

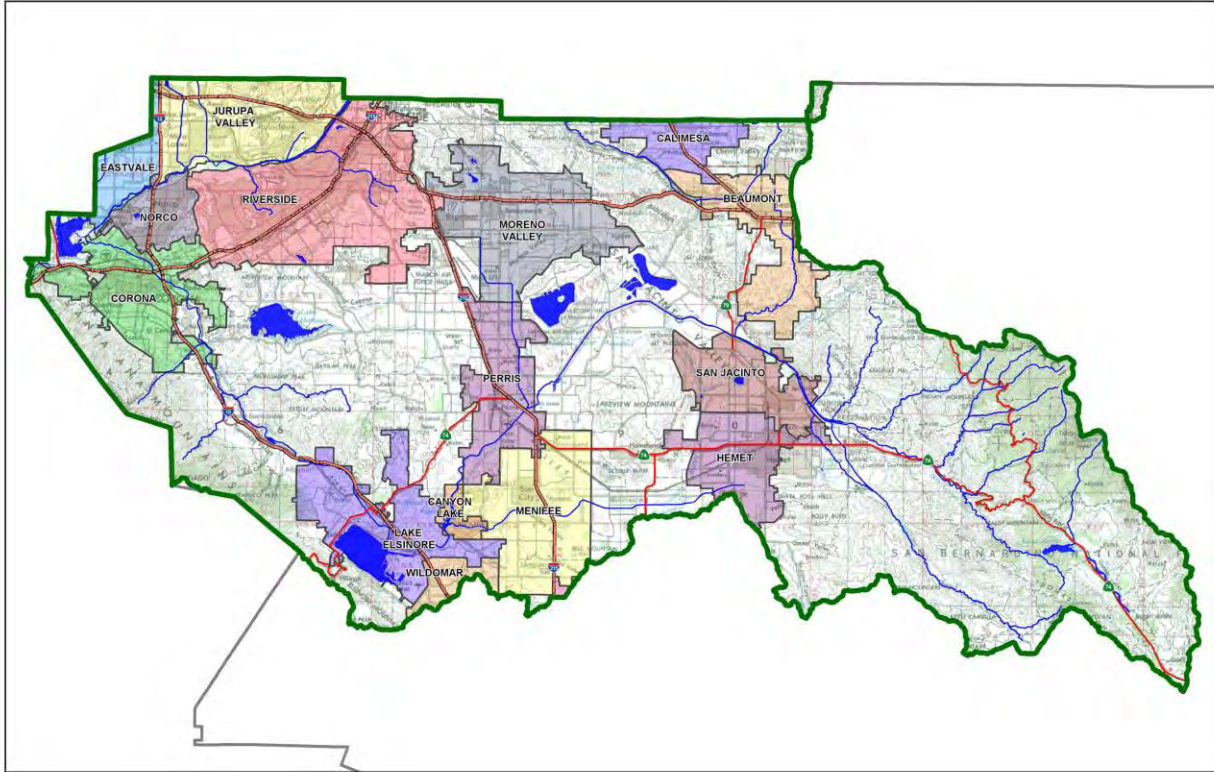
# Project Specific Water Quality Management Plan

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

**Project Title:** Oleander Business Park (Mead Valley)

**Development No:** TBD

**Design Review/Case No:** TBD



☒ Preliminary

☐ Final

**Original Date Prepared:** March 25, 2019

**Revision Date(s):**

*Prepared for Compliance with*

*Regional Board Order No. **R8-2010-0033***

**Template revised June 30, 2016**

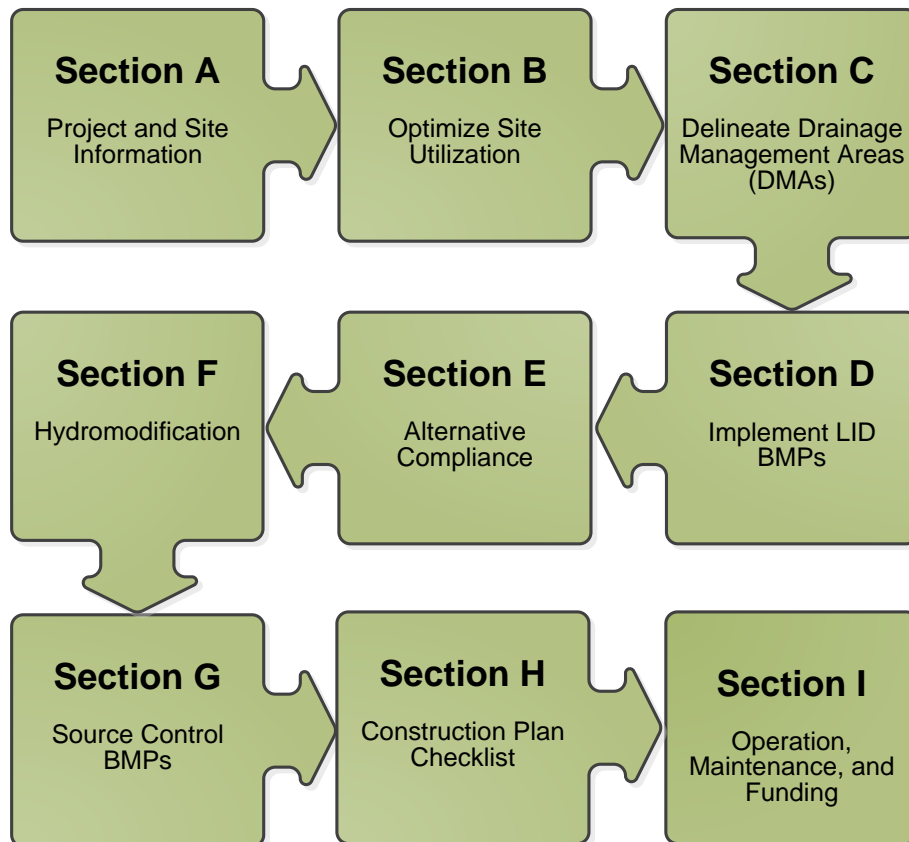
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## A Brief Introduction

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 SRG Perris, L.P. by Michael Baker International for the Oleander Business Park (Mead Valley) project.

This WQMP is intended to comply with the requirements of The County of Riverside for Water Quality Ordinance (Municipal Code Section 754.1) 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 **The County of Riverside Water Quality Ordinance (Municipal Code Section 754.1)**.

"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

---

Jacqueline Hernandez  
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:	Commercial
Planning Area:	
Community Name:	Oleander Business Park (Mead Valley)
Development Name:	Oleander Business Park (Mead Valley)
PROJECT LOCATION	
Latitude & Longitude (DMS): 33.862616, -117.271956	
Project Watershed and Sub-Watershed: Santa Ana Watershed; San Jacinto Sub-Watershed	
Gross Acres: 39.18	
APN(s): 295-310-012, 295-310-013, 295-310-014, 295-310-015	
Map Book and Page No.: Thomas Bros. Map Page 747	
PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Commercial
Proposed or Potential SIC Code(s)	To Be Determined
Area of Impervious Project Footprint (SF)	1,738,063
Total Area of <u>proposed</u> Impervious Surfaces within the Project Footprint (SF)/or Replacement	1,241,609.34
Does the project consist of offsite road improvements?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Does the project propose to construct unpaved roads?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Is the project part of a larger common plan of development (phased project)?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
EXISTING SITE CHARACTERISTICS	
Total area of <u>existing</u> Impervious Surfaces within the Project limits Footprint (SF)	0
Is the project located within any MSHCP Criteria Cell?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
If so, identify the Cell number:	N/A
Are there any natural hydrologic features on the project site?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Is a Geotechnical Report attached?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
If no Geotechnical Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	B, C & D
What is the Water Quality Design Storm Depth for the project?	0.59
<p>The proposed project site is located in unincorporated Riverside County, west of Decker Road between Nandina Avenue and Oleander Avenue. The project proposes to develop two commercial buildings, a parking lot and loading docks on existing barren land. In existing condition, surface runoff flows from west to east. In the proposed condition, surface runoff will flow in the same direction and will enter the storm drain via catch basin inlet and be treated by the proposed BMPs discussed in Section D.5. Off-site runoff will flow onto the site via a terrace drain.</p> <p>Oleander Avenue, Decker Road and Nandina Avenue are public transportation roadways that are along the perimeter of the project site. These roadways will be built for public use which will be owned and maintained by the County of Riverside. Since these roadways are public roadways, they are considered public transportation projects and are subject to Riverside County's Transportation Project Guidance, and the Transportation Project Template. Transportation project documentation will be prepared and provided with the final WQMP. Drainage Swales that capture runoff from the other half of the public roadway</p>	

will be designed for the adjacent future developments. It will be the responsibility of the adjacent future developments to propose water quality BMPs.

## 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
- BMP Locations (Lat/Long)

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.

## 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
Perris Valley MDP Lateral B-9	None*	Perris North (MUN, AGR, IND, PROC) Perris South (MUN, AGR)	No RARE uses identified in receiving waters
Perris Valley MDP Lateral B-8	None*	Perris North (MUN, AGR, IND, PROC) Perris South (MUN, AGR)	No RARE uses identified in receiving waters
Perris Valley Channel Lateral B	None*	Perris North (MUN, AGR, IND, PROC) Perris South (MUN, AGR)	No RARE uses identified in receiving waters
Perris Valley Channel	None*	Perris South (MUN, AGR)	No RARE uses identified in receiving waters
San Jacinto River Reach 3	None	MUN, AGR, IND, PROC	No RARE uses identified in receiving waters
San Jacinto River Reach 2	None	GWR, AGR, WILD, WARM, REC2, REC1, MUN	No RARE uses identified in receiving waters
Canyon Lake	Nutrients	WILD, REC2, WARM, GWR, REC1, AGR	No RARE uses identified in receiving waters
San Jacinto River Reach 1	None	AGR, GWR	No RARE uses identified in receiving waters
Lake Elsinore	DDT, Nutrients, Organic Enrichment/Low Dissolved Oxygen, PCBs (Polychlorinated biphenyls), Toxicity	MUN, REC1, REC2, WARM, WILD	No RARE uses identified in receiving waters

\*Requirement for permit is unknown at this time. Determination shall be made and addressed in the Final WQMP.

### 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	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
US Army Corps of Engineers, CWA Section 404 Permit	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Statewide Construction General Permit Coverage	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Statewide Industrial General Permit Coverage	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Other <i>(please list in the space below as required)</i>		
County of Riverside Grading Permit	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
County of Riverside Building Permit	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> 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.

Consideration of "highest and best use" of the discharge should also be considered. For example, Lake Elsinore is evaporating faster than runoff from natural precipitation can recharge it. Requiring infiltration of 85% of runoff events for projects tributary to Lake Elsinore would only exacerbate current water quality problems associated with Pollutant concentration due to lake water evaporation. In cases where rainfall events have low potential to recharge Lake Elsinore (i.e., no hydraulic connection between groundwater to Lake Elsinore, or other factors), requiring infiltration of Urban Runoff from projects is counterproductive to the overall watershed goals. Project proponents, in these cases, would be allowed to discharge Urban Runoff, provided they used equally effective filtration-based BMPs.

### 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?

*Yes, the direction of surface runoff will flow from West to East. This drainage pattern will remain the same in the proposed condition. The proposed storm drain system will run from West to East to the proposed underground storage systems to store the design capture volume (DCV) and then treated by the Modular Wetlands Systems (MWS). Offsite surface runoff on the western portion of the project will be collected in the terrace drain and drain onto the project and into the proposed storm drain system. After water quality treatment in the MWS, surface runoff from the project site will leave the site in the easterly direction via Perris Valley MDP Lateral B-8 and B-9.*

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

*In existing condition, the proposed project site is barren and has minimal effects on local plant life. There are no native trees on-site that need to be relocated. Vegetation proposed on-site will be determined by the Landscape Architect and discussed in the Final WQMP.*

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

*The site has poor infiltration capacity. The soils on-site mainly consist of Hydrologic Soil Types C and D.*

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

*Due to the nature of the project, the majority of new construction will be impervious area. Landscaped parking medians/islands are proposed throughout the project site. Large landscaped areas will be proposed along the perimeter of the project site.*

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

*Roof runoff will sheet flow towards landscaped areas surrounding the building. The landscaped areas around the building will be depressed to provide maximum detention before draining onto the parking lot. Runoff will sheet flow throughout the parking lot towards the catch basins and discharge into the proposed storm drain system, eventually being stored in the underground storage systems and treated by the proposed MWS as shown in the BMP Exhibit.*

## 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) <sup>12</sup>	Area (Sq. Ft.)	DMA Type
DMA A-1	Roof, Concrete/Asphalt Landscaping	244,078 26,119 <b>270,197</b>	Type D
DMA A-2	Concrete/Asphalt Landscaping	286 7,360 <b>7,646</b>	Type A
DMA A-3	Concrete/Asphalt Landscaping	0 44,364 <b>44,364</b>	Type A
DMA B-1	Roof, Concrete/Asphalt Landscaping	380,063 86,961 <b>467,024</b>	Type D
DMA B-2	Concrete/Asphalt Landscaping	397 75,196 <b>75,593</b>	Type A
DMA C-1	Roof, Concrete/Asphalt Landscaping	123,925 62,595 <b>186,520</b>	Type D
DMA C-2	Concrete/Asphalt Landscaping	0 8,297 <b>8,297</b>	Type A
DMA D-1	Roof, Concrete/Asphalt Landscaping	466,031 82,879 <b>548,910</b>	Type D
DMA D-2	Concrete/Asphalt Landscaping	305 97,647 <b>97,952</b>	Type A

<sup>1</sup>Reference Table 2-1 in the WQMP Guidance Document to populate this column

<sup>2</sup>If multi-surface provide back-up

**Table C.2 Type 'A', Self-Treating Areas**

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
DMA A-2	7,360.34	Vegetation	To be determined in Final WQMP
DMA A-3	44,363.95	Vegetation	To be determined in Final WQMP
DMA B-2	75,196.59	Vegetation	To be determined in Final WQMP
DMA C-2	8,297.29	Vegetation	To be determined in Final WQMP
DMA D-2	97,647.33	Vegetation	To be determined in Final WQMP

Self-treating areas that have not been fully captured in the soils will runoff into the drainage swales at the toe of slope and discharge into the storm drain system via catch basin inlets.

**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]
N/A						

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

**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	Impervious fraction	Product	DMA name/ID	Area (square feet)	Ratio
	[A]		[B]	[C] = [A] x [B]		[D]	[C]/[D]
N/A							

**Table C.5 Type 'D', Areas Draining to BMPs**

DMA Name or ID	BMP Name or ID
DMA A-1	BMP A-1 MWS-L-4-15
DMA B-1	BMP B-1 MWS-L-4-21
DMA C-1	BMP C-1 MWS-L-4-8
DMA D-1	BMP D-1 MWS-L-8-12

*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; proceed to section D.3

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:		
...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.

Based on preliminary information available, the Geotech has indicated that the site contains shallow bedrock encountered between 5-6 feet from existing grades. Additionally, information from the USDA Web oil Survey indicates the depths to the water table are approximately greater than 6.5 feet and the shallowest depth to any soil restrictive layer is approximately 1.2 feet. It is assumed that infiltration is deemed infeasible within the project area. A geotechnical report will be provided along with the Final WQMP submittal.

## 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 none 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).

### 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:* Insert Area (Acres)

*Type of Landscaping (Conservation Design or Active Turf):* List Landscaping Type

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:* Insert Area (Acres)

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:* EIATIA Factor

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:* Insert Area (Acres)

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)
Insert Area (Acres)	Insert Area (Acres)

## 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: Number of daily Toilet Users*

*Project Type: Enter 'Residential', 'Commercial', 'Industrial' or 'Schools'*

- 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: Insert Area (Acres)*

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

*Enter your TUTIA factor: TUTIA Factor*

- 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: Required number of toilet users*

- 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).

<b>Minimum required Toilet Users (Step 4)</b>	<b>Projected number of toilet users (Step 1)</b>
Insert Area (Acres)	Insert Area (Acres)

## 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.

Insert text here describing how each included Site Design BMP will be implemented.

- 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: Projected Average Daily Use (gpd)*

- 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: Insert Area (Acres)*

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-4 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

*Enter the factor from Table 2-4: Enter Value*

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 gallons per day of non-potable use that would be required.

*Minimum required use: Minimum use required (gpd)*

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the projected average daily use (Step 1) to the minimum required non-potable use (Step 4).

<b>Minimum required non-potable use (Step 4)</b>	<b>Projected average daily use (Step 1)</b>
Minimum use required (gpd)	Projected Average Daily Use (gpd)

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 per Section 3.4.2 of the WQMP Guidance Document.

## 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	
BMP A-1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BMP B-1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BMP C-1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
BMP D-1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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.

All DMAs either drain to a LID BMP (MWS downstream of underground storage systems) or is self-treating.

## 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)	Post-Project Surface Type	Effective Impervious Fraction, $I_f$	DMA Runoff Factor	DMA Areas x Runoff Factor	Enter BMP Name / Identifier Here		
	[A]		[B]	[C]	[A] x [C]	<b>BMP A-1</b>		
<b>Impervious (Roof, Parking Lot &amp; Walkway)</b>	244,078.53	Roofs, Concrete, Asphalt	1.0	0.89	217,718	Design Storm Depth (in)	Design Capture Volume, $V_{BMP}$ (cubic feet)	Proposed Volume on Plans (cubic feet)
<b>Pervious (Landscaping)</b>	26,118.72	Ornamental Landscaping	0.1	0.11	2,885			
	$A_T = \Sigma[A]$ 270,197.25				$\Sigma = [D]$ 220,603	[E] 0.59	$[F] = \frac{[D] \times [E]}{12}$ 10,846.3	[G] <b>11,433</b>

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

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

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, $I_f$	DMA Runoff Factor	DMA Areas x Runoff Factor	Enter BMP Name / Identifier Here		
	[A]		[B]	[C]	[A] x [C]	<b>BMP B-1</b>		
<b>Impervious (Roof, Parking Lot &amp; Walkway)</b>	380,063.28	Roofs, Concrete, Asphalt	1.0	0.89	339,016.4	Design Storm Depth (in)	Design Capture Volume, $V_{BMP}$ (cubic feet)	Proposed Volume on Plans (cubic feet)
<b>Pervious (Landscaping)</b>	86,961.35	Ornamental Landscaping	0.1	0.11	9,605.6			
	$A_T = \Sigma[A]$ 467,024.63				$\Sigma = [D]$ 348,622	[E] 0.59	$[F] = \frac{[D] \times [E]}{12}$ 17,140.6	[G] <b>17,559</b>

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

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

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, $I_f$	DMA Runoff Factor	DMA Areas x Runoff Factor	Enter BMP Name / Identifier Here		
	[A]		[B]	[C]	[A] x [C]	<b>BMP C-1</b>		
<b>Impervious (Roof, Parking Lot &amp; Walkway)</b>	123,925.28	Roofs, Concrete, Asphalt	1.0	0.89	110,541.3	Design Storm Depth (in)	Design Capture Volume, $V_{BMP}$ (cubic feet)	Proposed Volume on Plans (cubic feet)
<b>Pervious (Landscaping)</b>	62,594.75	Ornamental Landscaping	0.1	0.11	6,914.1			
	$A_T = \Sigma[A]$ 186,520.03				$\Sigma = [D]$ 117,455.4	[E] 0.59	$[F] = \frac{[D] \times [E]}{12}$ 5,774.9	[G] <b>7554</b>

