic pollution prevention practices can significantly reduce the amount of pollution leaving construction sites. The following are some simple practices that should be included in the Plan and implemented on site:

- Keep potential sources of pollution out of the rain as practicable (e.g., inside a building, covered with plastic or tarps, or sealed tightly in a leak-proof container).
- Clearly identify a protected, lined area for concrete truck washouts. This area should be located away from streams, storm drain inlets, or ditches and should be cleaned out periodically.
- Park, refuel, and maintain vehicles and equipment in one area of the site to minimize the area exposed to possible spills and fuel storage. This area should be well away from streams, storm drain inlets, or ditches. Keep spill kits close by and clean up any spills or leaks immediately, including spills on pavement or earthen surfaces.
- Practice good housekeeping. Keep the construction site free of litter, construction debris, and leaking containers. Keep all waste in one area to minimize cleaning.
- Never hose down paved surfaces to clean dust, debris, or trash. This water could wash directly into storm drains or streams. Sweep up materials and dispose of them in the trash. Never bury trash or debris!
- Dispose of hazardous materials properly.

4. Certification and Notification

- ■ **Certify the Plan**
- ■ **Submit permit application or notice of intent**

Once the Plan has been developed, an authorized representative must sign it. Now is the time to submit the permit application or notice of intent. Your permit might require that the Plan be kept on site, so be sure to keep it available for the staff implementing the Plan.

> ***Erosion and sedimentation control practices are only as good as their installation and maintenance.***

5. Implementing and Maintaining a Plan

- ■ **Implement controls**
- ■ **Inspect and maintain controls**
- ■ **Update/change the Plan**
- ■ **Report releases of hazardous materials**

A Plan describes the practices and activities you'll use to prevent stormwater contamination and meet the NPDES permit requirements. Make sure that the Plan is implemented and that the Plan is updated as necessary to reflect changes on the site.

Erosion and sedimentation control practices are only as good as their installation and maintenance. Train the contractors that will install the BMPs and inspect immediately to ensure that the BMPs have been installed correctly.

Regularly inspect the BMPs (especially before and after rain events) and perform any necessary repairs or maintenance immediately. Many BMPs are designed to handle a limited amount of sediment. If not maintained, they'll become ineffective and a source of sediment pollution.

It's also important to keep records of BMP installation, implementation, and maintenance. Keep track of major grading activities that occur on the site, when construction activities cease (temporarily or permanently), and when a site is temporarily or permanently stabilized.

If construction plans change at any time, or if more appropriate BMP's are chosen for the site, update the Plan accordingly.

6. Completing the Project: Final Stabilization and Termination of the Permit

- ■ **Final stabilization**
- ■ **Notice of Termination**
- ■ **Record retention**

Many states and EPA require a Notice of Termination (NOT) or other notification signifying that the construction activity is completed. An NOT is required when

- Final stabilization has been achieved on all portions of the site for which the permittee is responsible.
- Another operator has assumed control over all areas of the site that have not been finally stabilized. That operator would need to submit a new permit application to the permitting authority.
- For residential construction only, temporary stabilization of a lot has been completed prior to transference of ownership to the homeowner, with the homeowner being made aware of the need to perform final stabilization.

Permittees must keep a copy of their permit application and their Plan for at least 3 years following final stabilization. This period may be longer depending on state and local requirements.

Preconstruction Checklist

- A site description, including
    - Nature of the activity
    - Intended sequence of major construction activities
    - Total area of the site
    - Existing soil type and rainfall runoff data
    - A site map with:
        - Drainage patterns
        - Approximate slopes after major grading
        - Area of soil disturbance
        - Outline of areas which will not be disturbed
        - Location of major structural and nonstructural soil erosion controls
        - Areas where stabilization practices are expected to occur
        - Surface waters
        - Stormwater discharge locations
    - Name of the receiving water(s)
- A description of controls:
    - Erosion and sediment controls, including
        - Stabilization practices for all areas disturbed by construction
        - Structural practices for all drainage/discharge locations
    - Stormwater management controls, including
        - Measures used to control pollutants occurring in stormwater discharges after construction activities are complete
        - Velocity dissipation devices to provide nonerosive flow conditions from the discharge point along the length of any outfall channel
    - Other controls, including
        - Waste disposal practices that prevent discharge of solid materials
        - Measures to minimize offset tracking of sediments by construction vehicles
        - Measures to ensure compliance with state or local waste disposal, sanitary sewer, or septic system regulations
    - Description of the timing during the construction when measures will be implemented
- State or local requirements incorporated into the Plan
- Inspection and maintenance procedures for control measures identified in the Plan
- Contractor certification and Plan certification

