



Thienes Engineering, Inc.
CIVIL ENGINEERING • LAND SURVEYING

**PROJECT SPECIFIC PRELIMINARY
WATER QUALITY MANAGEMENT PLAN
(P-WQMP)**

FOR:

P22-00026

HARLEY KNOX INDUSTRIAL DEVELOPMENT

657 HARLEY KNOX BOULEVARD

PERRIS, CALIFORNIA 92571

APNs: 302-020-013, -028, -032, -038, -040, -043 AND -048

PREPARED FOR:

FIRST INDUSTRIAL REALTY TRUST, INC.

898 N. PACIFIC COAST HIGHWAY, SUITE 175

EL SEGUNDO, CA 90245

PHONE: (310) 321-3813

CONTACT: MICHAEL GOODWIN

MARCH 20, 2023

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JOB NO. 4066

PREPARED BY:

THIENES ENGINEERING, INC.

14349 FIRESTONE BLVD.

LA MIRADA, CALIFORNIA 90638

PHONE: (714) 521-4811

FAX: (714) 521-4173

CONTACT: LUIS PRADO (luisp@thieneseng.com)

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FOR

**“HARLEY KNOX INDUSTRIAL
DEVELOPMENT”**



PREPARED BY LUIS PRADO
UNDER THE SUPERVISION OF:

REINHARD STENZEL
R.C.E. 56155
EXP. 12/31/2024

1/8/2024

DATE

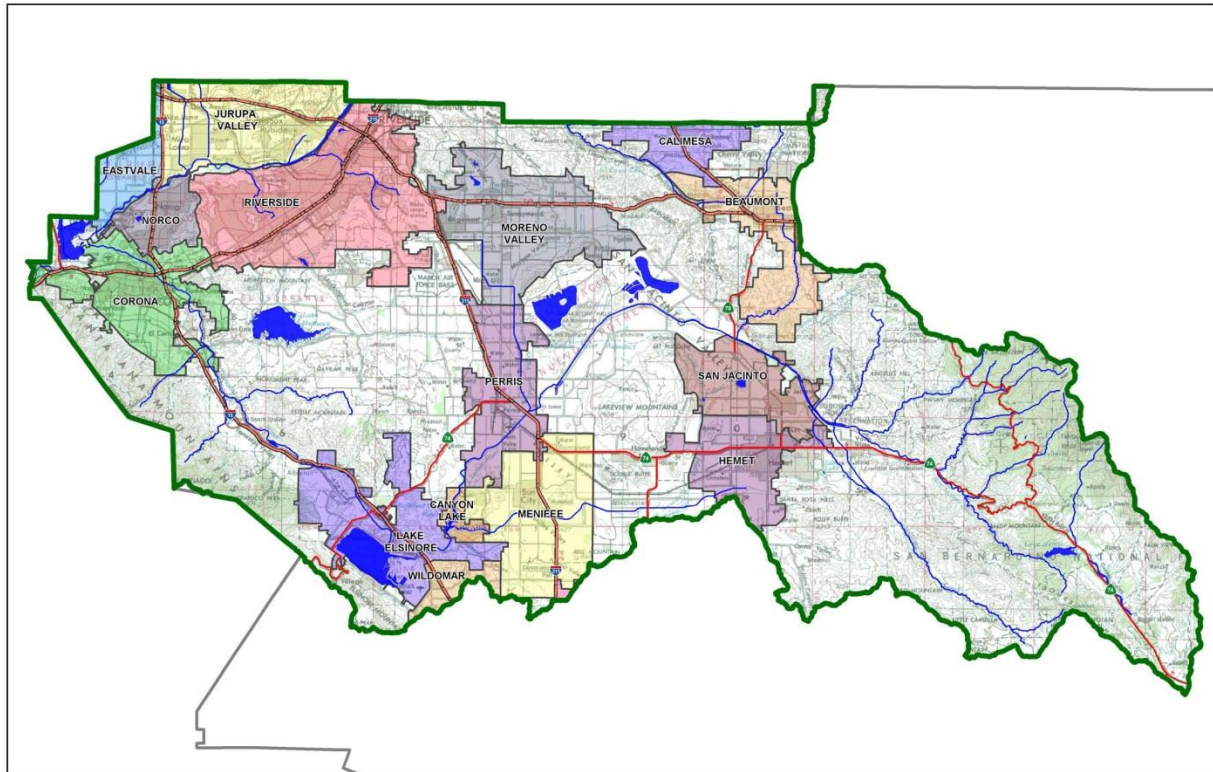
Project Specific Water Quality Management Plan

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

Project Title: Harley Knox Industrial Development

Development No: 657 Harley Knox Boulevard, Perris, California 92571

Design Review/Case No: P22-00026



Contact Information:

Prepared for:

First Industrial Realty Trust, Inc.
898 N. Pacific Coast Highway, Suite 175
El Segundo, CA 90245
Phone: (310) 321-3813
Contact: Michael Goodwin

Prepared by:

Thienes Engineering, Inc.
14349 Firestone Boulevard
La Mirada, CA 90638
(714) 521-4811
Contact: Luis Prado (luisp@thieneseng.com)
Job No. 4066