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

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

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, $I_f$	DMA Runoff Factor	DMA Areas x Runoff Factor	Enter BMP Name / Identifier Here		
	[A]		[B]	[C]	[A] x [C]	<b>BMP D-1</b>		
<b>Impervious (Roof, Parking Lot &amp; Walkway)</b>	466,030.75	Roofs, Concrete, Asphalt	1.0	0.89	415,699.4	Design Storm Depth (in)	Design Capture Volume, $V_{BMP}$ (cubic feet)	Proposed Volume on Plans (cubic feet)
<b>Pervious (Landscaping)</b>	82,879.48	Ornamental Landscaping	0.1	0.11	9,154.7			
	$A_T = \Sigma[A]$ 548,910.23				$\Sigma = [D]$ 424,854.1	[E] 0.59	$[F] = \frac{[D] \times [E]}{12}$ 20,888.7	[G] <b>22,662</b>

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

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

[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6



## 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.

N/A

## 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
<input type="checkbox"/> Detached Residential Development	P	N	P	P	N	P	P	P
<input type="checkbox"/> Attached Residential Development	P	N	P	P	N	P	P	P <sup>(2)</sup>
<input checked="" type="checkbox"/> Commercial/Industrial Development	P <sup>(3)</sup>	P	P <sup>(1)</sup>	P <sup>(1)</sup>	P <sup>(5)</sup>	P <sup>(1)</sup>	P	P
<input type="checkbox"/> Automotive Repair Shops	N	P	N	N	P <sup>(4, 5)</sup>	N	P	P
<input type="checkbox"/> Restaurants (>5,000 ft <sup>2</sup> )	P	N	N	N	N	N	P	P
<input type="checkbox"/> Hillside Development (>5,000 ft <sup>2</sup> )	P	N	P	P	N	P	P	P
<input type="checkbox"/> Parking Lots (>5,000 ft <sup>2</sup> )	P <sup>(6)</sup>	P	P <sup>(1)</sup>	P <sup>(1)</sup>	P <sup>(4)</sup>	P <sup>(1)</sup>	P	P
<input type="checkbox"/> Retail Gasoline Outlets	N	P	N	N	P	N	P	P
<b>Project Priority Pollutant(s) of Concern</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

*P = Potential*

*N = Not Potential*

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

<sup>(2)</sup> A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

<sup>(3)</sup> A potential Pollutant is land use involving animal waste

<sup>(4)</sup> Specifically, petroleum hydrocarbons

<sup>(5)</sup> Specifically, solvents

<sup>(6)</sup> 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 <sup>2</sup>
N/A	
<i>Total Credit Percentage<sup>1</sup></i>	

<sup>1</sup>Cannot Exceed 50%

<sup>2</sup>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)	Post-Project Surface Type	Effective Impervious Fraction, I <sub>f</sub>	DMA Runoff Factor	DMA Area x Runoff Factor	Enter BMP Name / Identifier Here			
	[A]		[B]	[C]	[A] x [C]				
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)
	A <sub>T</sub> = Σ[A]				Σ= [D]	[E]	[F] = $\frac{[D] \times [E]}{[G]}$	[F] X (1-[H])	[I]

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

[E] is for Flow-Based Treatment Control BMPs [E] = .2, for Volume-Based Control Treatment BMPs, [E] 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 <sup>1</sup>	Priority Pollutant(s) of Concern to Mitigate <sup>2</sup>	Removal Efficiency Percentage <sup>3</sup>
BMP A-1 MWS	Sediment, Nutrients, Trash, Metals, Bacteria, Oil & Grease, Organic Compounds, Pesticides	Greater than or equal to 80%
BMP B-1 MWS	Sediment, Nutrients, Trash, Metals, Bacteria, Oil & Grease, Organic Compounds, Pesticides	Greater than or equal to 80%
BMP C-1 MWS	Sediment, Nutrients, Trash, Metals, Bacteria, Oil & Grease, Organic Compounds, Pesticides	Greater than or equal to 80%
BMP D-1 MWS	Sediment, Nutrients, Trash, Metals, Bacteria, Oil & Grease, Organic Compounds, Pesticides	Greater than or equal to 80%

<sup>1</sup> 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.

<sup>2</sup> Cross Reference Table E.1 above to populate this column.

<sup>3</sup> 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<sup>1</sup> 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
<b>Time of Concentration</b>	N/A	N/A	N/A
<b>Volume (Cubic Feet)</b>	N/A	N/A	N/A

<sup>1</sup> 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 Susceptibility 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:

All downstream receiving waters from the project are engineered and regularly maintained and drains to Canyon Lake and Lake Elsinore.

## 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.	<ul style="list-style-type: none"> <li>• Maintain and periodically repaint or replace inlet markings.</li> <li>• Provide stormwater pollution prevention information to new site, owners, lessees, or operators.</li> <li>• See applicable operational BMPs in Fact Sheet SC-44, “Drainage System Maintenance,” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a></li> <li>• Include the following in lease agreements: “Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit</li> </ul>

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
		materials so as to create a potential discharge to storm drains.”
Need for indoor & structural pest control	Doors will always remain closed.	Provide Integrated Pest Management (IPM) information to owners, lessees, and operators.
Landscape/Outdoor Pesticide Use	<p>State that all final landscape plans will accomplish all of the following:</p> <ul style="list-style-type: none"> <li>• Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.</li> <li>• 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.</li> <li>• Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.</li> <li>• Consider using pest-resistant plants, especially adjacent to hardscape.</li> <li>• To ensure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain landscaping using minimum or no pesticides.</li> <li>• See applicable operational BMPs in “What you should know for...Landscaping and Gardening” at <a href="http://rcflood.org/stormwater/">http://rcflood.org/stormwater/</a></li> <li>• Provide IPM information to new owners, lessees and operators.</li> </ul>
Refuse Areas	<ul style="list-style-type: none"> <li>• Refuse will be handled with Refuse Areas that will have covered receptacles. These are located on the west side of the project adjacent to truck parking.</li> </ul>	There will be adequate number of receptacles for the project site. Receptacles will be inspected regularly. Repair or replacement of leaky receptacles as needed. Receptacles will be covered at all times. Dumping of liquid or hazardous wastes is strictly prohibited. “No hazardous materials” signs will be posted at refuse areas. Litter will be inspected and picked up daily. Spill control materials will be available on-site. See Fact



Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
	<ul style="list-style-type: none"> <li>Signs will be posted on or near dumpsters with the words “Do not dump hazardous materials here” or similar</li> </ul>	Sheet SC-34, “Waste Handling and Disposal” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>
Industrial processes	All process activities to be performed indoors. No processes to drain to exterior or to storm drain system.	<ul style="list-style-type: none"> <li>See Fact Sheet SC-10, “Non-Stormwater Discharges” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a></li> <li>See the brochure “Industrial &amp; Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities” at <a href="http://rcflood.org/stormwater/">http://rcflood.org/stormwater/</a></li> </ul>
Loading Docks		<ul style="list-style-type: none"> <li>Move loaded and unloaded items indoors as soon as possible.</li> <li>See Fact Sheet SC-30, “Outdoor Loading and Unloading,” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a></li> </ul>
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.

## 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)	BMP Location (Lat/Long)
BMP A-1	MWS downstream of underground storage system	Plot Plan, Precise Grading Plan, Improvement Plan	33.859364, -117.270429
BMP B-1	MWS downstream of underground storage system	Plot Plan, Precise Grading Plan, Improvement Plan	33.862192, -117.27043
BMP C-1	MWS downstream of underground storage system	Plot Plan, Precise Grading Plan, Improvement Plan	33.862611, -117.270873
BMP D-1	MWS downstream of underground storage system	Plot Plan, Precise Grading Plan, Improvement Plan	33.865623, -117.270481

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 funding will be provided by SRG. If at any time SRG sells the property, then the operation and maintenance responsibilities will be recorded against the property and will be the responsibility of the new property owner.

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

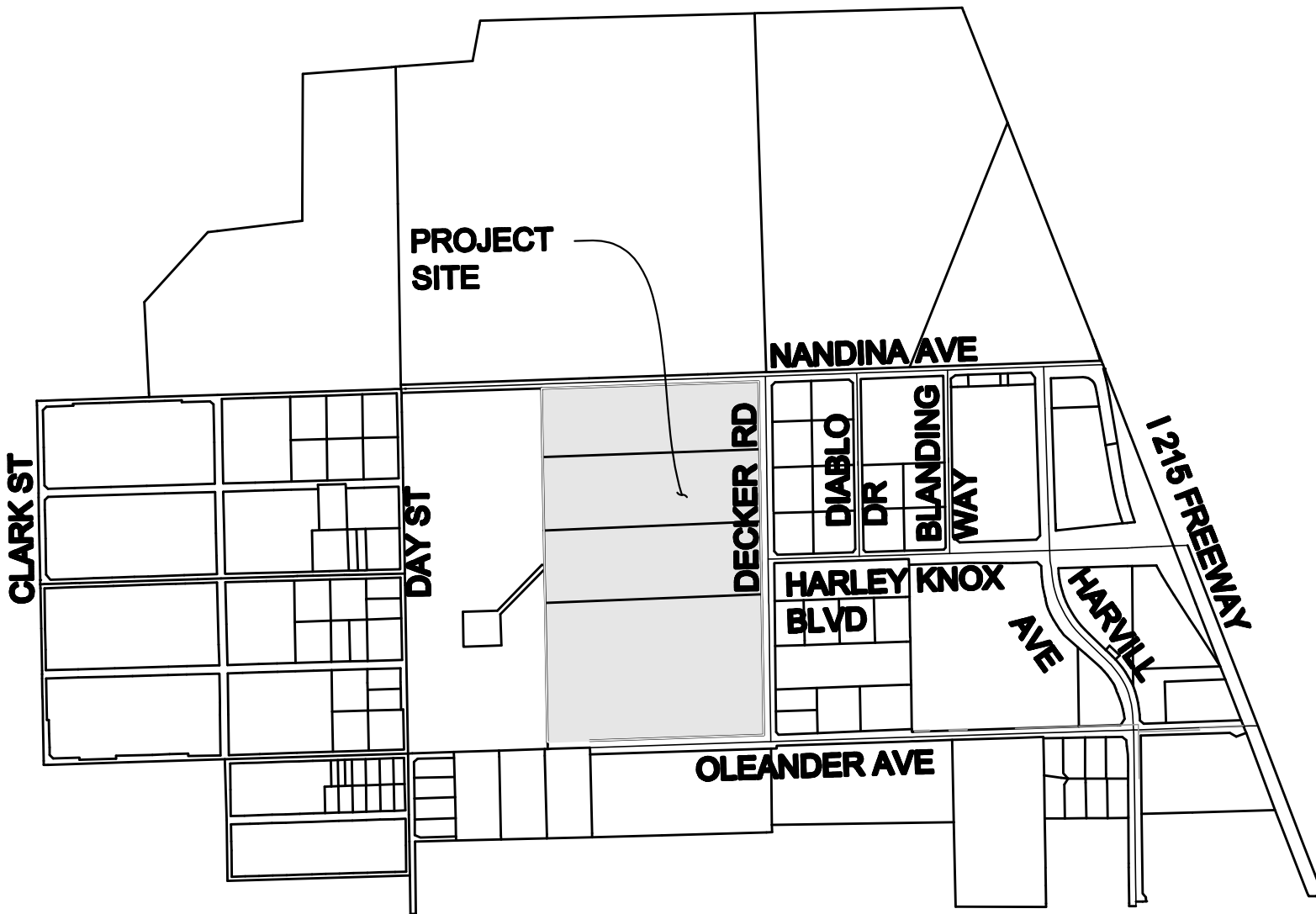
☐ Y

☒ 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

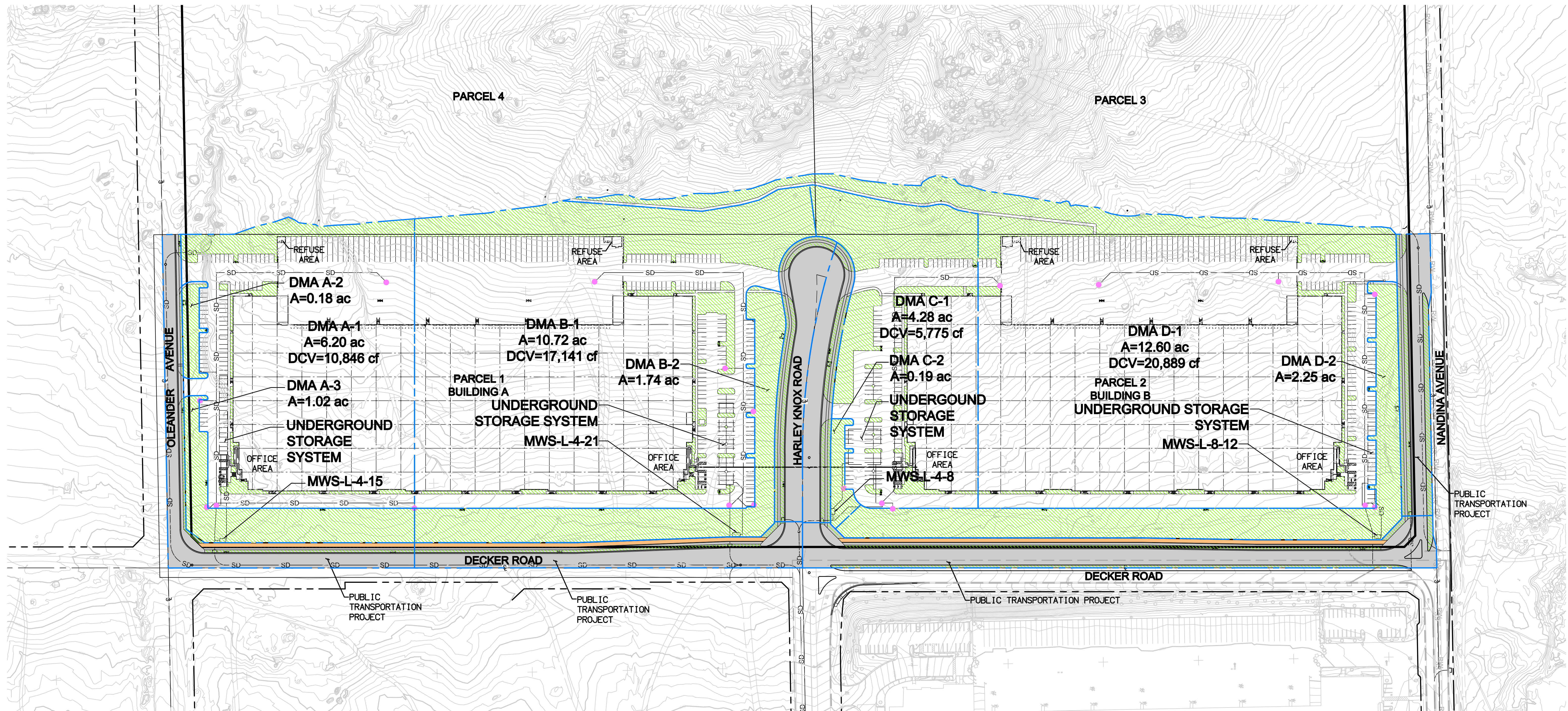
*Vicinity Map, WQMP Site Plan and Receiving Waters Map*



**Michael Baker**  
**INTERNATIONAL**  
 51 Hubert Centre Drive, Suite 500, Santa Ana, CA 92707  
 Phone: (949) 472-3505 • MBAKERINTL.COM

**VICINITY MAP**  
**OLEANDER BUSINESS PARK (MEAD VALLEY)**  
 WEST OF DECKER RD BETWEEN NANDINA AVE &  
 OLEANDER AVE  
 UNINCORPORATED RIVERSIDE COUNTY, CALIFORNIA  
 476 252-512-512/252-512-512  
 252-512-512/252-512-512





DMA	PERVIOUS AREA (AC)	IMPERVIOUS AREA (AC)	BMP	BMP LATITUDE/LONGITUDE
A-1	0.60	5.60	BMP A-1	33.859364, -117.270429
A-2	0.17	0.01	SELF-TREATING	-
A-3	1.02	0.00	SELF-TREATING	-
B-1	2.00	8.73	BMP B-1	33.862192, -117.270430
B-2	1.73	0.01	SELF-TREATING	-
C-1	1.44	2.84	BMP C-1	33.862611, -117.2708734
C-2	0.19	0.00	SELF-TREATING	-
D-1	1.90	10.70	BMP D-1	33.865623, -117.2704810
D-2	2.24	0.01	SELF-TREATING	-
	11.28	27.89	TOTAL	39.18

#### LEGEND

- DMA BOUNDARY
- SD STORM DRAIN
- PERVIOUS AREA
- TRAIL - DECOMPOSED GRANITE
- STORM DRAIN INLET STENCILING

SCALE 1"=80'

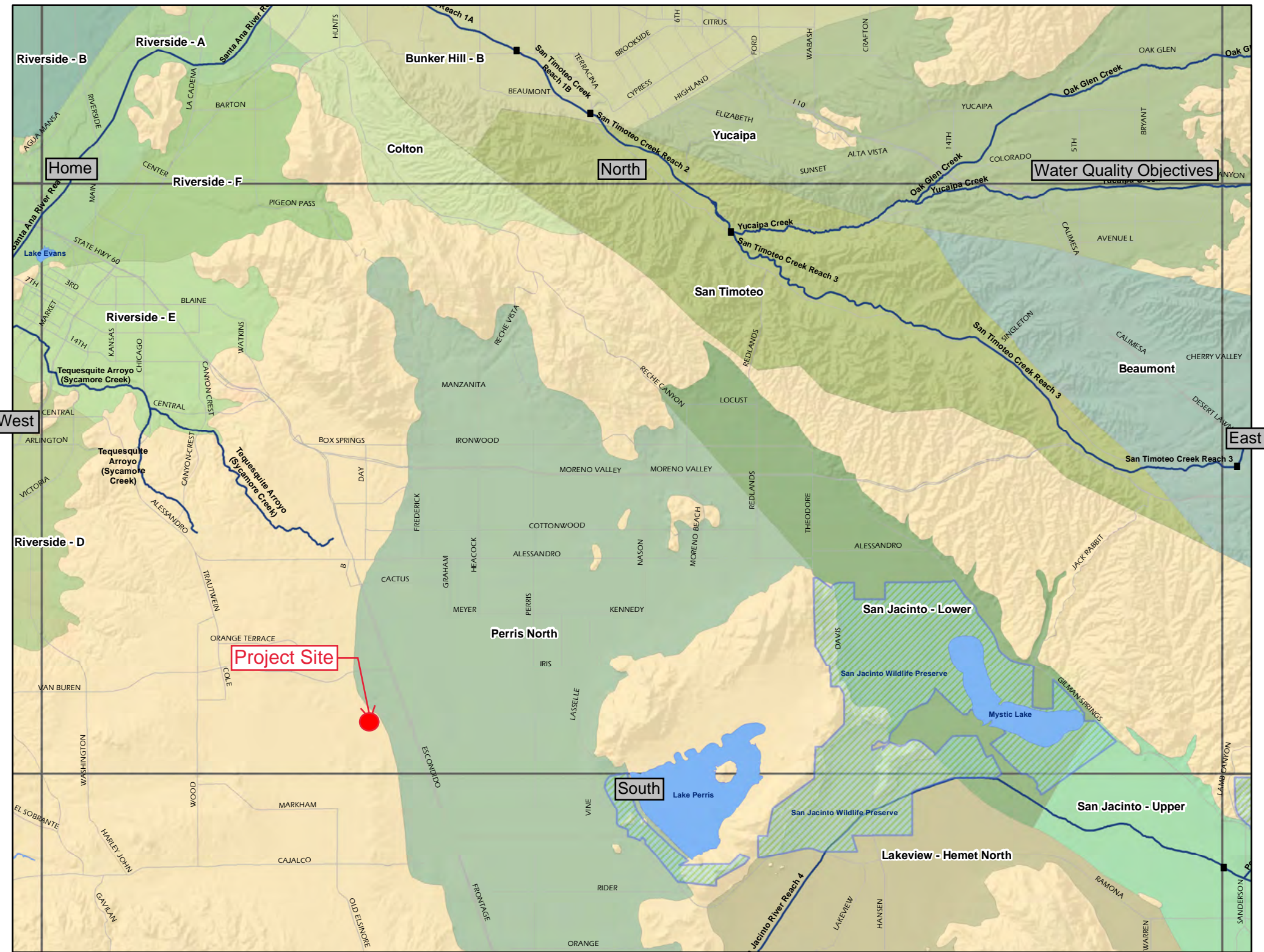
**Michael Baker**

**INTERNATIONAL**

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Phone: (949) 472-3505 · MBAKERINTL.COM