Implementation Checklist

- Maintain records of construction activities, including
    - Dates when major grading activities occur
    - Dates when construction activities temporarily cease on the site or a portion of the site
    - Dates when construction activities permanently cease on the site or a portion of the site
    - Dates when stabilization measures are completed on the site
- Prepare inspection reports summarizing
    - Name of person conducting BMP inspections
    - Qualifications of person conducting BMP inspections
    - BMPs/areas inspected
    - Observed conditions
    - Necessary changes to the Plan
- Report releases of reportable quantities of oil or hazardous materials
    - Notify the National Response Center at 800-424-8802 immediately
    - Report releases to your permitting authority immediately, or as specified in your permit. You must also provide a written report within 14 days.
    - Modify the Plan to include
        - The date of release
        - Circumstances leading to the release
        - Steps taken to prevent reoccurrence of the release
- Modify Plan as necessary
    - Incorporate requests of the permitting authority to bring the Plan into compliance
    - Address changes in design, construction operation, or maintenance that affect the potential for discharge of pollutants

An ounce of prevention is worth a pound of cure! It's far more efficient and cost-effective to prevent pollution than it is to try to correct problems later. Installing and maintaining simple BMPs and pollution prevention techniques on site can greatly reduce the potential for stormwater pollution and can also save you money!

Visit www.epa.gov/npdes/stormwater for more information.

StormWater
CleanWater
PROTECTION PROGRAM

Resources

State Water Resources Control Board
Division of Water Quality
1001 I Street
Sacramento CA 95814
(916) 341-5455
www.swrcb.ca.gov/stormwtr/

Colorado River Basin Regional Water
Quality Control Board - Region 7
73-720 Fred Waring Drive, Suite 100
Palm Desert, CA 92260
(760) 346-7491
www.swrcb.ca.gov/~rwqcb7/

Santa Ana Regional Water
Quality Control Board - Region 8
3737 Main Street, Suite 500
Riverside, CA 92501-3348
(909) 782-4130
www.swrcb.ca.gov/~rwqcb8/

San Diego Regional Water
Quality Control Board - Region 9
9771 Clairemont Mesa Blvd., Suite A
San Diego, CA 92124
(858) 467-2952
www.swrcb.ca.gov/~rwqcb9/

To report a hazardous materials spill, call:

Riverside County Hazardous Materials
Emergency Response Team
(909) 358-5055 8:00 a.m. – 5:00 p.m.
(909) 358-5245 after 5:00 p.m.

In an emergency call: 911

For recycling and hazardous waste disposal, call:

(909) 358-5055

To report an illegal dumping or a clogged storm drain, call:

1-800-506-2555

To order additional brochures or to obtain information on other pollution prevention activities, please call (909) 955-1200 or visit the StormWater/CleanWater Protection Program website at:
www.co.riverside.ca.us/depts/flood/waterquality npdes.asp

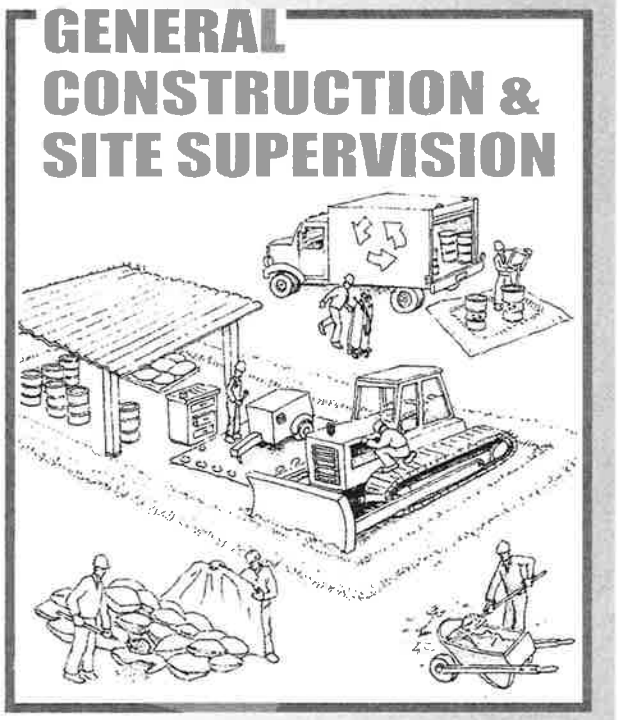
StormWater CleanWater
PROTECTION PROGRAM