**BMP EXHIBIT**  
**OLEANDER BUSINESS PARK (MEAD VALLEY)**  
WEST OF DECKER RD BETWEEN NANDINA AVE &  
OLEANDER AVE  
UNINCORPORATED RIVERSIDE COUNTY, CALIFORNIA  
APN: 295-310-012/295-310-013  
295-310-014/295-310-015





Riverside - B

Riverside - A

Bunker Hill - B

Home

Riverside - F

Colton

North

Yucaipa

Water Quality Objectives

Riverside - E

San Timoteo

Beaumont

West

East

Riverside - D

Project Site

Perris North

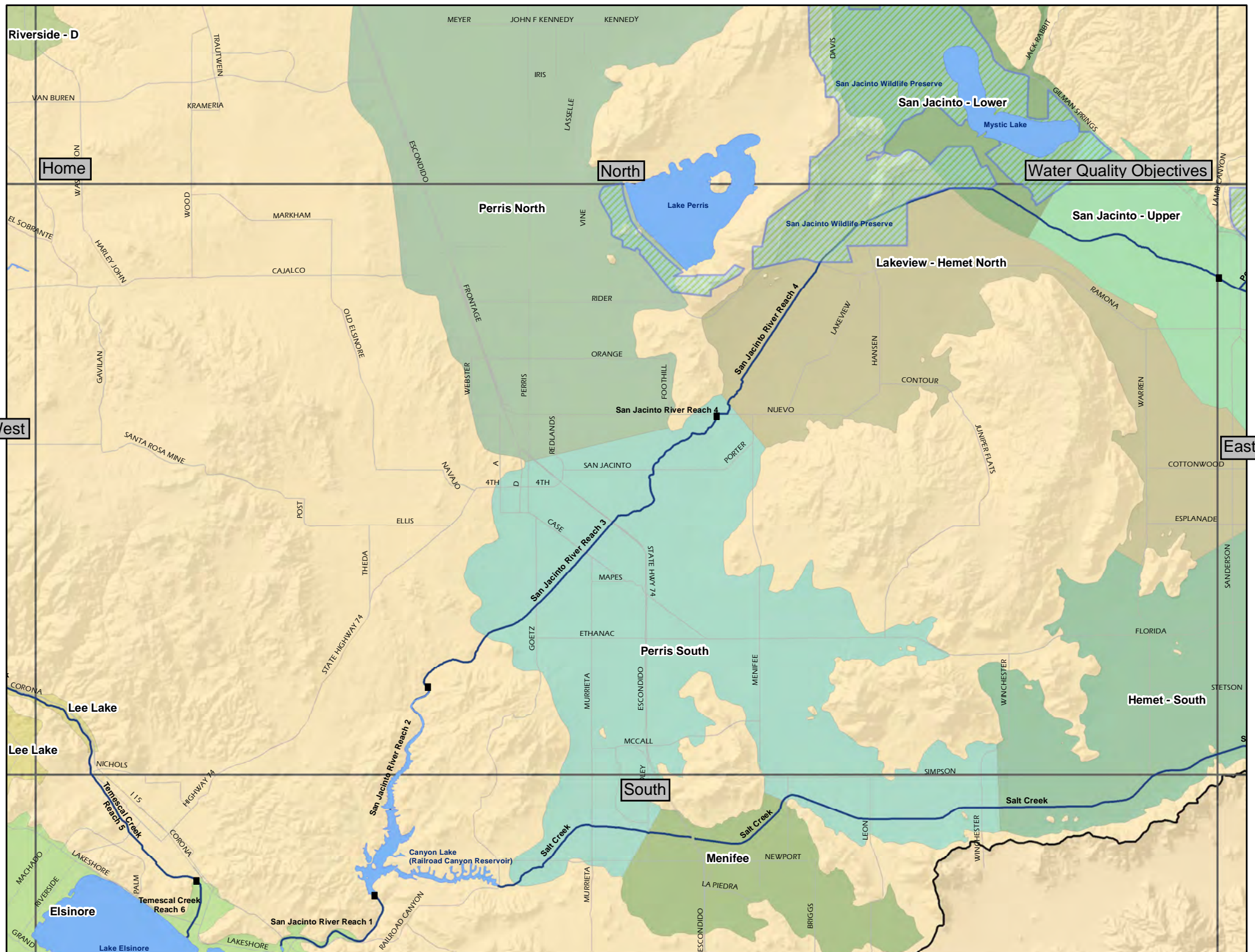
San Jacinto - Lower

South

San Jacinto - Upper

Lakeview - Hemet North





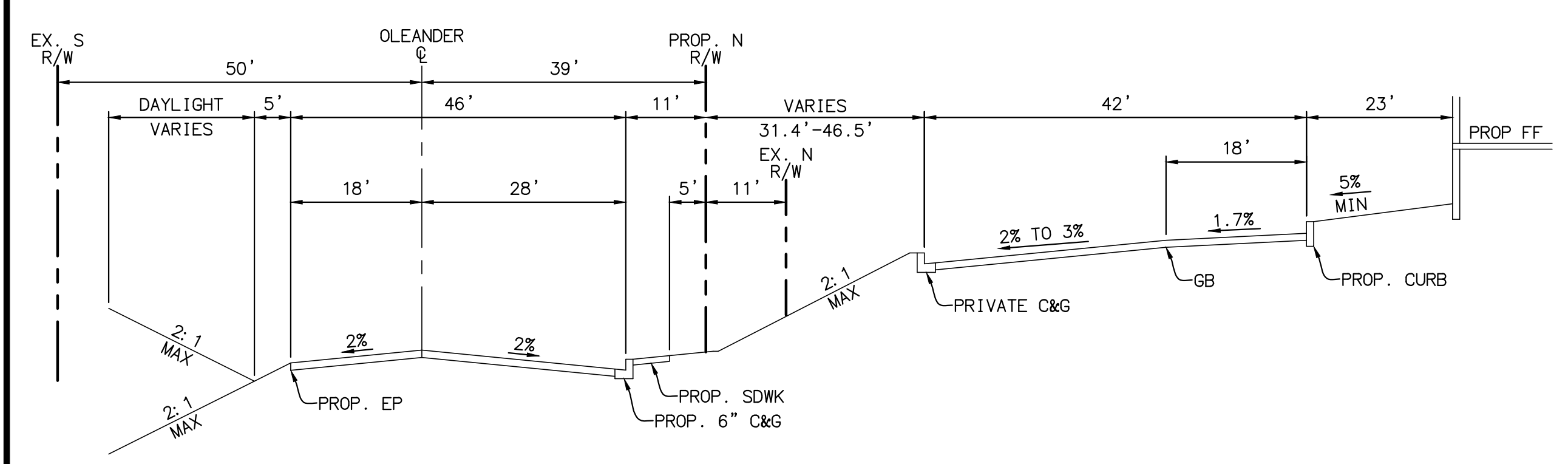
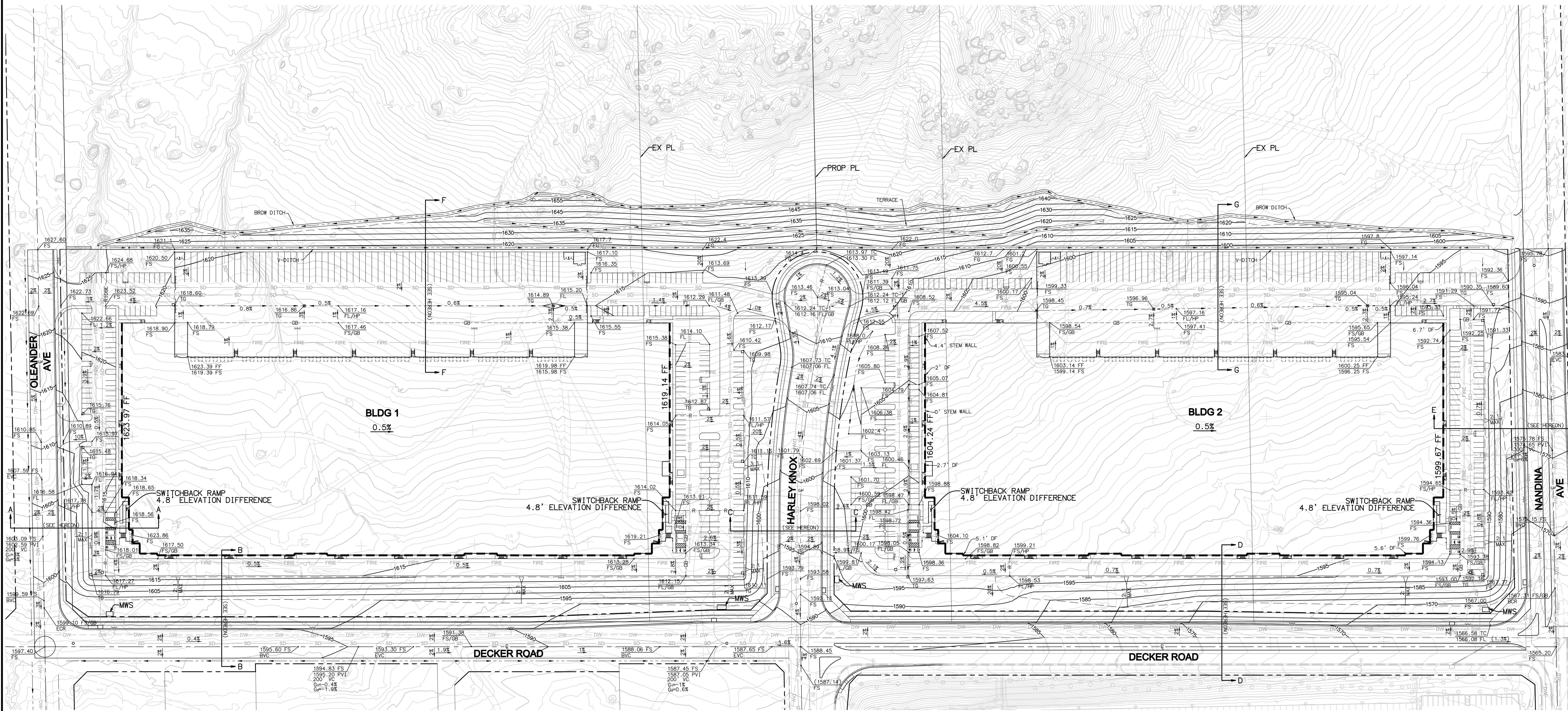




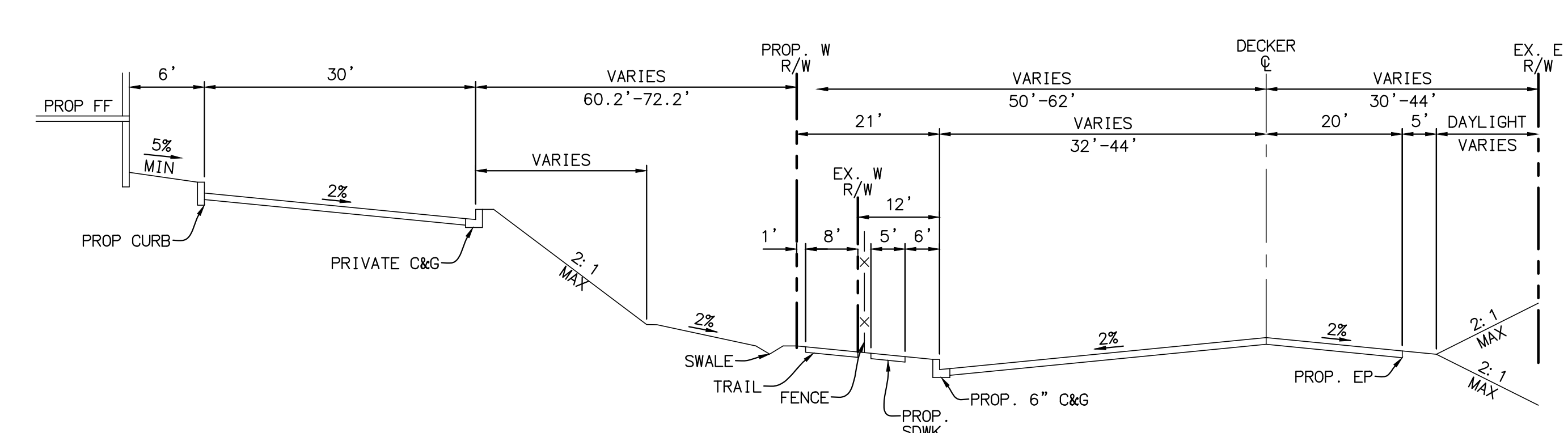
## Appendix 2: Construction Plans

*Grading and Drainage Plans*

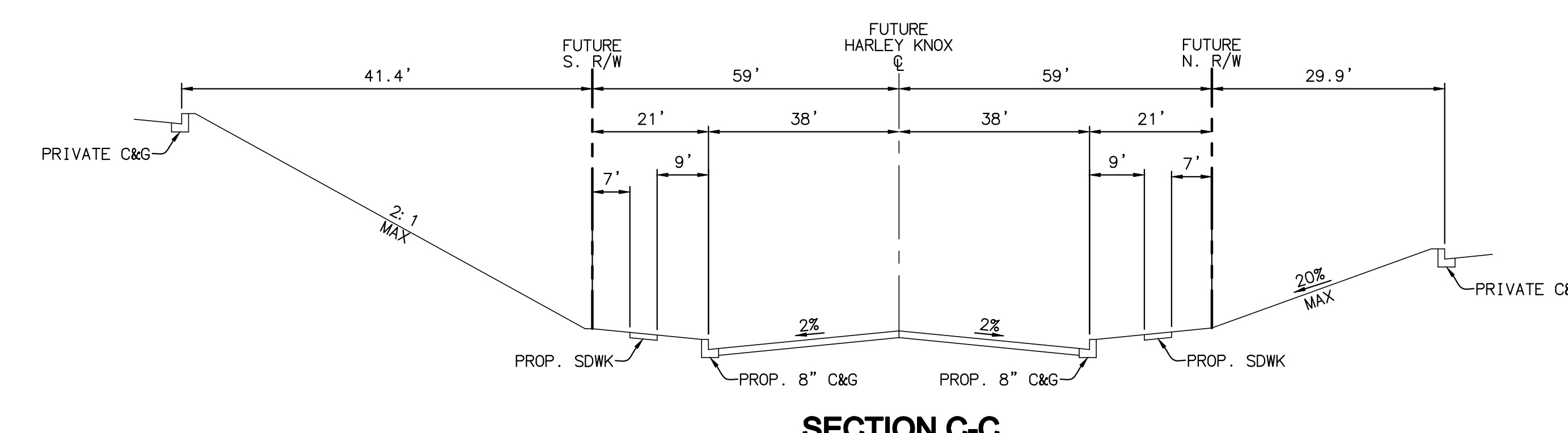




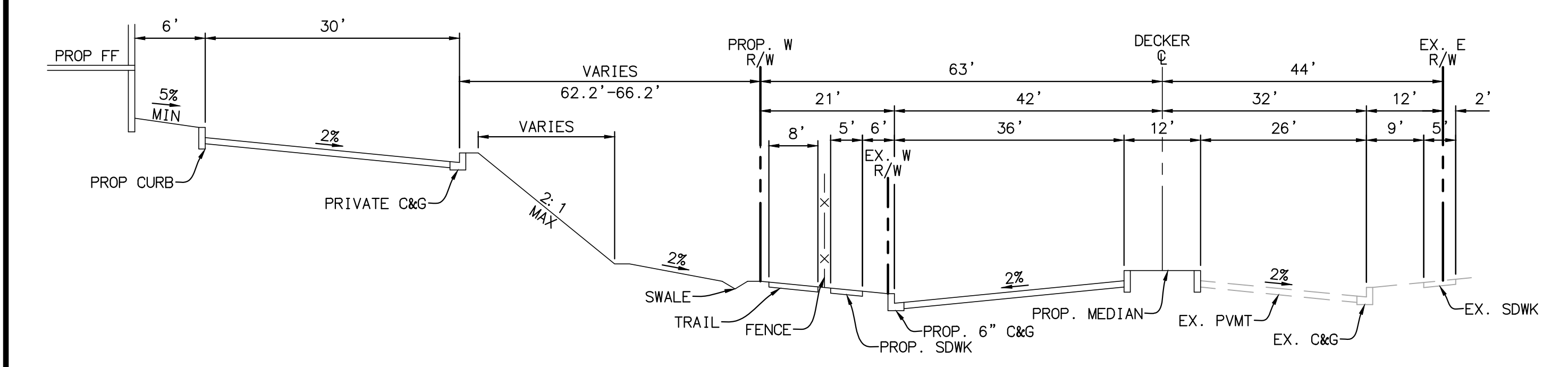
**SECTION A-A**  
NOT TO SCALE  
(PER MODIFIED COUNTY STD. 111)



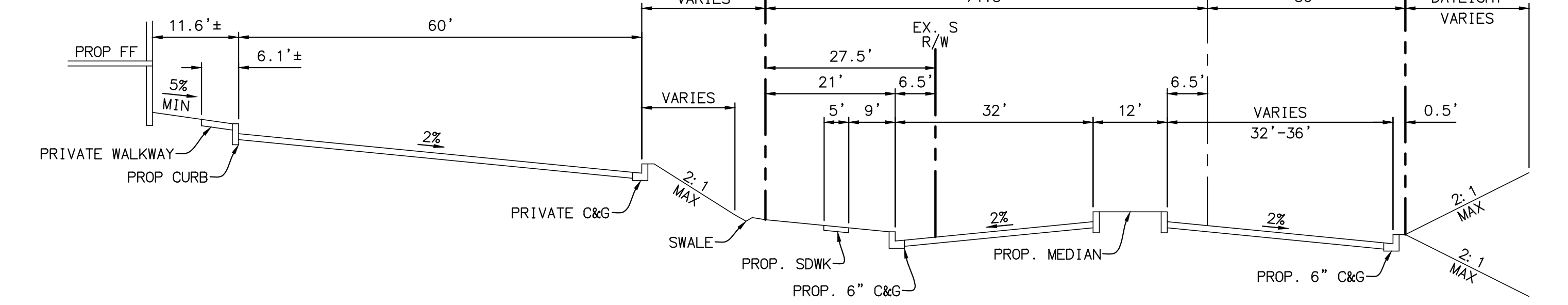
**SECTION B-B**  
NOT TO SCALE  
(PER MODIFIED COUNTY STD. 94)