The StormWater/CleanWater Protection Program gratefully acknowledges the Santa Clara Valley Nonpoint Pollution Control Program, Alameda Countywide CleanWater Program and the City of Los Angeles Stormwater Management Division for information provided in this brochure.

StormWater Pollution

What you should know for...

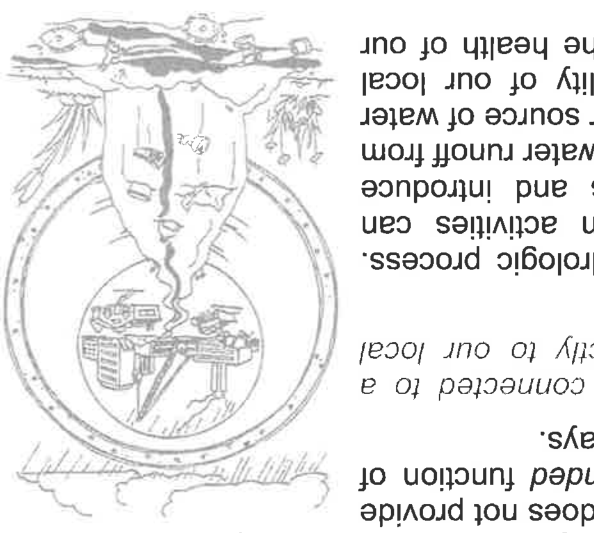
GENERAL CONSTRUCTION & SITE SUPERVISION



Best Management Practices (BMPs) for:

- Developers
- General Contractors
- Home Builders
- Construction Inspectors
- Anyone in the construction business

StormWater Pollution . . . What You Should Know

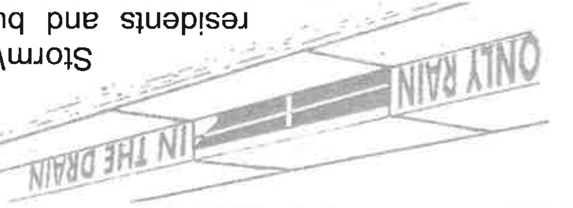


Riverside County has two drainage systems - sewers and storm drains. The storm drain system was designed to reduce flooding by carrying excess rainwater away from streets and developed areas. Since the storm drain system does not provide for water treatment, it also serves the *unintended* function of transporting pollutants directly to our local waterways.

Unlike sanitary sewers, storm drains are not connected to a wastewater treatment plant – they flow directly to our local streams, rivers and lakes.

Stormwater runoff is a part of the natural hydrologic process. However, land development and construction activities can significantly alter natural drainage processes and introduce pollutants into stormwater runoff. Polluted stormwater runoff from construction sites has been identified as a major source of water pollution in California. It jeopardizes the quality of our local waterways and can pose a serious threat to the health of our aquatic ecosystems.

The Cities and County of Riverside StormWater/CleanWater Protection Program



Because preventing pollution is much easier and less costly than cleaning up "after the fact," the Cities and County of Riverside StormWater/CleanWater Protection Program informs residents and businesses on pollution prevention activities. This pamphlet describes various Best Management Practices (BMPs) that construction site operators can use to prevent stormwater pollution.

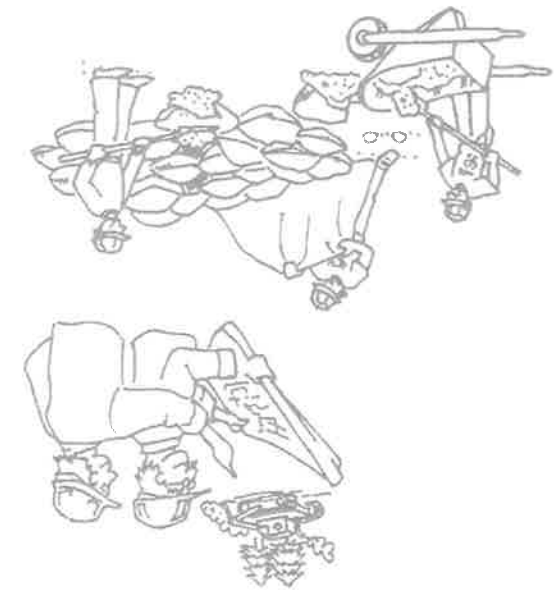
In accordance with applicable federal and state law, the Cities and County of Riverside have adopted ordinances for stormwater management and discharge control that prohibit the discharge of pollutants into the storm drain system or local surface water. This includes discharges from construction sites containing sediment, concrete, mortar, paint, solvents, lubricants, vehicle fluids, fuel, pesticides, and construction debris.

PLEASE NOTE: The Federal, State and local regulations strictly prohibit the discharge of sediment and pollutants into the streets, the storm drain system or waterways. As an owner, operator or supervisor of a construction site, you may be held financially responsible for any environmental damage caused by your subcontractors or employees.

STORMWATER POLLUTION FROM CONSTRUCTION ACTIVITIES

The two most common sources of stormwater pollution problems associated with construction activities are ***erosion*** and ***sedimentation***. Failure to maintain adequate erosion and sediment controls at construction sites often results in sediment discharges into the storm drain system, creating multiple problems once it enters local waterways.

Construction vehicles and heavy equipment can also track significant amounts of mud and sediment onto adjacent streets. Additionally, wind may transport construction materials and wastes into streets storm drains, or directly into our local waterways.



What Should You Do?
Advance Planning to Prevent Pollution

- ☐ Remove existing vegetation only as needed.
- ☐ Schedule excavation, grading, and paving operations for dry weather periods, if possible.
- ☐ Designate a specific area of the construction site, well away from storm drain inlets or watercourses, for material storage and equipment maintenance.
- ☐ Develop and implement an effective combination of erosion and sediment controls for the construction site.
- ☐ Practice source reduction by ordering only the amount of materials that are needed to finish the project.
- ☐ Educate your employees and subcontractors about stormwater management requirements and their pollution prevention responsibilities.
- ☐ Control the amount of surface runoff at the construction site by impeding internally generated flows and using berms or drainage ditches to direct incoming offsite flows to go around the site. ***Note:** Consult local drainage policies for more information.*

BEST MANAGEMENT PRACTICES

The following Best Management Practices (BMPs) can significantly reduce pollutant discharges from your construction site. Compliance with stormwater regulations can be as simple as minimizing stormwater contact with potential pollutants by providing covers and secondary containment for construction materials, designating areas away from storm drain systems for storing equipment and materials and implementing good housekeeping practices at the construction site.

- ☐ Protect all storm drain inlets and streams located near the construction site to prevent sediment-laden water from entering the storm drain system.
- ☐ Limit access to and from the site. Stabilize construction entrances/exits to minimize the track out of dirt and mud onto adjacent streets. Conduct frequent street sweeping.
- ☐ Protect stockpiles and construction materials from winds and rain by storing them under a roof, secured impermeable tarp or plastic sheeting.
- ☐ Avoid storing or stockpiling materials near storm drain inlets, gullies or streams.
- ☐ Phase grading operations to limit disturbed areas and duration of exposure.
- ☐ Perform major maintenance and repairs of vehicles and equipment offsite.
- ☐ Wash out concrete mixers only in designated washout areas at the construction site.
- ☐ Set-up and operate small concrete mixers on tarps or heavy plastic drop cloths.
- ☐ Keep construction sites clean by removing trash, debris, wastes, etc. on a regular basis.
- ☐ Clean-up spills immediately using dry clean-up methods (e.g., absorbent materials such as cat litter, sand or rags for liquid spills; sweeping for dry spills such as cement, mortar or fertilizer) and by removing the contaminated soil from spills on dirt areas. .
- ☐ Prevent erosion by implementing any or a combination of soil stabilization practices such as mulching, surface roughening, permanent or temporary seeding.
- ☐ Maintain all vehicles and equipment in good working condition. Inspect frequently for leaks, and repair promptly.
- ☐ Practice proper waste disposal. Many construction materials and wastes, including solvents, water-based paint, vehicle fluids, broken asphalt and concrete, wood, and cleared vegetation can be recycled. Materials that cannot be recycled must be taken to an appropriate landfill or disposed of as hazardous waste.
- ☐ Cover open dumpsters with secured tarps or plastic sheeting. Never clean out a dumpster by washing it down on the construction site.
- ☐ Arrange for an adequate debris disposal schedule to insure that dumpsters do not overflow.