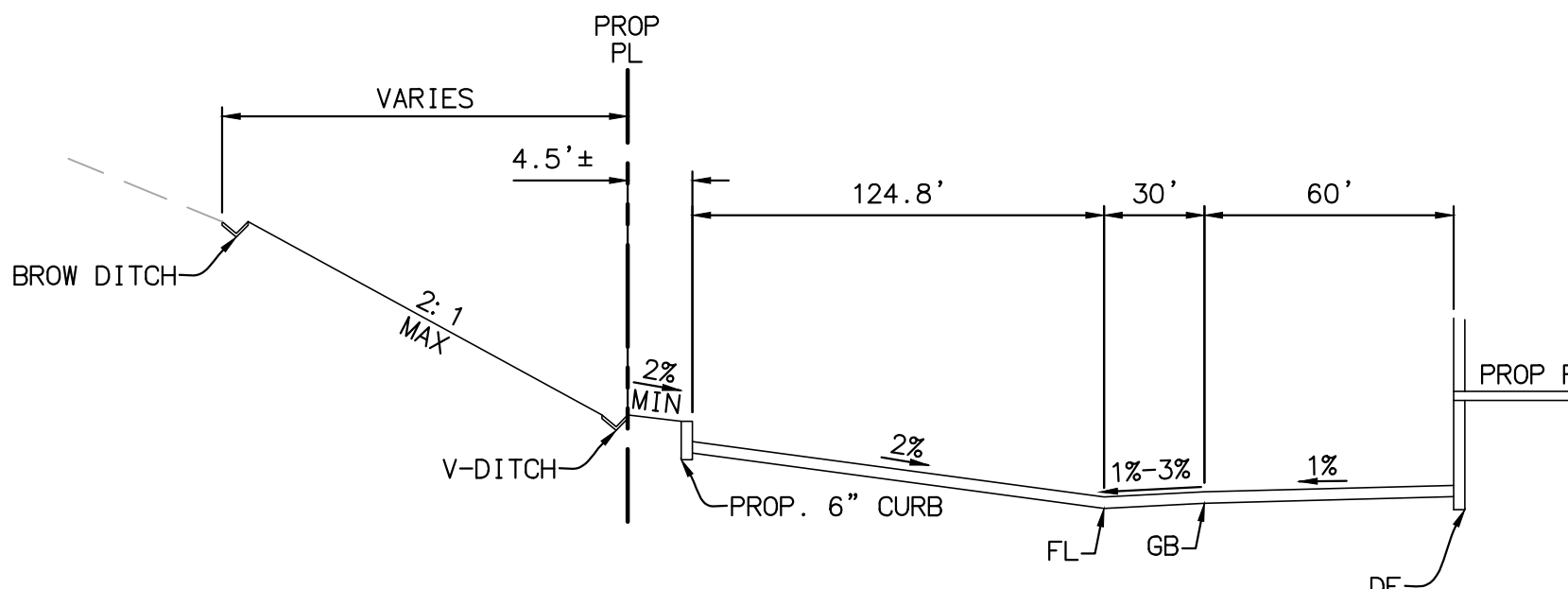
**SECTION C-C**  
NOT TO SCALE  
(PER MODIFIED COUNTY STD. 93)



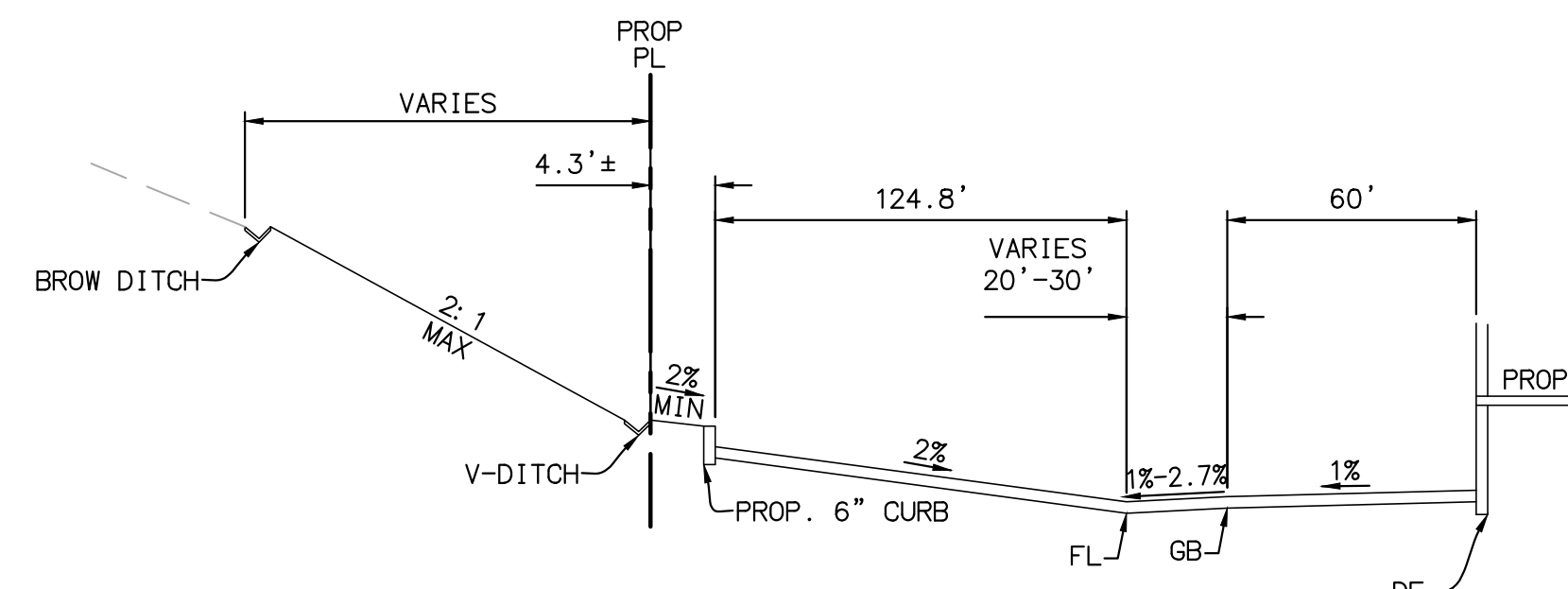
**SECTION D-D**  
NOT TO SCALE  
(PER MODIFIED COUNTY STD. 94)



**SECTION E-E**  
NOT TO SCALE  
(PER MODIFIED COUNTY STD. 94)

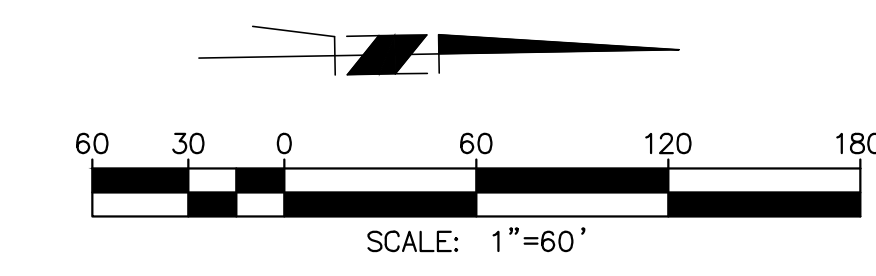


**SECTION F-F**  
NOT TO SCALE



**SECTION G-G**  
NOT TO SCALE

REVISIONS	MADE BY	DATE	APPROVED BY	DATE



COUNTY OF RIVERSIDE

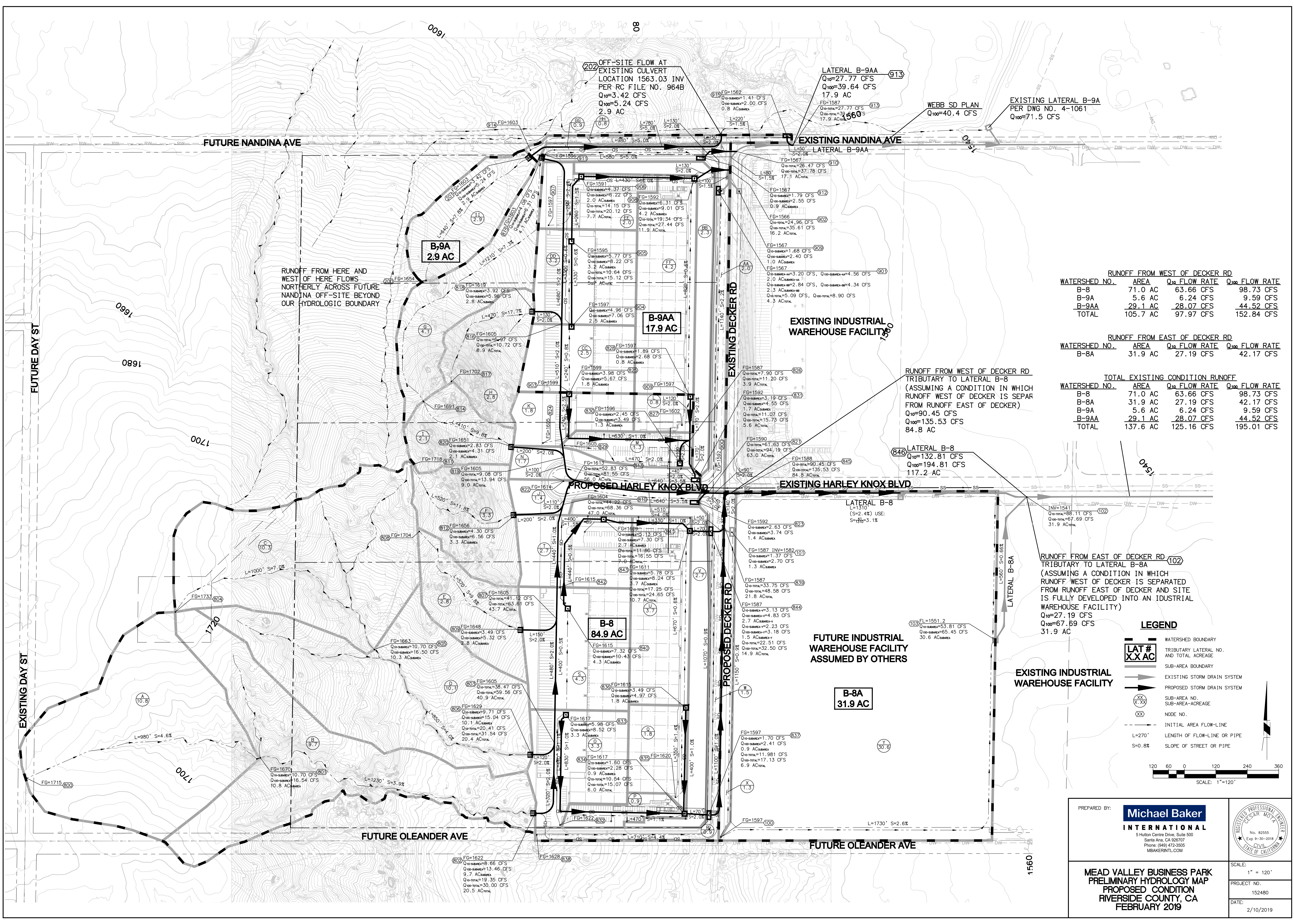
MEAD VALLEY BUSINESS PARK  
CONCEPTUAL GRADING PLAN

SCALE: 1"=60'  
DATE: 03/27/2019  
DESIGNED: RW  
CHECKED: JB  
PLN CK REF: F.B.

**Michael Baker**  
INTERNATIONAL

W.D. SHEET 1  
OF 1 SHEETS  
DWG. NO.





Runoff from West of Decker Rd

Watershed No.	Area	Q <sub>10</sub> Flow Rate	Q <sub>100</sub> Flow Rate
B-8	71.0 AC	63.66 CFS	98.73 CFS
B-9A	5.6 AC	6.24 CFS	9.59 CFS
B-9AA	29.1 AC	28.07 CFS	44.52 CFS
TOTAL	105.7 AC	97.97 CFS	152.84 CFS

Runoff from East of Decker Rd

Watershed No.	Area	Q <sub>10</sub> Flow Rate	Q <sub>100</sub> Flow Rate
B-8A	31.9 AC	27.19 CFS	42.17 CFS

Total Existing Condition Runoff

Watershed No.	Area	Q <sub>10</sub> Flow Rate	Q <sub>100</sub> Flow Rate
B-8	71.0 AC	63.66 CFS	98.73 CFS
B-8A	31.9 AC	27.19 CFS	42.17 CFS
B-9A	5.6 AC	6.24 CFS	9.59 CFS
B-9AA	29.1 AC	28.07 CFS	44.52 CFS
TOTAL	137.6 AC	125.16 CFS	195.01 CFS

LEGEND

- WATERSHED BOUNDARY
- TRIBUTARY LATERAL NO. AND TOTAL ACREAGE
- SUB-AREA BOUNDARY
- EXISTING STORM DRAIN SYSTEM
- PROPOSED STORM DRAIN SYSTEM
- SUB-AREA NO. SUB-AREA-ACREAGE
- NODE NO.
- INITIAL AREA FLOW-LINE
- LENGTH OF FLOW-LINE OR PIPE
- SLOPE OF STREET OR PIPE

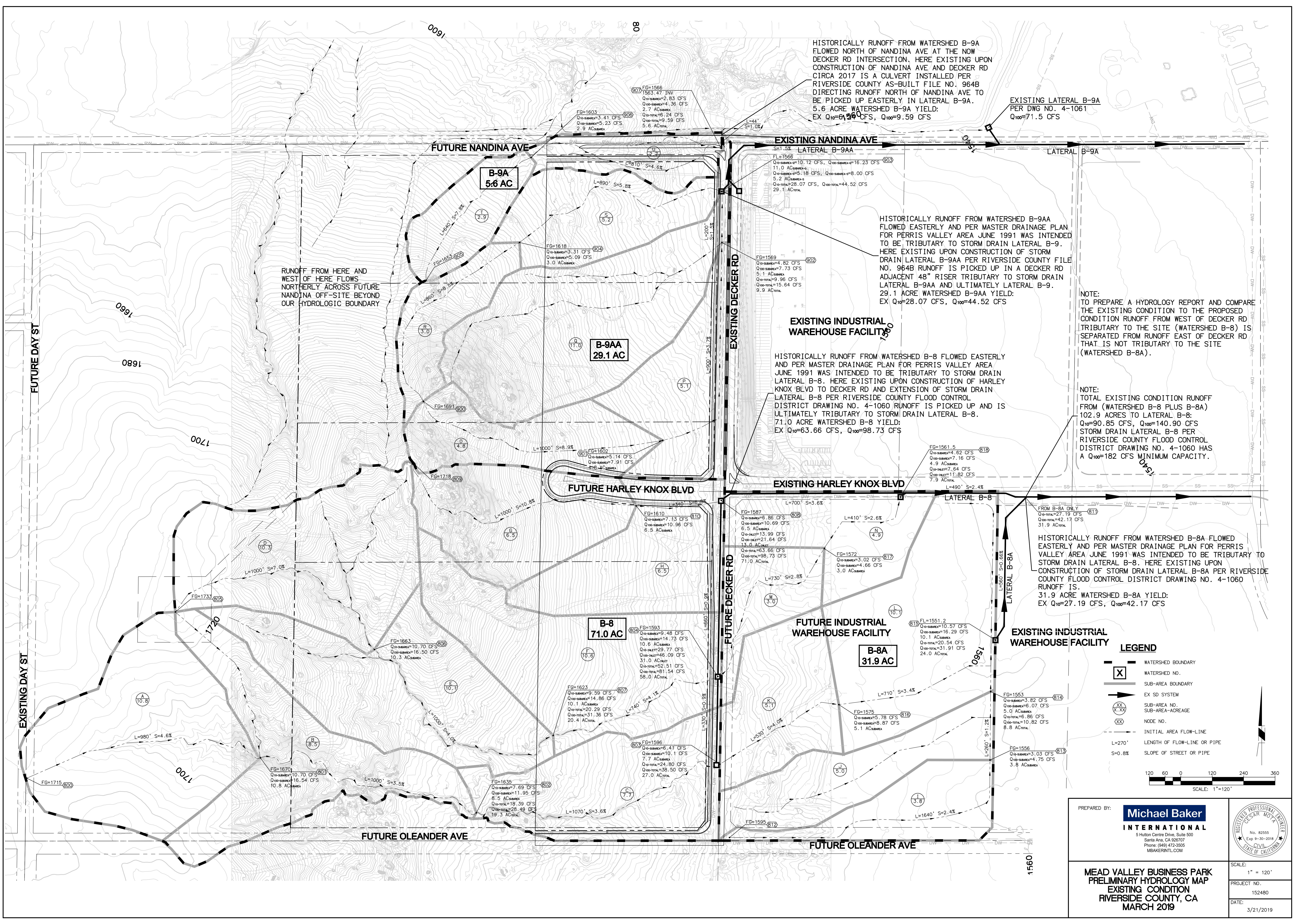
PREPARED BY: **Michael Baker INTERNATIONAL**  
5 Hutton Centre Drive, Suite 500  
Santa Ana, CA 92707  
Phone: (949) 472-3505  
MBAKERINTL.COM



MEAD VALLEY BUSINESS PARK  
PRELIMINARY HYDROLOGY MAP  
PROPOSED CONDITION  
RIVERSIDE COUNTY, CA  
FEBRUARY 2019

SCALE: 1" = 120'  
PROJECT NO. 152480  
DATE: 2/10/2019





HISTORICALLY RUNOFF FROM WATERSHED B-9A FLOWED NORTH OF NANDINA AVE AT THE NOW DECKER RD INTERSECTION. HERE EXISTING UPON CONSTRUCTION OF NANDINA AVE AND DECKER RD CIRCA 2017 IS A CULVERT INSTALLED PER RIVERSIDE COUNTY AS-BUILT FILE NO. 964B DIRECTING RUNOFF NORTH OF NANDINA AVE TO BE PICKED UP EASTERLY IN LATERAL B-9A. 5.6 ACRE WATERSHED B-9A YIELD: EX Q<sub>10</sub>=6.26 CFS, Q<sub>100</sub>=9.59 CFS

EXISTING LATERAL B-9A PER DWG NO. 4-1061 Q<sub>100</sub>=71.5 CFS

HISTORICALLY RUNOFF FROM WATERSHED B-9AA FLOWED EASTERLY AND PER MASTER DRAINAGE PLAN FOR PERRIS VALLEY AREA JUNE 1991 WAS INTENDED TO BE TRIBUTARY TO STORM DRAIN LATERAL B-9. HERE EXISTING UPON CONSTRUCTION OF STORM DRAIN LATERAL B-9AA PER RIVERSIDE COUNTY FILE NO. 964B RUNOFF IS PICKED UP IN A DECKER RD ADJACENT 48" RISER TRIBUTARY TO STORM DRAIN LATERAL B-9AA AND ULTIMATELY LATERAL B-9. 29.1 ACRE WATERSHED B-9AA YIELD: EX Q<sub>10</sub>=28.07 CFS, Q<sub>100</sub>=44.52 CFS

**EXISTING INDUSTRIAL WAREHOUSE FACILITY**

HISTORICALLY RUNOFF FROM WATERSHED B-8 FLOWED EASTERLY AND PER MASTER DRAINAGE PLAN FOR PERRIS VALLEY AREA JUNE 1991 WAS INTENDED TO BE TRIBUTARY TO STORM DRAIN LATERAL B-8. HERE EXISTING UPON CONSTRUCTION OF HARLEY KNOX BLVD TO DECKER RD AND EXTENSION OF STORM DRAIN LATERAL B-8 PER RIVERSIDE COUNTY FLOOD CONTROL DISTRICT DRAWING NO. 4-1060 RUNOFF IS PICKED UP AND IS ULTIMATELY TRIBUTARY TO STORM DRAIN LATERAL B-8. 71.0 ACRE WATERSHED B-8 YIELD: EX Q<sub>10</sub>=63.66 CFS, Q<sub>100</sub>=98.73 CFS

NOTE: TO PREPARE A HYDROLOGY REPORT AND COMPARE THE EXISTING CONDITION TO THE PROPOSED CONDITION RUNOFF FROM WEST OF DECKER RD TRIBUTARY TO THE SITE (WATERSHED B-8) IS SEPARATED FROM RUNOFF EAST OF DECKER RD THAT IS NOT TRIBUTARY TO THE SITE (WATERSHED B-8A).

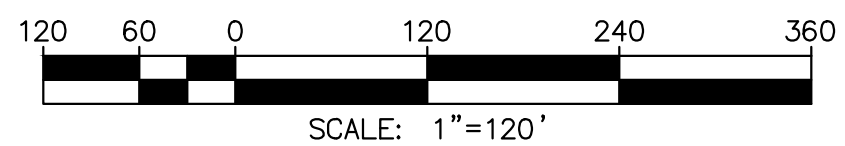
NOTE: TOTAL EXISTING CONDITION RUNOFF FROM (WATERSHED B-8 PLUS B-8A) 102.9 ACRES TO LATERAL B-8: Q<sub>10</sub>=90.85 CFS, Q<sub>100</sub>=140.90 CFS STORM DRAIN LATERAL B-8 PER RIVERSIDE COUNTY FLOOD CONTROL DISTRICT DRAWING NO. 4-1060 HAS A Q<sub>100</sub>=182 CFS MINIMUM CAPACITY.

HISTORICALLY RUNOFF FROM WATERSHED B-8A FLOWED EASTERLY AND PER MASTER DRAINAGE PLAN FOR PERRIS VALLEY AREA JUNE 1991 WAS INTENDED TO BE TRIBUTARY TO STORM DRAIN LATERAL B-8. HERE EXISTING UPON CONSTRUCTION OF STORM DRAIN LATERAL B-8A PER RIVERSIDE COUNTY FLOOD CONTROL DISTRICT DRAWING NO. 4-1060 RUNOFF IS. 31.9 ACRE WATERSHED B-8A YIELD: EX Q<sub>10</sub>=27.19 CFS, Q<sub>100</sub>=42.17 CFS

**EXISTING INDUSTRIAL WAREHOUSE FACILITY**

**LEGEND**

- WATERSHED BOUNDARY
- WATERSHED NO.
- SUB-AREA BOUNDARY
- EX SD SYSTEM
- SUB-AREA NO.
- SUB-AREA-ACREAGE
- NODE NO.
- INITIAL AREA FLOW-LINE
- LENGTH OF FLOW-LINE OR PIPE
- SLOPE OF STREET OR PIPE



PREPARED BY: **Michael Baker INTERNATIONAL**  
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San Jose, CA 95128  
Phone: (408) 472-3805  
MBAKERINTL.COM



**MEAD VALLEY BUSINESS PARK  
PRELIMINARY HYDROLOGY MAP  
EXISTING CONDITION  
RIVERSIDE COUNTY, CA  
MARCH 2019**

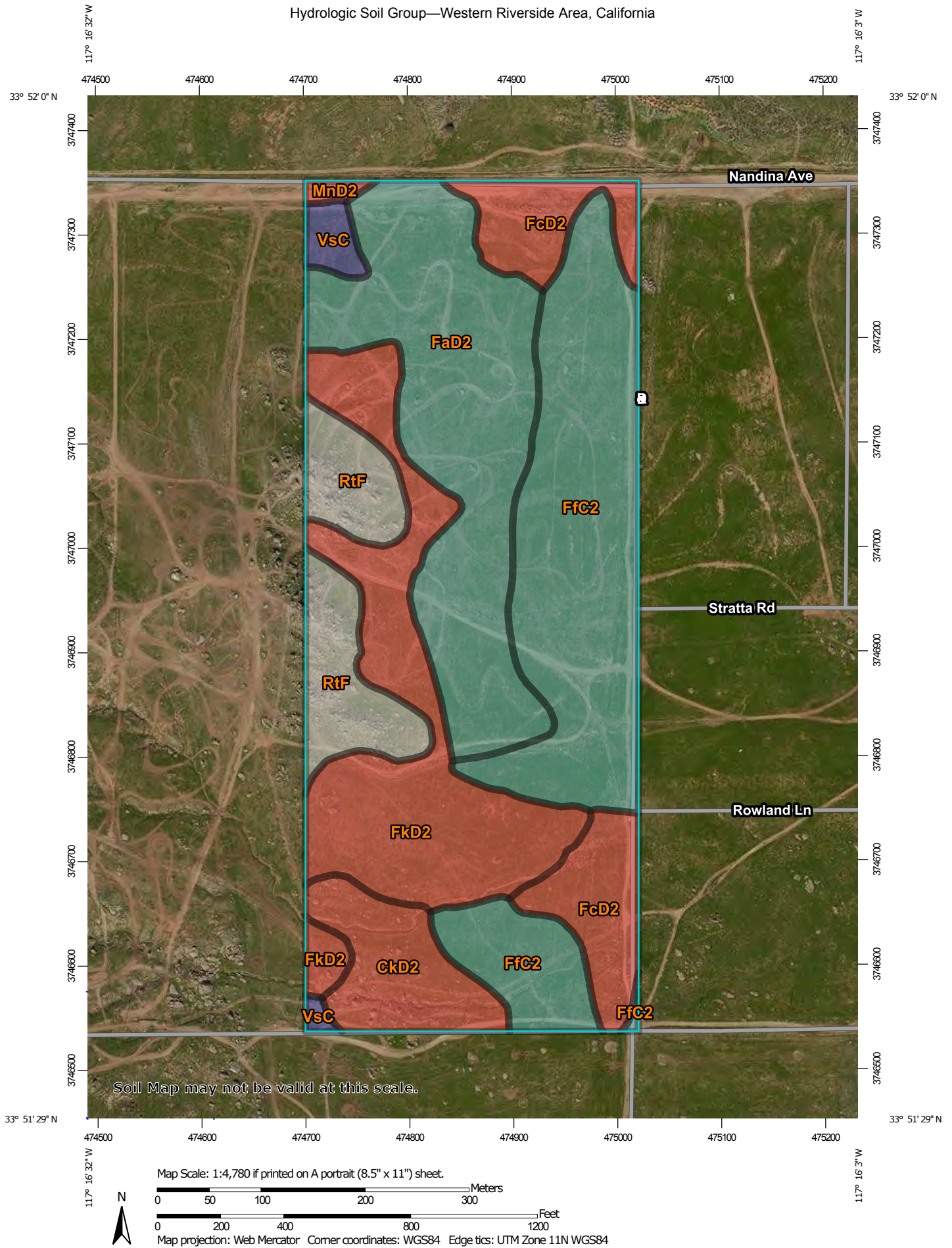
SCALE: 1" = 120'  
PROJECT NO.: 152480  
DATE: 3/21/2019



## Appendix 3: Soils Information

*Geotechnical Study and Other Infiltration Testing Data*

# Hydrologic Soil Group—Western Riverside Area, California




## MAP LEGEND

### Area of Interest (AOI)









 Area of Interest (AOI)

### Soils

#### Soil Rating Polygons





 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Lines


 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Points






 A  
 A/D  
 B  
 B/D

 C  
 C/D  
 D  
 Not rated or not available


### Water Features

 Streams and Canals

### Transportation

 Rails  
 Interstate Highways  
 US Routes  
 Major Roads  
 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California  
 Survey Area Data: Version 11, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 14, 2015—Jan 21, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CkD2	Cieneba rocky sandy loam, 8 to 15 percent slopes, eroded	D	4.3	6.6%
FaD2	Fallbrook sandy loam, 8 to 15 percent slopes, eroded	C	15.9	24.5%
FcD2	Fallbrook rocky sandy loam, shallow, 8 to 15 percent slopes, eroded	D	6.1	9.5%
FfC2	Fallbrook fine sandy loam, 2 to 8 percent slopes, eroded	C	18.3	28.2%
FkD2	Fallbrook fine sandy loam, shallow, 8 to 15 percent slopes, eroded	D	13.1	20.3%
MnD2	Monserate sandy loam, shallow, 5 to 15 percent slopes, eroded	D	0.3	0.4%
RtF	Rockland		5.8	8.9%
VsC	Vista coarse sandy loam, 2 to 8 percent slopes	B	1.0	1.6%
<b>Totals for Area of Interest</b>			<b>64.8</b>	<b>100.0%</b>

## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

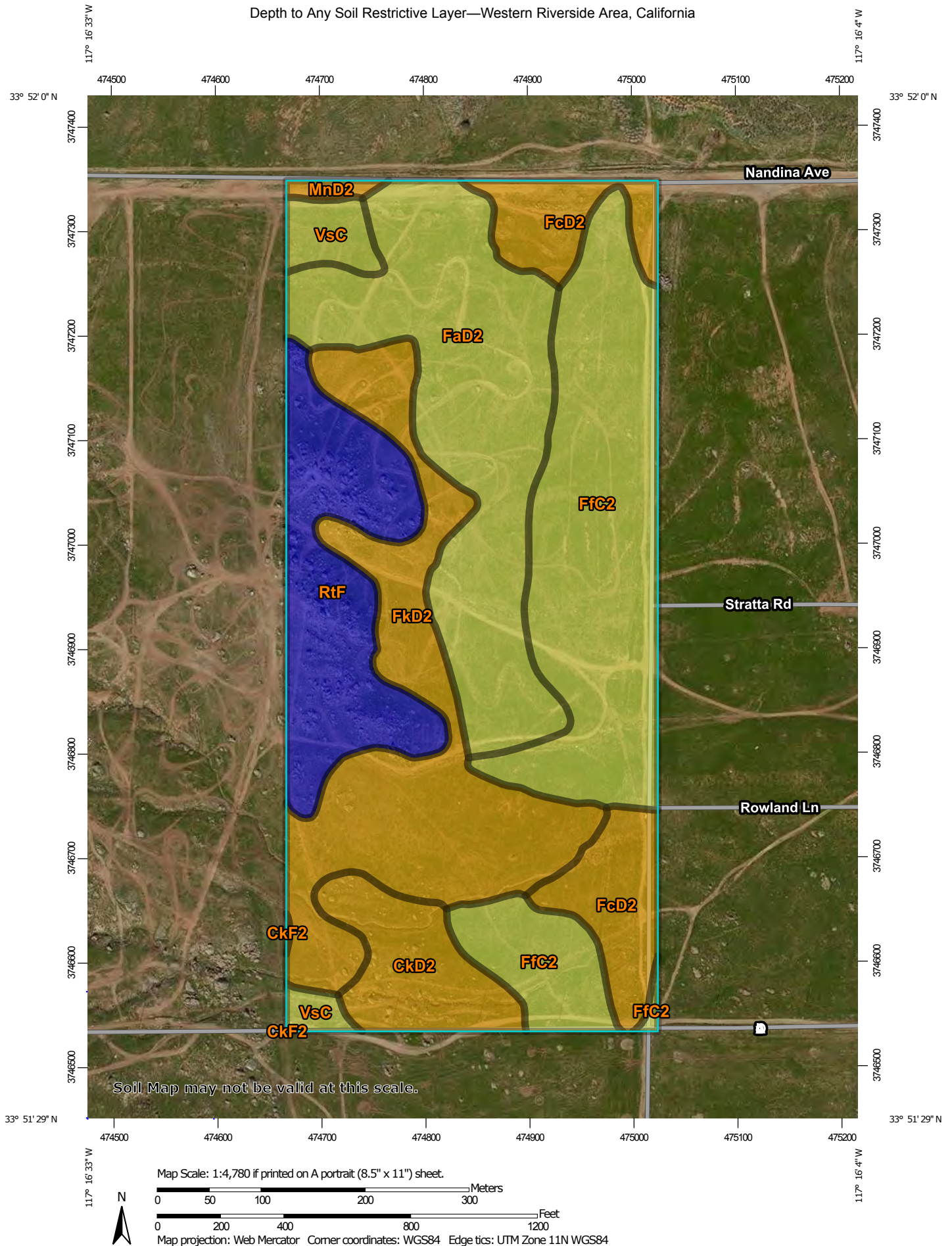
## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified


*Tie-break Rule:* Higher

# Depth to Any Soil Restrictive Layer—Western Riverside Area, California










## MAP LEGEND

### Area of Interest (AOI)


 Area of Interest (AOI)

### Soils







#### Soil Rating Polygons


-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200
-  Not rated or not available

#### Soil Rating Lines


-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200
-  Not rated or not available

#### Soil Rating Points






-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200

 Not rated or not available

### Water Features

 Streams and Canals

### Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California  
Survey Area Data: Version 11, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 14, 2015—Jan 21, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Depth to Any Soil Restrictive Layer

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
CkD2	Cieneba rocky sandy loam, 8 to 15 percent slopes, eroded	36	4.4	6.1%
CkF2	Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded	36	0.0	0.0%
FaD2	Fallbrook sandy loam, 8 to 15 percent slopes, eroded	61	16.5	22.8%
FcD2	Fallbrook rocky sandy loam, shallow, 8 to 15 percent slopes, eroded	46	6.2	8.6%
FfC2	Fallbrook fine sandy loam, 2 to 8 percent slopes, eroded	61	18.8	26.0%
FkD2	Fallbrook fine sandy loam, shallow, 8 to 15 percent slopes, eroded	46	14.6	20.3%
MnD2	Monserate sandy loam, shallow, 5 to 15 percent slopes, eroded	46	0.4	0.5%
RtF	Rockland	>200	9.4	13.0%
VsC	Vista coarse sandy loam, 2 to 8 percent slopes	61	1.9	2.7%
<b>Totals for Area of Interest</b>			<b>72.2</b>	<b>100.0%</b>

## Description

A "restrictive layer" is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers.

This theme presents the depth to any type of restrictive layer that is described for each map unit. If more than one type of restrictive layer is described for an individual soil type, the depth to the shallowest one is presented. If no restrictive layer is described in a map unit, it is represented by the "> 200" depth class.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

## Rating Options

*Units of Measure:* centimeters

*Aggregation Method:* Dominant Component

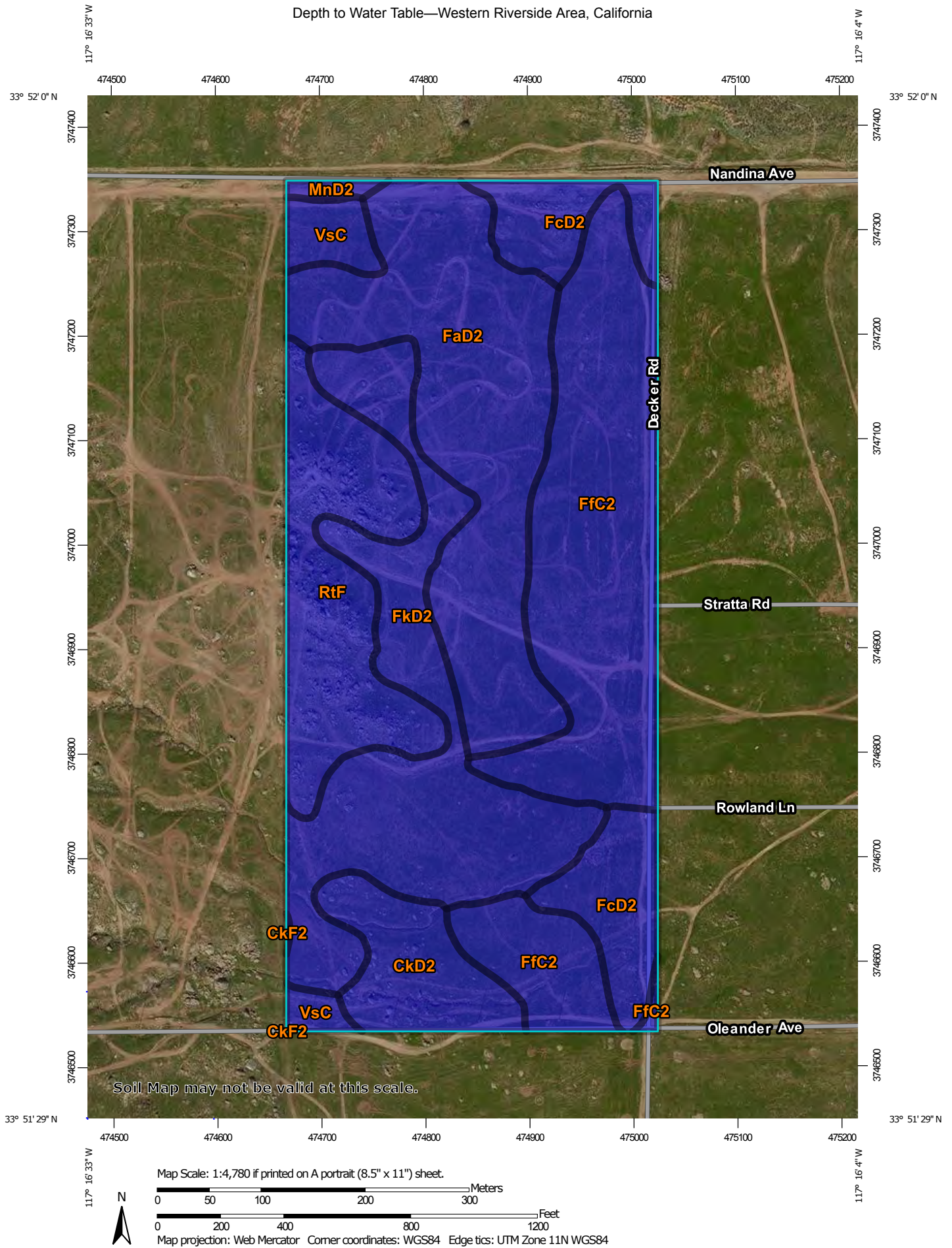
*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Lower

*Interpret Nulls as Zero:* No




# Depth to Water Table—Western Riverside Area, California









## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils






#### Soil Rating Polygons


-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200
-  Not rated or not available

#### Soil Rating Lines


-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200
-  Not rated or not available

#### Soil Rating Points






-  0 - 25
-  25 - 50
-  50 - 100
-  100 - 150
-  150 - 200
-  > 200

 Not rated or not available


### Water Features

 Streams and Canals

### Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Western Riverside Area, California  
Survey Area Data: Version 11, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 14, 2015—Jan 21, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



## Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
CkD2	Cieneba rocky sandy loam, 8 to 15 percent slopes, eroded	>200	4.4	6.1%
CkF2	Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded	>200	0.0	0.0%
FaD2	Fallbrook sandy loam, 8 to 15 percent slopes, eroded	>200	16.5	22.8%
FcD2	Fallbrook rocky sandy loam, shallow, 8 to 15 percent slopes, eroded	>200	6.2	8.6%
FfC2	Fallbrook fine sandy loam, 2 to 8 percent slopes, eroded	>200	18.8	26.0%
FkD2	Fallbrook fine sandy loam, shallow, 8 to 15 percent slopes, eroded	>200	14.6	20.3%
MnD2	Monserate sandy loam, shallow, 5 to 15 percent slopes, eroded	>200	0.4	0.5%
RtF	Rockland	>200	9.4	13.0%
VsC	Vista coarse sandy loam, 2 to 8 percent slopes	>200	1.9	2.7%
<b>Totals for Area of Interest</b>			<b>72.2</b>	<b>100.0%</b>

## Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

## Rating Options

*Units of Measure:* centimeters

*Aggregation Method:* Dominant Component

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Lower

*Interpret Nulls as Zero:* No

*Beginning Month:* January

*Ending Month:* December

## Appendix 4: Historical Site Conditions

*Not Applicable*

## Appendix 5: LID Infeasibility

*LID Technical Infeasibility Analysis*

# Appendix 6: BMP Design Details

*BMP Sizing, Design Details and other Supporting Documentation*

Santa Ana Watershed - BMP Design Volume, $V_{BMP}$ (Rev. 10-2011)						Legend:		Required Entries
								Calculated Cells
(Note this worksheet shall <b>only</b> be used in conjunction with BMP designs from the <b>LID BMP Design Handbook</b> )								
Company Name Michael Baker International						Date 3/19/2019		
Designed by Jacqueline Hernandez						Case No		
Company Project Number/Name 152480 - Oleander Business Park (Mead Valley)								
BMP Identification								
BMP NAME / ID BMP A-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 <sub>85</sub> = 0.59 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)
Impervious (Roof, Parking Lot and Walkway)	244078.53	Roofs	1	0.89	217718			
Pervious (Landscaping)	26118.72	Ornamental Landscaping	0.1	0.11	2885			
	270197.25	Total			220603	0.59	10846.3	11433
Notes:								