GENERAL CONSTRUCTION ACTIVITIES STORMWATER PERMIT

(Construction Activities General Permit)

The State Water Resources Control Board (SWRCB) adopted a new Construction Activities General Permit (WQ Order No. 99-08DWQ) on August 19, 1999, superseding the now expired SWRCB statewide General Permit (WQ Order No. 92-08DWQ). This permit is administered and enforced by the SWRCB and the local Regional Water Quality Control Boards (RWQCB). The updated Construction Activities General Permit establishes a number of new stormwater management requirements for construction site operator.

NOTE: Some construction activies stormwater permits are issued on a regional basis. Consult your local RWQCB to find out if your project requires coverage under any of these permits.

Frequently Asked Questions:

Does my construction site require coverage under the Construction Activities General Permit?

Yes, if construction activity results in the disturbance of five or more acres of total land area or is part of a common plan of development that results in the disturbance of five or more acres.

How do I obtain coverage under the Construction Activities General Permit?

Obtain the permit package and submit the completed Notice of Intent (NOI) form to the SWRCB prior to grading or disturbing soil at the construction site. For ongoing construction activity involving a change of ownership, the new owner must submit a new NOI within 30 days of the date of change of ownership. The completed NOI along with the required fee should be mailed to the SWRCB.

What must I do to comply with the requirements of the Construction Activities General Permit?

- ● Implement BMPs for non-stormwater discharges year-round.
- ● Prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) prior to commencing construction activities.
- ● Keep a copy of the SWPPP at the construction site for the entire duration of the project.
- ● Calculate the anticipated stormwater run-off.
- ● Implement an effective combination of erosion and sediment control on all soil disturbed areas.
- ● Conduct site inspections prior to anticipated storm events, every 24-hours during extended storm events, and after actual storm event.
- ● Perform repair and maintenance of BMPs as soon as possible after storm events depending upon worker safety.
- ● Update the SWPPP as needed, to manage pollutants or reflect changes in site conditions.
- ● Include description of post construction BMPs at the construction site, including parties responsible for long-term maintenance.

NOTE: Please refer to the Construction Activities General Permit for detailed information. You may contact the SWRCB, your local RWQCB, or visit the SWRCB website at www.swrcb.ca.gov/stormwtr/ to obtain a State Construction Activities Stormwater General Permit packet.

How long is this Construction Activities General Permit in effect?

The Permit coverage stays in effect untilyou submit a Notice of Termination (NOT) to the SWRCB. For the purpose of submitting a NOT, all soil disturbing activities have to be completed and one of the three following criteria has to be met:

1. Change of ownership;
2. A uniform vegetative cover with 70 percent coverage has been established; or,
3. Equivalent stabilization measures such as the use of reinforced channel liners, soil cement, fiber matrices, geotextiles, etc., have been employed.

POST CONSTRUCTION

After the Storm

A Citizen's Guide to Understanding Stormwater

United States Environmental Protection Agency

EPA 833-B-03-002

January 2003

For more information contact:

or visit
www.epa.gov/npdes/stormwater
www.epa.gov/nps

What is stormwater runoff?

Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

Why is stormwater runoff a problem?

Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

The effects of pollution

Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.

Stormwater Pollution Solutions

Residential

Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.

Lawn care

Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.

- Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- Cover piles of dirt or mulch being used in landscaping projects.

Septic systems

Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.

- Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- Don't dispose of household hazardous waste in sinks or toilets.

Auto care

Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.

- Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

Pet waste

Pet waste can be a major source of bacteria and excess nutrients in local waters.

- When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.

Residential landscaping

Permeable Pavement—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.

Rain Barrels—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.

Rain Gardens and Grassy Swales—Specially designed areas planted with native plants can provide natural places for rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.

Vegetated Filter Strips—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.

Commercial

Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- Cover grease storage and dumpsters and keep them clean to avoid leaks.
- Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- Divert stormwater away from disturbed or exposed areas of the construction site.
- Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.

Construction

Agriculture

Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.

- Keep livestock away from streambanks and provide them a water source away from waterbodies.
- Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- Vegetate riparian areas along waterways.
- Rotate animal grazing to prevent soil erosion in fields.
- Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.