Santa Ana Watershed - BMP Design Volume, $V_{BMP}$ (Rev. 10-2011)						Legend:		Required Entries
								Calculated Cells
(Note this worksheet shall <b>only</b> be used in conjunction with BMP designs from the <b>LID BMP Design Handbook</b> )								
Company Name Michael Baker International						Date 3/19/2019		
Designed by Jacqueline Hernandez						Case No		
Company Project Number/Name 152480 - Oleander Business Park (Mead Valley)								
BMP Identification								
BMP NAME / ID BMP B-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 <sub>85</sub> = 0.59 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)
Impervious (Roof, Parking Lot and Walkway)	380063.28	Roofs	1	0.89	339016.4			
Pervious (Landscaping)	86961.35	Ornamental Landscaping	0.1	0.11	9605.6			
	467024.63	Total			348622	0.59	17140.6	17559
Notes:								

<b>Santa Ana Watershed - BMP Design Volume, <math>V_{BMP}</math></b> (Rev. 10-2011)						Legend: <span style="background-color: #e0f0ff; border: 1px solid black; padding: 2px;"> </span> Required Entries <span style="background-color: #d3d3d3; border: 1px solid black; padding: 2px;"> </span> Calculated Cells					
<i>(Note this worksheet shall <b>only</b> be used in conjunction with BMP designs from the <b>LID BMP Design Handbook</b>)</i>											
Company Name <b>Michael Baker International</b>						Date <b>3/19/2019</b>					
Designed by <b>Jacqueline Hernandez</b>						Case No <b> </b>					
Company Project Number/Name <b>152480 - Oleander Business Park (Mead Valley)</b>											
BMP Identification											
BMP NAME / ID <b>BMP C-1</b>											
<i>Must match Name/ID used on BMP Design Calculation Sheet</i>											
Design Rainfall Depth											
85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E						$D_{85} = $ <b>0.59</b> inches					
Drainage Management Area Tabulation											
<i>Insert additional rows if needed to accommodate all DMAs draining to the BMP</i>											
DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, $I_p$	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)			
Impervious (Roof, Parking Lot and Walkway)	123925.28	Roofs	1	0.89	110541.3						
Pervious (Landscaping)	62594.75	Ornamental Landscaping	0.1	0.11	6914.1						
<b>186520.03</b>		<b>Total</b>			<b>117455.4</b>				<b>0.59</b>	<b>5774.9</b>	<b>7554</b>

Notes:



Santa Ana Watershed - BMP Design Volume, $V_{BMP}$ (Rev. 10-2011)						Legend:		Required Entries Calculated Cells	
(Note this worksheet shall <b>only</b> be used in conjunction with BMP designs from the <b>LID BMP Design Handbook</b> )									
Company Name Michael Baker International						Date 3/19/2019			
Designed by Jacqueline Hernandez						Case No			
Company Project Number/Name 152480 - Oleander Business Park (Mead Valley)									
BMP Identification									
BMP NAME / ID BMP D-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 <sub>85</sub> = 0.59 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)	
Impervious (Roof, Parking Lot and Walkway)	466030.75	Roofs	1	0.89	415699.4				
Pervious (Landscaping)	82879.48	Ornamental Landscaping	0.1	0.11	9154.7				
	548910.23	Total			424854.1				0.59
Notes:									

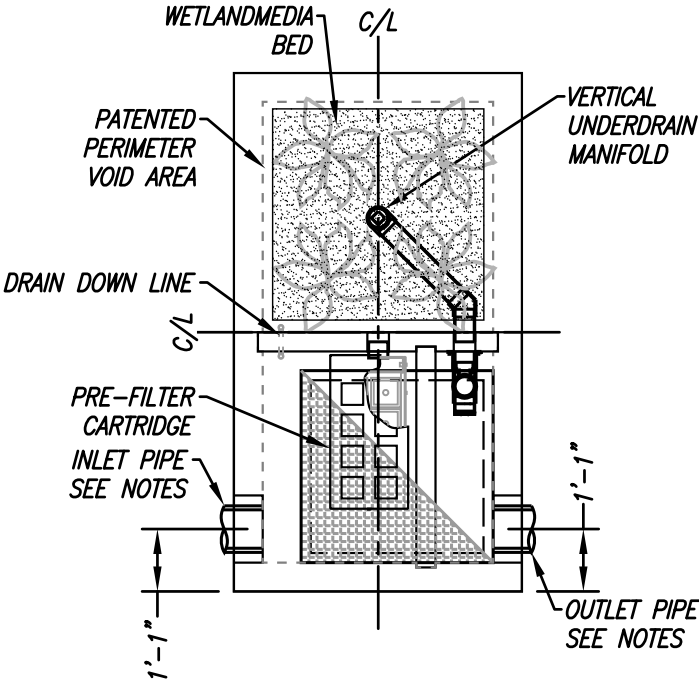
SITE SPECIFIC DATA			
PROJECT NUMBER			
ORDER NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN	OPEN PLANTER	PEDESTRIAN
FRAME & COVER	36” X 36”	N/A	N/A
WETLANDMEDIA VOLUME (CY)			TBD
ORIFICE SIZE (DIA. INCHES)			TBD
NOTES: PRELIMINARY NOT FOR CONSTRUCTION.			

INSTALLATION NOTES

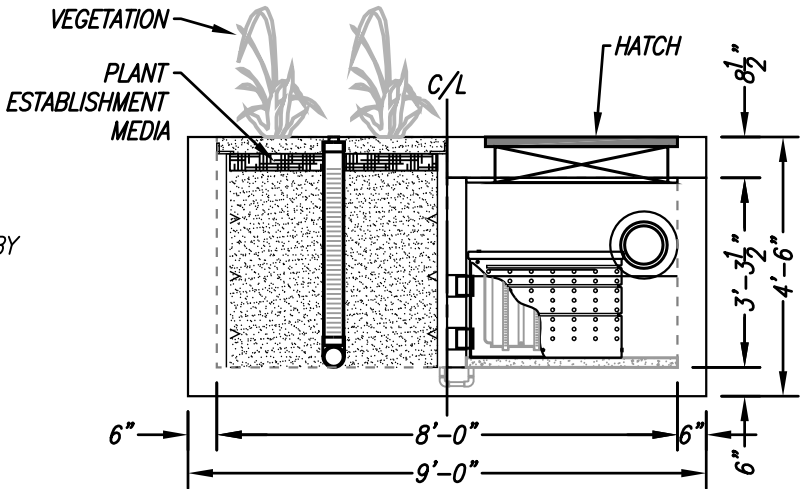
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5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. VEGETATION SUPPLIED AND INSTALLED BY OTHERS. ALL UNITS WITH VEGETATION MUST HAVE DRIP OR SPRAY IRRIGATION SUPPLIED AND INSTALLED BY OTHERS.
7. CONTRACTOR RESPONSIBLE FOR CONTACTING BIO CLEAN FOR ACTIVATION OF UNIT. MANUFACTURERS WARRANTY IS VOID WITH OUT PROPER ACTIVATION BY A BIO CLEAN REPRESENTATIVE.

GENERAL NOTES

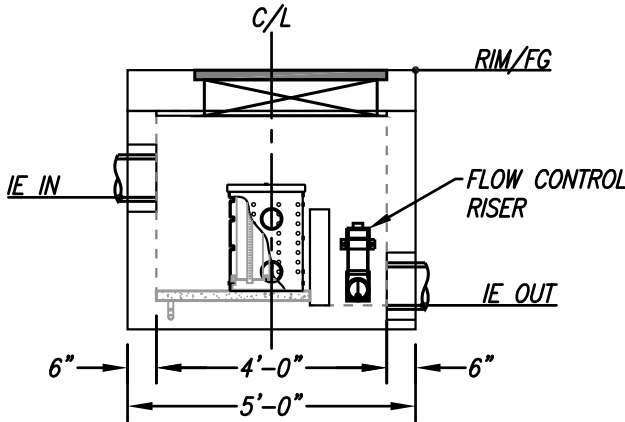
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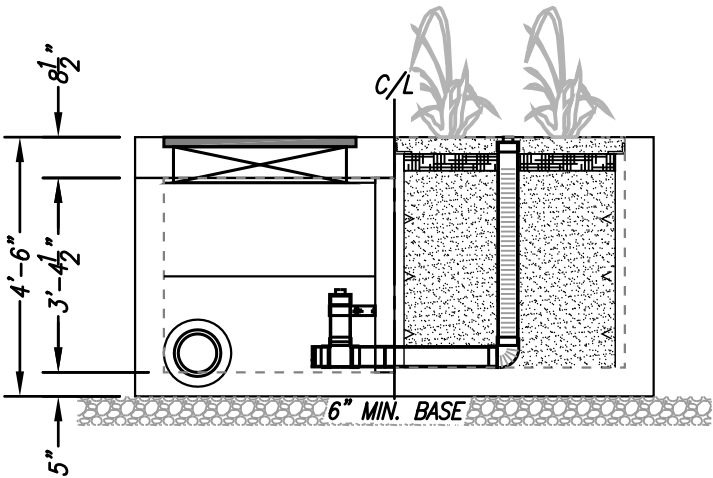
PLAN VIEW



LEFT END VIEW

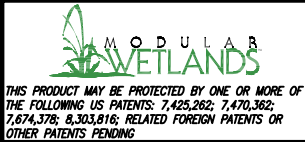


ELEVATION VIEW



RIGHT END VIEW

TREATMENT FLOW (CFS)	0.115
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	2.0
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0



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**MWS-L-4-8-V**  
**STORMWATER BIOFILTRATION SYSTEM**  
**STANDARD DETAIL**

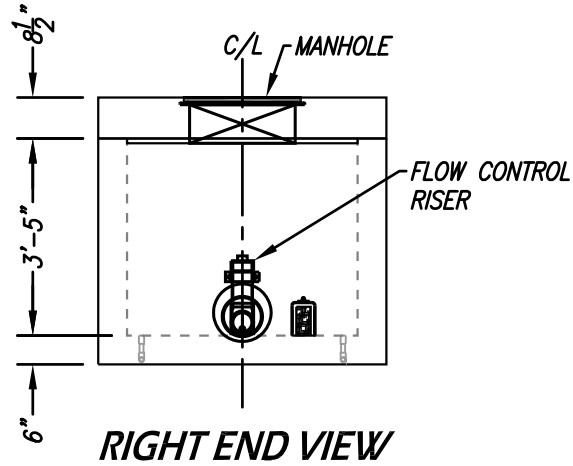
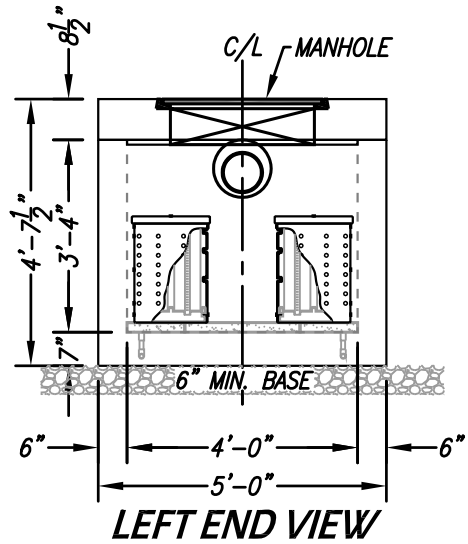
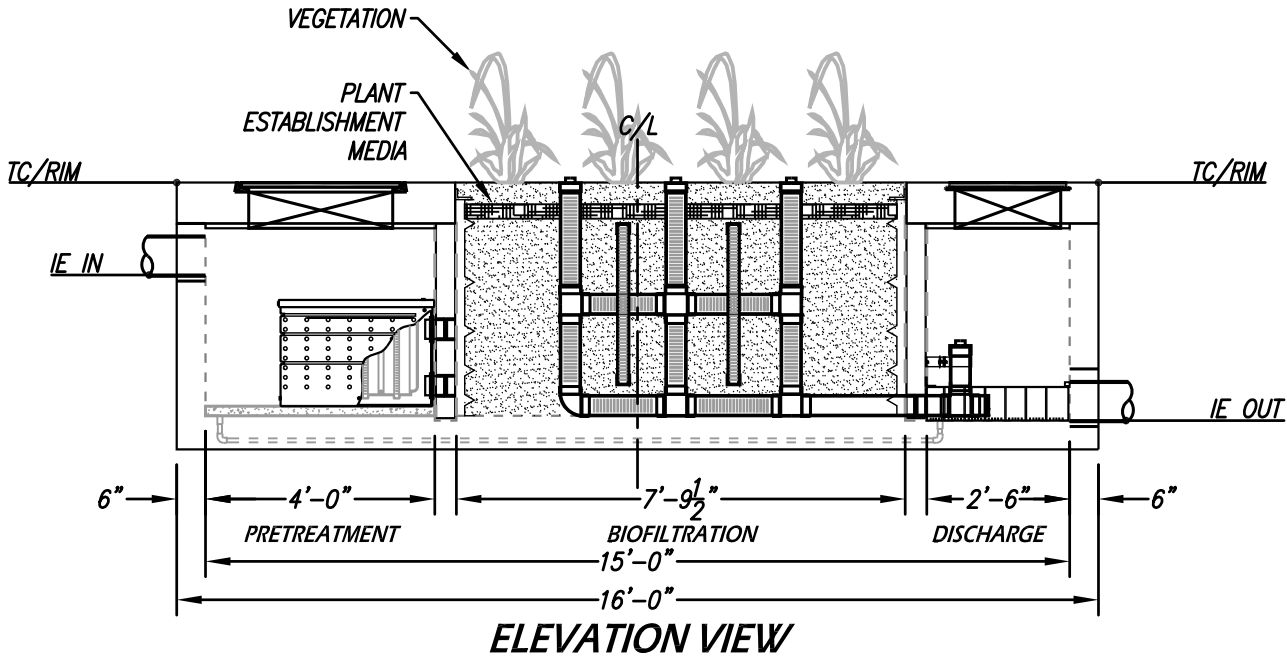
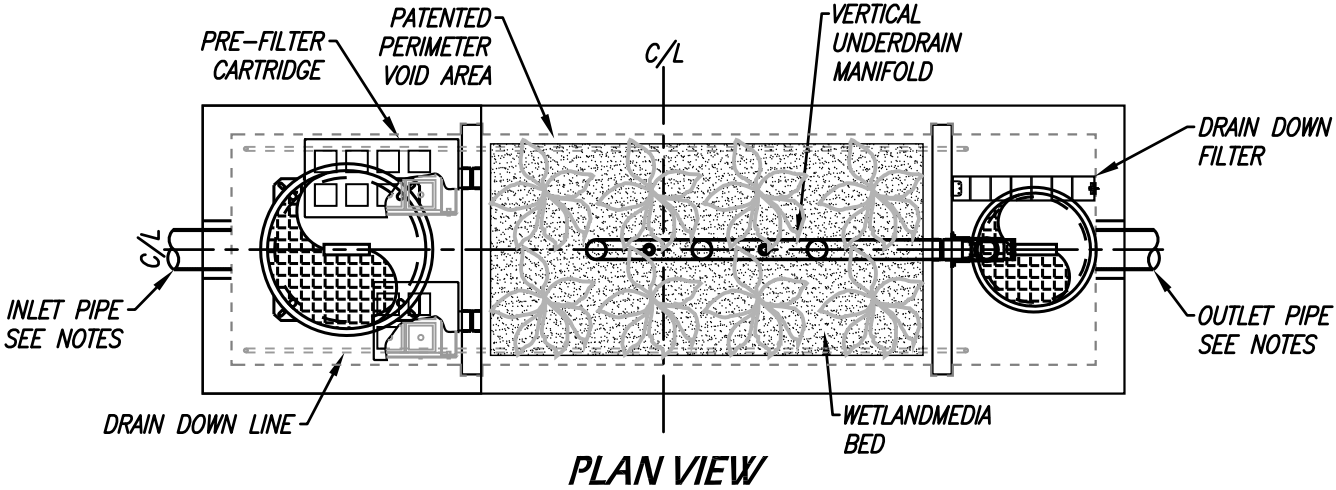
SITE SPECIFIC DATA			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PARKWAY	OPEN PLANTER	PARKWAY
FRAME & COVER	ø30"	N/A	ø24"
WETLANDMEDIA VOLUME (CY)			4.30
WETLANDMEDIA DELIVERY METHOD			TBD
ORIFICE SIZE (DIA. INCHES)			ø1.89"
MAXIMUM PICK WEIGHT (LBS)			31000
NOTES:			

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6. DRIP OR SPRAY IRRIGATION REQUIRED ON ALL UNITS WITH VEGETATION.

GENERAL NOTES

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TREATMENT FLOW (CFS)	0.175
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	TBD
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