Forestry

Improperly managed logging operations can result in erosion and sedimentation.

- Conduct preharvest planning to prevent erosion and lower costs.
- Use logging methods and equipment that minimize soil disturbance.
- Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- Construct stream crossings so that they minimize erosion and physical changes to streams.
- Expedite revegetation of cleared areas.

Automotive Facilities

Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- Clean up spills immediately and properly dispose of cleanup materials.
- Provide cover over fueling stations and design or retrofit facilities for spill containment.
- Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- Install and maintain oil/water separators.

Helpful telephone numbers and links:

Riverside County Stormwater Protection Partners

Flood Control District	(951) 955-1200
County of Riverside	(951) 955-1000
City of Banning	(951) 922-3105
City of Beaumont	(951) 769-8520
City of Calimesa	(909) 795-9801
City of Canyon Lake	(951) 244-2955
Cathedral City	(760) 770-0327
City of Coachella	(760) 398-4978
City of Corona	(951) 736-2447
City of Desert Hot Springs	(760) 329-6411
City of Eastvale	(951) 361-0900
City of Hemet	(951) 765-2300
City of Indian Wells	(760) 346-2489
City of Indio	(760) 391-4000
City of Lake Elsinore	(951) 674-3124
City of La Quinta	(760) 777-7000
City of Menifee	(951) 672-6777
City of Moreno Valley	(951) 413-3000
City of Murrieta	(951) 304-2489
City of Norco	(951) 270-5607
City of Palm Desert	(760) 346-0611
City of Palm Springs	(760) 323-8299
City of Perris	(951) 943-6100
City of Rancho Mirage	(760) 324-4511
City of Riverside	(951) 361-0900
City of San Jacinto	(951) 654-7337
City of Temecula	(951) 694-6444
City of Wildomar	(951) 677-7751

REPORT ILLEGAL STORM DRAIN DISPOSAL
1-800-506-2555 or e-mail us at
fcnpdes@rcflood.org

- Riverside County Flood Control and Water Conservation District
  www.rcflood.org

Online resources include:

- California Storm Water Quality Association
  www.casqa.org
- State Water Resources Control Board
  www.waterboards.ca.gov
- Power Washers of North America
  www.thepwna.org

Stormwater Pollution

What you should know for...

Outdoor Cleaning Activities and Professional Mobile Service Providers

Storm drain pollution prevention information for:

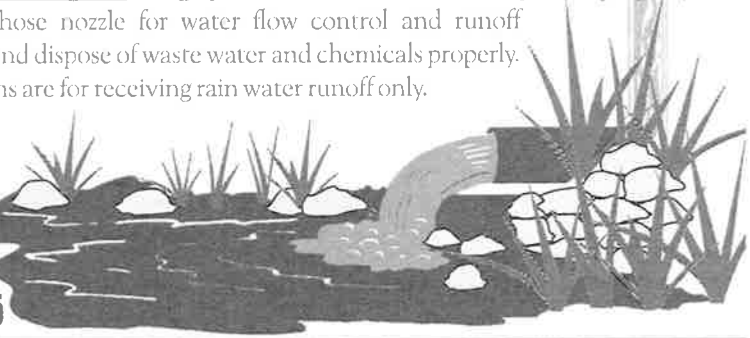
- Car Washing / Mobile Detailers
- Window and Carpet Cleaners
- Power Washers
- Waterproofers / Street Sweepers
- Equipment cleaners or degreasers and all mobile service providers

Do you know where street flows actually go?

Storm drains are NOT connected to sanitary sewer systems and treatment plants!

The primary purpose of storm drains is to carry *rain* water away from developed areas to prevent flooding. Pollutants discharged to storm drains are transported directly into rivers, lakes and streams. Soaps, degreasers, automotive fluids, litter and a host of materials are washed off buildings, sidewalks, plazas and parking areas. Vehicles and equipment must be properly managed to prevent the pollution of local waterways.