**MWS-L-4-15-V**  
**STORMWATER BIOFILTRATION SYSTEM**  
**STANDARD DETAIL**

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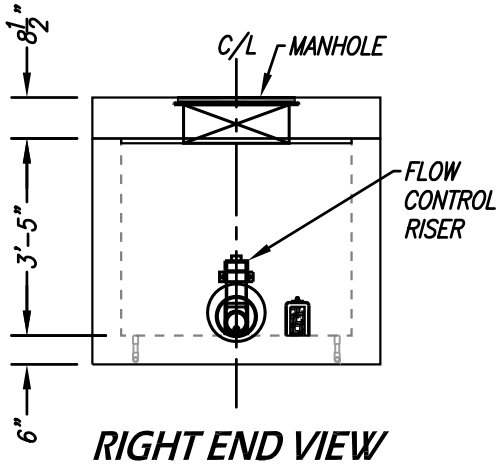
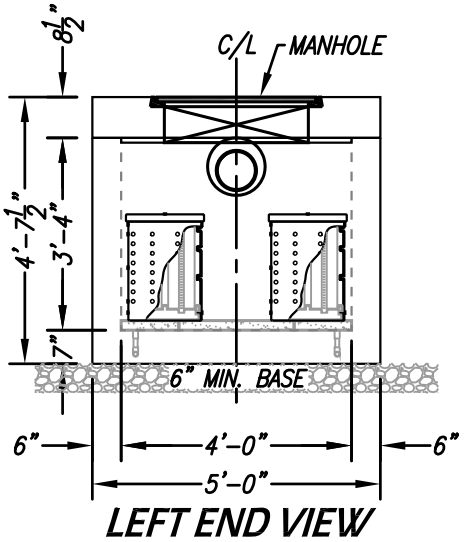
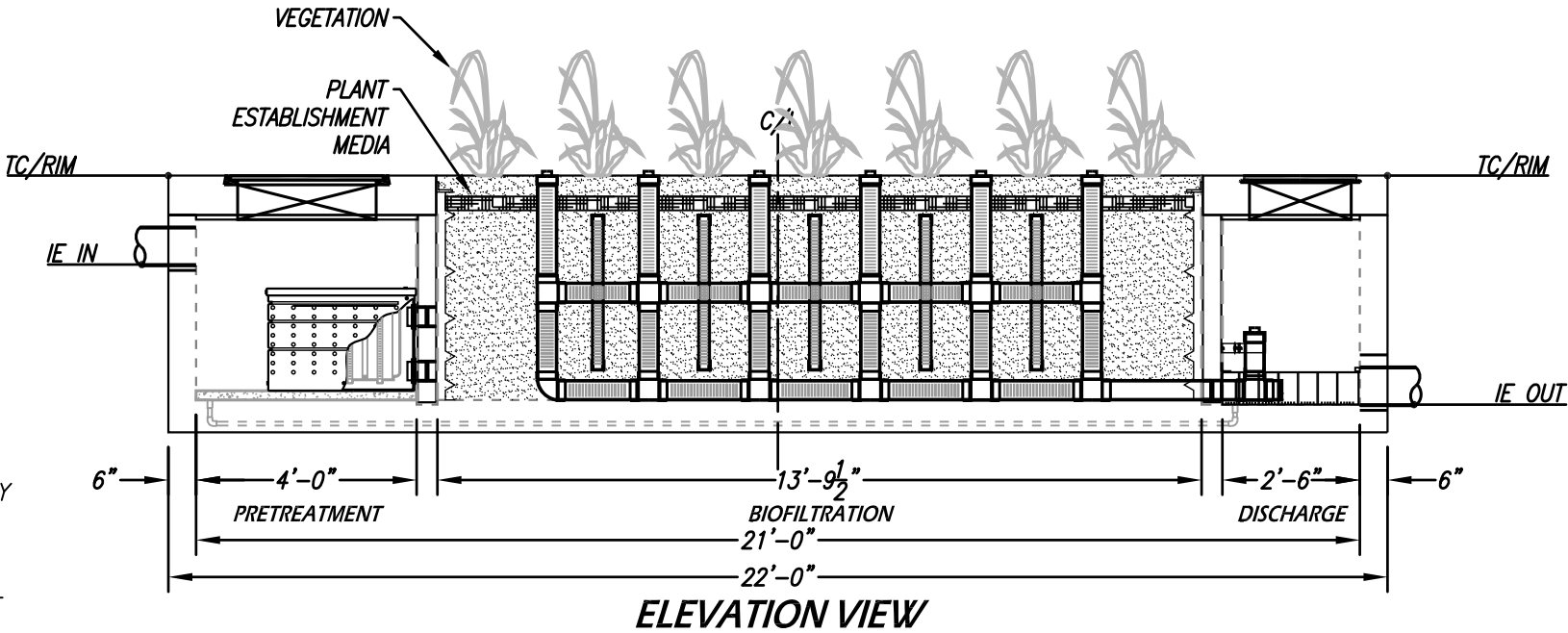
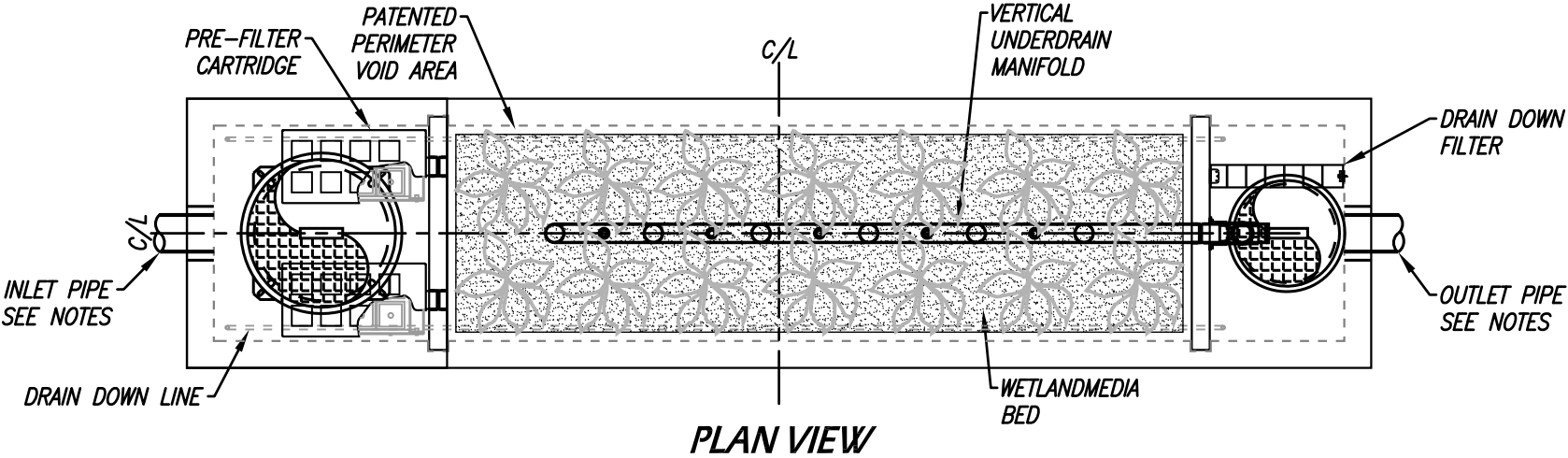
SITE SPECIFIC DATA			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PARKWAY	OPEN PLANTER	PARKWAY
FRAME & COVER	ø30"	N/A	ø24"
WETLANDMEDIA VOLUME (CY)			7.63
WETLANDMEDIA DELIVERY METHOD			TBD
ORIFICE SIZE (DIA. INCHES)			ø2.34"
MAXIMUM PICK WEIGHT (LBS)			43000
NOTES:			

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GENERAL NOTES

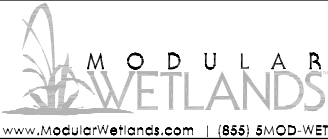
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TREATMENT FLOW (CFS)	0.268
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	TBD
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

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**MWS-L-4-21-V**  
**STORMWATER BIOFILTRATION SYSTEM**  
**STANDARD DETAIL**



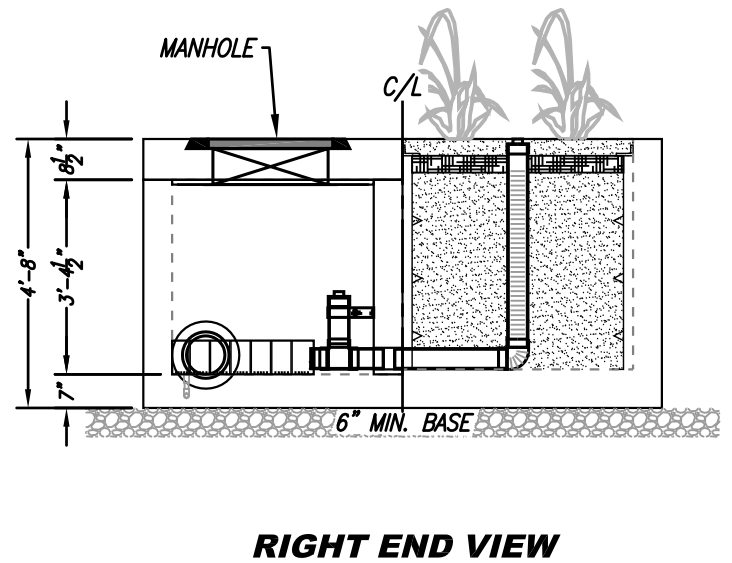
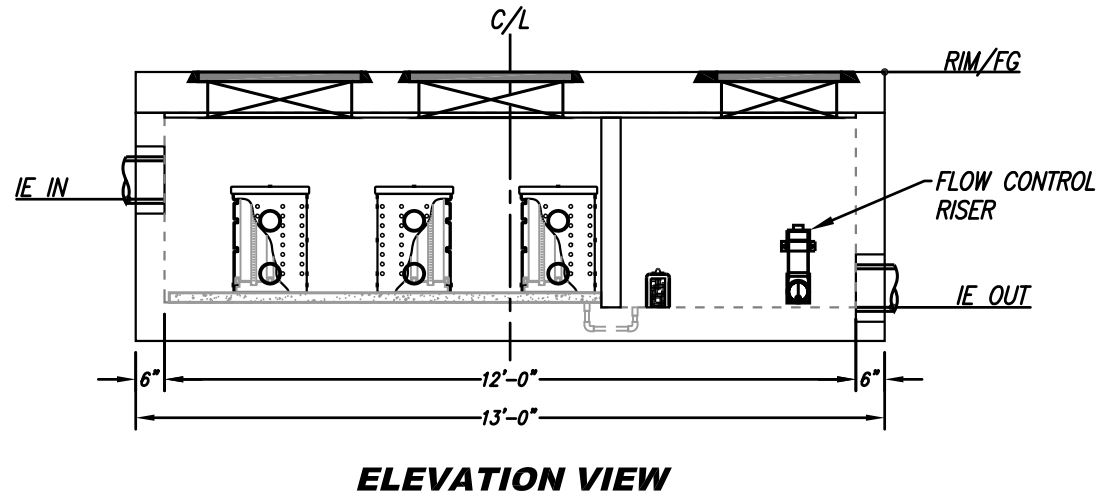
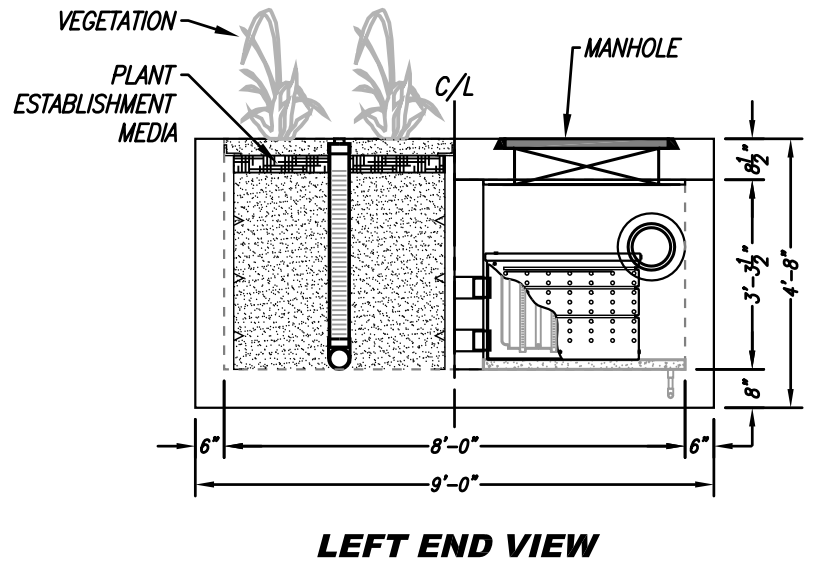
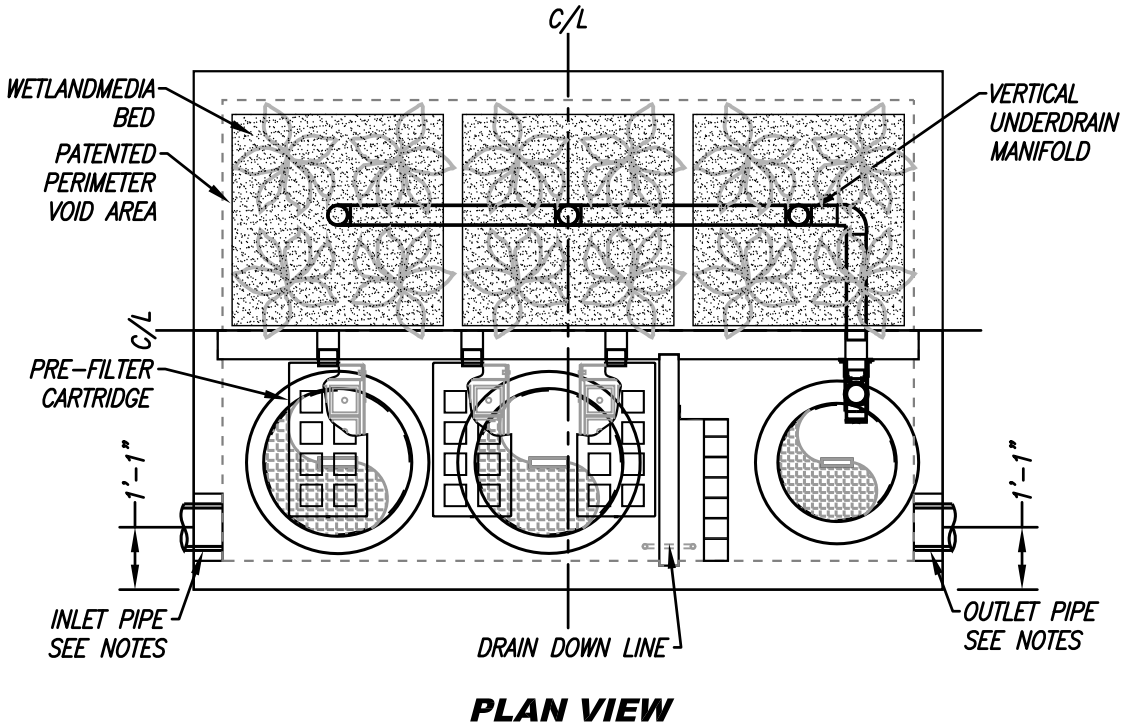
SITE SPECIFIC DATA			
PROJECT NUMBER			
ORDER NUMBER			
PROJECT NAME			
PROJECT LOCATION			
STRUCTURE ID			
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
TREATMENT HGL AVAILABLE (FT)			
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN	OPEN PLANTER	PEDESTRIAN
FRAME & COVER	2EA ø30”	N/A	ø24”
WETLANDMEDIA VOLUME (CY)			TBD
ORIFICE SIZE (DIA. INCHES)			TBD
NOTES: PRELIMINARY NOT FOR CONSTRUCTION.			

INSTALLATION NOTES

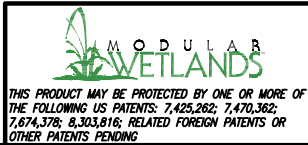
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TREATMENT FLOW (CFS)	0.346
OPERATING HEAD (FT)	3.4
PRETREATMENT LOADING RATE (GPM/SF)	2.0
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0



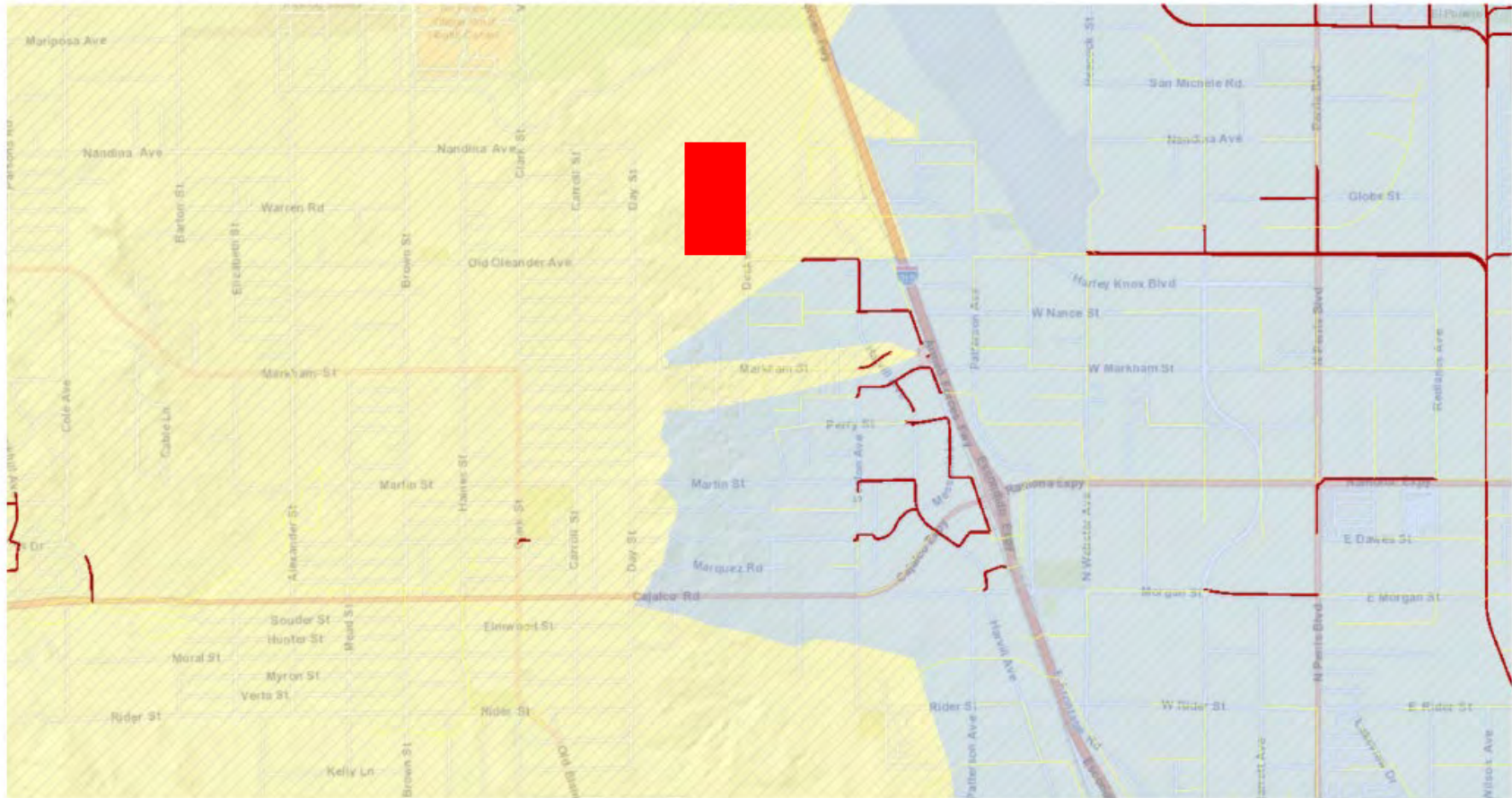
PROPRIETARY AND CONFIDENTIAL:  
THE INFORMATION CONTAINED IN THIS DOCUMENT IS THE SOLE PROPERTY OF FORTERRA AND ITS COMPANIES. THIS DOCUMENT, NOR ANY PART THEREOF, MAY BE USED, REPRODUCED OR MODIFIED IN ANY MANNER WITH OUT THE WRITTEN CONSENT OF FORTERRA.



**MWS-L-8-12-V**  
**STORMWATER BIOFILTRATION SYSTEM**  
**STANDARD DETAIL**

# Appendix 7: Hydromodification

*Supporting Detail Relating to Hydrologic Conditions of Concern*



1km  
3000ft

Site Address: [rivco.permittrack.com](http://rivco.permittrack.com)

**Legend**

- Hydromodification Exemption Area
- Hydromodification Non-Exemption Area
- Project Location

Riverside County  
SWCTT  
**Stormwater Map**

## Receiving Waters and Susceptibility to Hydromodification

### Nandina ave

Perris Valley MDP Lateral B-9 → Perris Valley Channel Lateral B (EEM) → Proposed District Facilities (to be engineered) → Perris Valley Channel (EEM) → San Jacinto River Reach 3 (EEM) → **Canyon Lake** → San Jacinto River Reach 1 → Lake Elsinore

### Harley Knox Blvd

Perris Valley MDP Lateral B-8 → Perris Valley Channel Lateral B (EEM) → Proposed District Facilities (to be engineered) → Perris Valley Channel (EEM) → San Jacinto River Reach 3 (EEM) → **Canyon Lake** → San Jacinto River Reach 1 → Lake Elsinore

### Oleander Ave

Perris Valley MDP Lines E-10 and F (EFHM) → Proposed District Facilities (to be engineered) → Perris Valley Channel Lateral B (EFHM) → Perris Valley Channel (EEM) → San Jacinto River Reach 3 (EEM) → **Canyon Lake** → San Jacinto River Reach 1 → Lake Elsinore

According to the Hydromodification Susceptibility Documentation Report and Mapping: Santa Ana Region, prepared by RBF Consulting, January 2012:

**Engineered, Earthen and Maintained (EEM):** This group includes constructed facilities that do not contain armoring but have been engineered to be stable systems and are verified by as-builts. The facility must also be maintained. This group is intended to be channel segments constructed for flood conveyance, which generally have a design capacity in excess of a 10-year storm event.

**Engineered, Fully Hardened and Maintained (EFHM):** This group includes constructed facilities that are fully armored (e.g. concrete, soil cement, rip rap rock, etc.) on three sides and verified by as-builts, aerial photographs and/or a site visit. This group includes piped and boxed stream channel segments. The facility must also, be maintained and designed based on an engineering criteria (e.g. a specific storm event.)

#### 1. Not Susceptible

- a. EFHM – The risk for adverse impacts caused by Hydromodification is insignificant due to the armoring of the stream channel segment and the engineered design which would prevent erosion and degradation of the channel.
- b. EPHM - The risk for adverse impacts caused by Hydromodification is very low due to the partial armoring of the stream channel segment and the engineered design which would significantly lower the risk of erosion and degradation of the channel.
- c. EEM - The risk for adverse impacts caused by Hydromodification is low due to the engineered design of the stream channel segment which would lower the risk of erosion and degradation of the channel.

Therefore, the project site is not susceptible to hydromodification.