Unintentional spills by mobile service operators can flow into storm drains and pollute our waterways. **Avoid mishaps.** *Always* have a **Spill Response Kit** on hand to clean up unintentional spills. Only emergency **Mechanical** repairs should be done in City streets, using drip pans for spills. **Plumbing** should be done on private property. Always store chemicals in a leak-proof container and keep covered when not in use. **Window/Power Washing** waste water shouldn't be released into the streets, but should be disposed of in a sanitary sewer, landscaped area or in the soil. Soiled **Carpet Cleaning** wash water should be filtered before being discharged into the sanitary sewer. Dispose of all filter debris properly. **Car Washing/Detailing** operators should wash cars on private property and use a regulated hose nozzle for water flow control and runoff prevention. Capture and dispose of waste water and chemicals properly. Remember, storm drains are for receiving rain water runoff only.



REPORT ILLEGAL STORM DRAIN DISPOSAL 1-800-506-2555

Help Protect Our Waterways!

Use these guidelines for Outdoor Cleaning Activities and Wash Water Disposal

Did you know that disposing of pollutants into the street, gutter, storm drain or body of water is *PROHIBITED* by law and can result in stiff penalties?

Best Management Practices

Waste wash water from Mechanics, Plumbers, Window/Power Washers, Carpet Cleaners, Car Washing and Mobile Detailing activities may contain significant quantities of motor oil, grease, chemicals, dirt, detergents, brake pad dust, litter and other materials.

Best Management Practices, or BMPs as they are known, are guides to prevent pollutants from entering the storm drains. *Each of us* can do our part to keep stormwater clean by using the suggested BMPs below:

Simple solutions for both light and heavy duty jobs:

Do...consider dry cleaning methods first such as a mop, broom, rag or wire brush. Always keep a spill response kit on site.

Do...prepare the work area before power cleaning by using sand bags, rubber mats, vacuum booms, containment pads or temporary berms to keep wash water away from the gutters and storm drains.

Do...use vacuums or other machines to remove and collect loose debris or litter before applying water.

Do...obtain the property owner's permission to dispose of ***small amounts*** of power washing waste water on to landscaped, gravel or unpaved surfaces.

Do...check your local sanitary sewer agency's policies on wash water disposal regulations before disposing of wash water into the sewer. (See list on reverse side)

Do...be aware that if discharging to landscape areas, soapy wash water may damage landscaping. Residual wash water may remain on paved surfaces to evaporate. Sweep up solid residuals and dispose of properly. Vacuum booms are another option for capturing and collecting wash water.

Do...check to see if local ordinances prevent certain activities.

Do not let...wash or waste water from sidewalk, plaza or building cleaning go into a street or storm drain.

...ONLY RAIN... DOWN THE STORM DRAIN

Report illegal storm drain disposal
Call Toll Free
1-800-506-2555

Using Cleaning Agents

Try using biodegradable/phosphate-free products. They are easier on the environment, but don't confuse them with being toxic free. Soapy water entering the storm drain system can impact the delicate aquatic environment.

When cleaning surfaces with a ***high-pressure washer*** or ***steam cleaner***, additional precautions should be taken to prevent the discharge of pollutants into the storm drain system. These two methods of surface cleaning can loosen additional material that can contaminate local waterways.

Think Water Conservation

Minimize water use by using high pressure, low volume nozzles. Be sure to check all hoses for leaks. Water is a precious resource, don't let it flow freely and be sure to shut it off in between uses.

Screening Wash Water

Conduct thorough dry cleanup before washing exterior surfaces, such as buildings and decks ***with loose paint***, sidewalks or plaza areas. Keep debris from entering the storm drain after cleaning by first passing the wash water through a "20 mesh" or finer screen to catch the solid materials, then dispose of the mesh in a refuse container. Do not let the remaining wash water enter a street, gutter or storm drain.

Drain Inlet Protection & Collection of Wash Water

- Prior to any washing, block all storm drains with an impervious barrier such as sandbags or berms, or seal the storm drain with plugs or other appropriate materials.
- Create a containment area with berms and traps or take advantage of a low spot to keep wash water contained.
- Wash vehicles and equipment on grassy or gravel areas so that the wash water can seep into the ground.
- Pump or vacuum up all wash water in the contained area.

Concrete/Coring/Saw Cutting and Drilling Projects

Protect any down-gradient inlets by using dry activity techniques whenever possible. If water is used, minimize the amount of water used during the coring/drilling or saw cutting process. Place a barrier of sandbags and/or absorbent berms to protect the storm drain inlet or watercourse. Use a shovel or wet vacuum to remove the residue from the pavement. Do not wash residue or particulate matter into a storm drain inlet or watercourse.