## Appendix 8: Source Control

*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.1 on 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
<input checked="" type="checkbox"/> A. On-site storm drain inlets	<input checked="" type="checkbox"/> Locations of inlets.	<input checked="" type="checkbox"/> 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.	<input checked="" type="checkbox"/> Maintain and periodically repaint or replace inlet markings. <input checked="" type="checkbox"/> Provide stormwater pollution prevention information to new site owners, lessees, or operators. <input checked="" type="checkbox"/> See applicable operational BMPs in Fact Sheet SC-44, “Drainage System Maintenance,” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a> <input checked="" type="checkbox"/> 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.”
<input type="checkbox"/> B. Interior floor drains and elevator shaft sump pumps		<input type="checkbox"/> State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	<input type="checkbox"/> Inspect and maintain drains to prevent blockages and overflow.
<input type="checkbox"/> C. Interior parking garages		<input type="checkbox"/> State that parking garage floor drains will be plumbed to the sanitary sewer.	<input type="checkbox"/> 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
<input checked="" type="checkbox"/> D1. Need for future indoor & structural pest control		<input checked="" type="checkbox"/> Note building design features that discourage entry of pests.	<input checked="" type="checkbox"/> Provide Integrated Pest Management information to owners, lessees, and operators.
<input checked="" type="checkbox"/> D2. Landscape/ Outdoor Pesticide Use	<input checked="" type="checkbox"/> Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained.  <input checked="" type="checkbox"/> Show self-retaining landscape areas, if any.  <input checked="" type="checkbox"/> Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.)	<p>State that final landscape plans will accomplish all of the following.</p> <input checked="" type="checkbox"/> Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.  <input checked="" type="checkbox"/> 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.  <input checked="" type="checkbox"/> Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.  <input checked="" type="checkbox"/> 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.	<input checked="" type="checkbox"/> Maintain landscaping using minimum or no pesticides.  <input checked="" type="checkbox"/> See applicable operational BMPs in “What you should know for.....Landscape and Gardening” at <a href="http://rcflood.org/stormwater/Error!">http://rcflood.org/stormwater/Error!</a> <small>Hyperlink reference not valid.</small>  <input checked="" type="checkbox"/> 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
<input type="checkbox"/> E. Pools, spas, ponds, decorative fountains, and other water features.	<input type="checkbox"/> 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.)	<p>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.</p>	<input type="checkbox"/> See applicable operational BMPs in “Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain” at <a href="http://rcflood.org/stormwater/">http://rcflood.org/stormwater/</a>
<input type="checkbox"/> F. Food service	<input type="checkbox"/> 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.  <input type="checkbox"/> On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	<input type="checkbox"/> Describe the location and features of the designated cleaning area.  <input type="checkbox"/> Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.	<input type="checkbox"/> See the brochure, “The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries” at <a href="http://rcflood.org/stormwater/">http://rcflood.org/stormwater/</a>  Provide this brochure to new site owners, lessees, and operators.
<input checked="" type="checkbox"/> G. Refuse areas	<input checked="" type="checkbox"/> 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.  <input checked="" type="checkbox"/> 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.  <input type="checkbox"/> Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	<input checked="" type="checkbox"/> State how site refuse will be handled and provide supporting detail to what is shown on plans.  <input checked="" type="checkbox"/> State that signs will be posted on or near dumpsters with the words “Do not dump hazardous materials here” or similar.	<input checked="" type="checkbox"/> 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 <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>

# 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
<input checked="" type="checkbox"/> H. Industrial processes.	<input checked="" type="checkbox"/> Show process area.	<input checked="" type="checkbox"/> 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.”	<input checked="" type="checkbox"/> See Fact Sheet SC-10, “Non-Stormwater Discharges” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>  See the brochure “Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities” at <a href="http://rcflood.org/stormwater/">http://rcflood.org/stormwater/</a>

# 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
<input type="checkbox"/> I. Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)	<input type="checkbox"/> 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.  <input type="checkbox"/> 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.  <input type="checkbox"/> 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.	<p>Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains.</p> <p>Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for:</p> <ul style="list-style-type: none"> <li>▪ Hazardous Waste Generation</li> <li>▪ Hazardous Materials Release Response and Inventory</li> <li>▪ California Accidental Release (CalARP)</li> <li>▪ Aboveground Storage Tank</li> <li>▪ Uniform Fire Code Article 80 Section 103(b) &amp; (c) 1991</li> <li>▪ Underground Storage Tank</li> </ul> <p><a href="http://www.cchealth.org/groups/hazmat/">www.cchealth.org/groups/hazmat/</a></p>	<input type="checkbox"/> 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 <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>

# 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
<input type="checkbox"/> <b>J. Vehicle and Equipment Cleaning</b>	<input type="checkbox"/> <b>Show on drawings as appropriate:</b> (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.	<input type="checkbox"/> <b>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.</b>	<b>Describe operational measures to implement the following (if applicable):</b> <input type="checkbox"/> <b>Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system.</b> 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 <a href="http://rcflood.org/stormwater/">http://rcflood.org/stormwater/</a> <input type="checkbox"/> <b>Car dealerships and similar may rinse cars with water only.</b>

# 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
<input type="checkbox"/> <b>K. Vehicle/Equipment Repair and Maintenance</b>	<input type="checkbox"/> 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.  <input type="checkbox"/> 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.  <input type="checkbox"/> 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.	<input type="checkbox"/> State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area.  <input type="checkbox"/> 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.  <input type="checkbox"/> 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.	<p>In the Stormwater Control Plan, note that all of the following restrictions apply to use the site:</p> <input type="checkbox"/> 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.  <input type="checkbox"/> 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.  <input type="checkbox"/> 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.  <p>Refer to "Automotive Maintenance &amp; 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 <a href="http://rcflood.org/stormwater/">http://rcflood.org/stormwater/</a></p> <p>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 <a href="http://rcflood.org/stormwater/">http://rcflood.org/stormwater/</a></p>



# 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
<input type="checkbox"/> L. Fuel Dispensing Areas	<input type="checkbox"/> Fueling areas <sup>6</sup> 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.  <input type="checkbox"/> 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 <sup>1</sup> .] The canopy [or cover] shall not drain onto the fueling area.		<input type="checkbox"/> The property owner shall dry sweep the fueling area routinely. <input type="checkbox"/> See the Fact Sheet SD-30 , “Fueling Areas” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>

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<sup>6</sup> 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
<input checked="" type="checkbox"/> M. Loading Docks	<input checked="" type="checkbox"/> 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.  <input type="checkbox"/> 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.  <input type="checkbox"/> Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		<input checked="" type="checkbox"/> Move loaded and unloaded items indoors as soon as possible. <input checked="" type="checkbox"/> See Fact Sheet SC-30, “Outdoor Loading and Unloading,” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>

# 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
<input type="checkbox"/> N. Fire Sprinkler Test Water		<input type="checkbox"/> Provide a means to drain fire sprinkler test water to the sanitary sewer.	<input type="checkbox"/> See the note in Fact Sheet SC-41, “Building and Grounds Maintenance,” in the CASQA Stormwater Quality Handbooks at <a href="http://www.cabmphandbooks.com">www.cabmphandbooks.com</a>
<p>O. Miscellaneous Drain or Wash Water or Other Sources</p> <input type="checkbox"/> Boiler drain lines <input type="checkbox"/> Condensate drain lines <input type="checkbox"/> Rooftop equipment <input type="checkbox"/> Drainage sumps <input type="checkbox"/> Roofing, gutters, and trim. <input type="checkbox"/> Other sources		<input type="checkbox"/> Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. <input type="checkbox"/> 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. <input type="checkbox"/> Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. <input type="checkbox"/> 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
<input checked="" type="checkbox"/> P. Plazas, sidewalks, and parking lots.			<input checked="" type="checkbox"/> 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: Operation and Maintenance

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

# **Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms for Oleander Business Park (Mead Valley)**

## **Riverside County, California**

### **I. Inspection and Maintenance Log**

See Appendix A for Inspection and Maintenance Log Records.

### **II. Updates, Revisions and Errata**

See Appendix B for Updates, Revisions and Errata.

### **III. Introduction**

Oleander Business Park (Mead Valley) is a commercial development consisting of two buildings located west of Decker Road between Oleander Avenue and Nandina Avenue in Unincorporated County of Riverside. There are nine drainage management areas (DMAs) for the project site.

DMA A-1 will treat runoff from the southern portion of Building A, parking lot and off-site runoff from the west. The runoff from this DMA will discharge into the storm drain system and be stored in the underground storage system and treated by the volume based Modular Wetlands System (MWS) BMP A-1. DMA A-2 is self-treating landscaped area adjacent to Oleander Avenue. Any runoff not infiltrated will discharge onto Oleander Avenue. DMA A-3 is also a self-treating landscaped area adjacent to Oleander Avenue and Decker Road. Any runoff not infiltrated will discharge into the landscaped swale and enter the storm drain system.

DMA B-1 will treat the remaining northern portion of the Building A, parking lot and off-site runoff from the west. The runoff from this DMA will discharge into the storm drain system and be stored in the underground storage system and treated by the volume based MWS BMP B-1. DMA B-2 is self-treating landscaped area adjacent to Harley Knox Road and Decker Road. Any runoff not infiltrated will discharge into the landscaped swale and enter the storm drain system.

DMA C-1 will treat runoff from the southern portion of the Building B, parking lot and off-site runoff from the west. The runoff from this DMA will discharge into the storm drain system and be stored in the underground storage system and treated by the volume based MWS BMP C-1. DMA C-2 is self-treating landscaped area adjacent to Harley Knox Road. Any runoff not infiltrated will discharge into the landscaped swale and enter the storm drain system.



DMA D-1 will treat runoff from the northern portion of the Building B, parking lot and off-site runoff from the west. The runoff from this DMA will discharge into the storm drain system and be stored in the underground storage system and treated by the volume based MWS BMP D-1. DMA D-2 is self-treating landscaped area adjacent to Decker Road and Nandina Avenue. Any runoff not infiltrated will discharge into the landscaped swale and enter the storm drain system.

#### **IV. Responsibility for Maintenance**

##### **a. General**

**Property Owner:**

**Contact Info:**

The "Storm Water Quality Management Plan and Storm Water BMP Transfer, Access and Maintenance Agreement" executed between the County of Riverside and the property owner requires that the property owner will install, implement and maintain the Modular Wetland Systems and underground storage systems. Any major maintenance to these systems should be performed by a professional contractor.

Operation and Maintenance Agreement will be provided in the O&M Plan in the Final WQMP.

The annual anticipated cost of maintenance for the Modular Wetlands Systems are as follows:

- MWS-L-4-15 - \$750
- MWS-L-4-21 - \$950
- MWS-L-4-8 - \$550
- MWS-L-8-12 - \$1,100

Each annual maintenance includes two site visits, one inspection and one full service with clean disposal and media replacement.

##### **b. Staff Training Program**

Staff and professional contractors will be trained annually.

##### **c. Records**

Maintenance/inspection records should be kept for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.

**d. Safety**

Staff and professional contractors will have safety training annually.

**V. Summary of Drainage Management Areas and Stormwater BMPs**

**a. Drainage Areas**

DMA's were explained in Section III. Introduction.

See the WQMP BMP Exhibit in Appendix C for DMA's and pervious and impervious areas.

**b. Structural Post-Construction BMPs**

BMP A-1 is a volume based MWS (MWS-L-4-15) that treats the stored runoff of DMA A-1 from the underground storage system located in the parking lot adjacent to Building A.

BMP B-1 is a volume based MWS (MWS-L-4-21) that treats the stored runoff of DMA B-1 from the underground storage system located in the parking lot adjacent to Building A.

BMP C-1 is a volume based MWS (MWS-L-4-8) that treats the stored runoff of DMA's C-1 from the underground storage system located in the parking lot adjacent to Building B.

BMP D-1 is a volume based MWS (MWS-L-8-12) that treats the stored runoff of DMA's D-1 from the underground storage system located in the parking lot adjacent to Building D.

See the WQMP BMP Exhibit in Appendix C for where post-construction BMPs are located.

**c. Self-Treating Areas**

The following DMA's are self-treating and does not require specialized maintenance beyond that of typical landscape maintenance:

- DMA A-2
- DMA A-3
- DMA B-2
- DMA C-2
- DMA D-2

See the WQMP BMP Exhibit in Appendix C for where self-treating areas are located.

## **VI. Stormwater BMP Design Documentation**

See Appendix D for as-built drawings, product brochures and maintenance manuals of the MWS and underground storage systems.

## VII. Maintenance Schedule or Matrix

Maintenance Matrix

System	Maintenance Activity	Frequency
Modular Wetlands System	Remove trash from screening device. This can be done manually or with the use of a vacuum truck.	6 to 12 months
	Remove sediment from separation chamber. Spray down pollutants accumulated on walls and cartridge filters with a pressure washer. Vacuum out separation chamber and remove all accumulated pollutants.	12 to 24 months
	Replace cartridge filter media. Remove media cages and spray down the cartridge filter to remove any accumulated pollutants. Reinstall media cages and fill with new media.	12 to 24 months
	Replace drain down filter. Unlock and lift drain down filter housing and remove old media block. Replace with new media block.	12 to 24 months
	Trim vegetation.	6 to 12 months
Underground Storage Systems (ADS StormTech or similar)	Perform inspections annually at a minimum. For the first year of operation, the Isolator Row should be inspected every 6 months. For subsequent years, the inspection should be based upon previous observations of sediment deposition.	6 to 12 months
	If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.	As needed
	Maintain the Isolator Rows by performing the JetVac process and vacuum manhole sump.	6 to 12 months

# Appendix 10: Educational Materials

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



# A Citizen's Guide to Understanding Stormwater



EPA 833-B-03-002

January 2003

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## After the Storm

### 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.



## 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

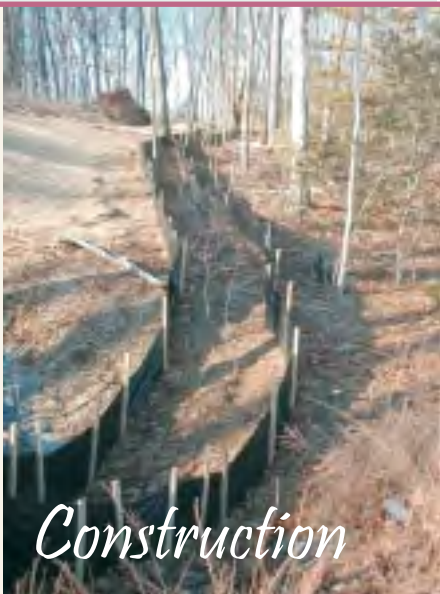
Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- ◆ 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.





## Riverside County Stormwater Program Members

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

City of Cathedral City  
(760) 770-0340

City of Coachella  
(760) 398-3502

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 Jurupa Valley  
(951) 332-6464

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

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(760) 346-0611

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City of Riverside  
(951) 826-5311

City of San Jacinto  
(951) 487-7330

City of Temecula  
(951) 694-6444

City of Wildomar  
(951) 677-7751

Coachella Valley Water District  
(760) 398-2651

County of Riverside  
(951) 955-1000

Riverside County Flood Control District  
(951) 955-1200

# Stormwater Pollution

*What you should know for...*

## Industrial & Commercial Facilities

Best Management Practices (BMPs) for:

- Industrial Facilities
- Commercial Facilities



# YOU can prevent Stormwater Pollution following these practices...

## Industrial and Commercial Facilities

The Riverside County Stormwater Program has identified a number of Best Management Practices (BMPs) for Industrial and Commercial Facilities. These BMPs control and reduce stormwater pollutants from reaching our storm drain system and ultimately our local water bodies. City and County ordinances require businesses to use these BMPs to protect our water quality. Local cities and the County are required to verify implementation of these BMPs by performing regular facility inspections.

### Prohibited Discharges

Discontinue all non-stormwater discharges to the storm drain system. It is *prohibited* to discharge any chemicals, paints, debris, wastes or wastewater into the gutter, street or storm drain.

### Outdoor Storage BMPs

- Install covers and secondary containment areas for all hazardous materials and wastes stored outdoors in accordance with County and/or City standards.
- Keep all temporary waste containers covered, at all times when not in use.
- Sweep outdoor areas instead of using a hose or pressure washer.
- Move all process operations including vehicle/equipment maintenance inside of the building or under a covered and contained area.
- Wash equipment and vehicles in a contained and covered wash bay which is closed-loop or connected to a clarifier sized to local standards and discharged to a sanitary sewer or take them to a commercial car wash.



### Spills and Clean Up BMPs

- Keep the work site clean and orderly. Remove debris in a timely fashion. Sweep up the area.
- Clean up spills immediately when they occur, using dry clean up methods such as absorbent materials or sweep followed by proper disposal of materials.

- Always have a spill kit available near chemical loading dock doors and vehicle maintenance and fueling areas.
- Follow your Business Emergency Plan, as filed with the local Fire Department.
- Report all prohibited discharges and non-implementation of BMPs to your local Stormwater Coordinator as listed on the back of this pamphlet.
- Report hazardous materials spills to 951-358-5055 or call after hours to 951-782-2973 or, if an emergency, call the Fire Department's Haz Mat Team at 911.



## Plastic Manufacturing Facilities BMPs

AB 258 requires plastic product manufacturers to use BMPs, such as safe storage and clean-up procedures to prevent plastic pellets (nurdles) from entering the waterway. The plastic pellets are released into the environment during transporting, packaging and processing and migrate to waterways through the storm drain system. AB 258 will help protect fish and wildlife from the hazards of plastic pollution.

### Training BMPs

As prescribed by your City and County Stormwater Ordinance(s), train employees in spill procedures and prohibit non-stormwater discharges to the storm drain system. Applicable BMP examples can be found at [www.cabmphandbooks.com](http://www.cabmphandbooks.com).

### Permitting

Stormwater discharges associated with specific categories for industrial facilities are regulated by the State Water Resources Control Board through an Industrial Stormwater General Permit. A copy of this General Permit and application forms are available at: [www.waterboards.ca.gov](http://www.waterboards.ca.gov), select stormwater then the industrial quick link.

To report illegal dumping or for more information on stormwater pollution prevention call: 1-800-506-2555 or e-mail us at: [fcnpdes@rcfllood.org](mailto:fcnpdes@rcfllood.org).

# IRRIGATION RUNOFF

## STORMWATER FACT SHEET



**Report Irrigation Runoff or Stormwater Pollution:**  
**800.506.2555**

**RIVERSIDE COUNTY**  
WATERSHED PROTECTION

### OVERWATERING

Overwatering causes irrigation runoff that may contain pollutants such as pesticides, herbicides, fertilizers, pet waste, yard waste, and sediments which can be hazardous to residents and harmful to our environment. Runoff can also serve as a transport mechanism for other pollutants already on the ground or in the curb gutter. Irrigation runoff entering the storm drain system is an illicit discharge.

### BEST PRACTICES

Urban runoff begins when yards and landscaped areas are over-irrigated. Irrigation systems require regular maintenance and visual inspection of the system should be performed to prevent over-spray, leaks, and other problems that result in runoff to storm drains, curbs and gutters.

You can **prevent pollution** by conserving water on your property. Water during cooler times of the day (before 10am and after 6pm).

- Adjust sprinklers to stop overspray and runoff.
- Make needed repairs immediately.
- Use drip irrigation, soaker hoses, or micro-spray systems.
- Use an irrigation timer to pre-set watering times.
- Use a control nozzle or similar mechanism when watering by hand.
- Switch to a water-wise landscape - native plants need less fertilizers, herbicides, pesticides and water.

### PROTECT OUR WATERSHED

Many people think that when water flows into a storm drain it is treated, but the storm drain system and the sanitary sewer system are not connected. Everything that enters storm drains flows untreated directly into our creeks, rivers, lakes, beaches and ultimately the ocean. Storm water often contains pollutants, including chemicals, trash, and automobile fluids, all of which pollute our watershed and harm fish and wildlife.

Whether at home or work, you can help reduce pollution and improve water quality by using the above Best Management Practices (BMP's) as part of your daily clean up and maintenance routine.