- ☒ Preliminary
☐ Final

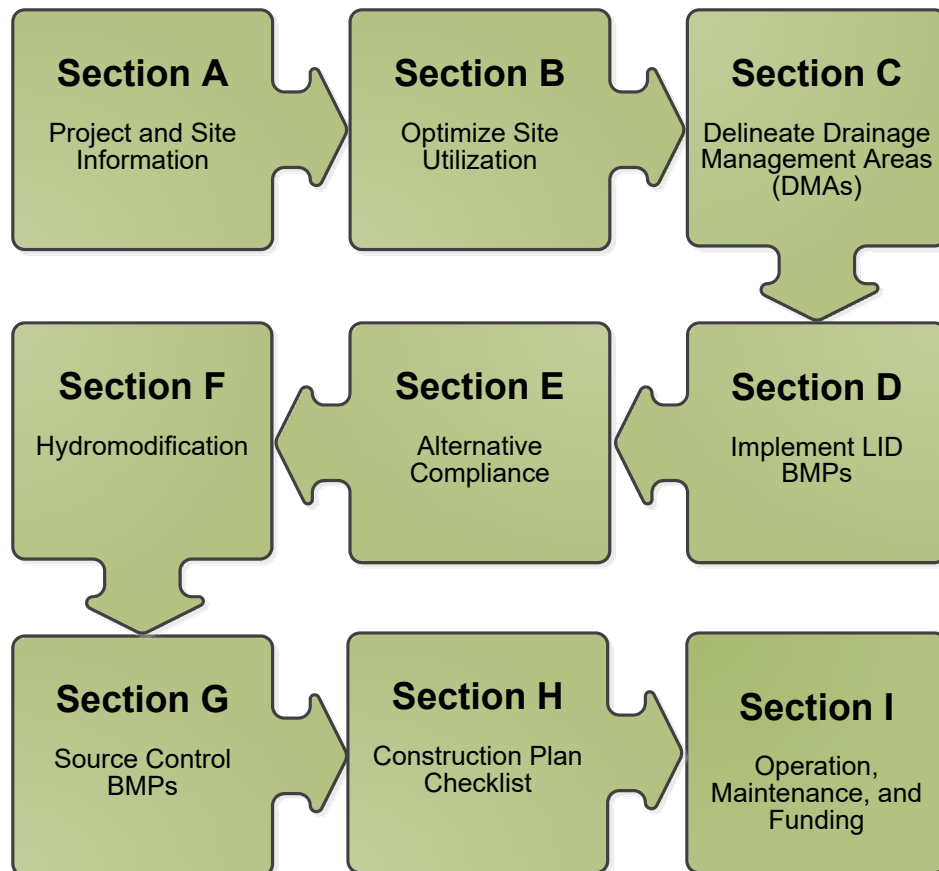
Original Date Prepared: March 20, 2023

Revision Date(s): January 8, 2024

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

A Brief Introduction

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



OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for **First Industrial Realty Trust, Inc.** by **Thienes Engineering, Inc.** for the **Harley Knox Industrial Development** project (P22-00026).

This WQMP is intended to comply with the requirements of **City of Perris** for **Ordinance No. 1194** which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under **City of Perris Ordinance No. 1194**.

"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

Michael Goodwin
Owner's Printed Name


1/8/24

Date

Director of Development
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

Reinhard Stenzel
Preparer's Printed Name

1/8/24

Date

Director of Engineering
Preparer's Title/Position

Preparer's Licensure:



CALIFORNIA ACKNOWLEDGMENT

CIVIL CODE § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

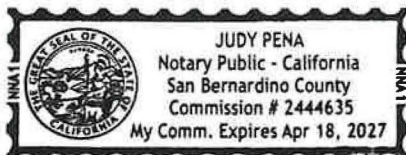
State of California

County of San Bernardino

On January 8, 2024 before me, Judy Pena, Notary Public
Date Here Insert Name and Title of the Officer

personally appeared Michael Lee Goodwin
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(ies), and that by his/~~her/their~~ signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.



I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Judy Pena
Signature of Notary Public

Place Notary Seal and/or Stamp Above

OPTIONAL

Completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

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Title or Type of Document: _____

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☐ Corporate Officer – Title(s): _____

☐ Partner – ☐ Limited ☐ General

☐ Individual ☐ Attorney in Fact

☐ Trustee ☐ Guardian or Conservator

☐ Other: _____

Signer is Representing: _____

Signer's Name: _____

☐ Corporate Officer – Title(s): _____

☐ Partner – ☐ Limited ☐ General

☐ Individual ☐ Attorney in Fact

☐ Trustee ☐ Guardian or Conservator

☐ Other: _____

Signer is Representing: _____

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Section A: Project and Site Information

PROJECT INFORMATION	
Type of Project:	Light Industrial Warehouse
Planning Area:	Industrial/Business Park
Community Name:	N/A
Development Name:	Harley Knox Industrial Development
PROJECT LOCATION	
Latitude & Longitude (GIS): 33.858210, -117.238976	
Project Watershed and Sub-Watershed: Santa Ana River & San Jacinto	
APN(s): 302-020-013, -028, -032, -038, -040, -043 and -048	
Total Project Area: 25.13 acres	
Map Book and Page No.: Assessor's Map BK302 PG. 02	
PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Light Industrial
Proposed or Potential SIC Code(s)	4225
Area of Existing Impervious Project Footprint (SF)	0
Total Area of <u>proposed</u> Impervious Surfaces within the Project Limits (SF)/or Replacement	953,964 (21.90 acres) includes only impervious areas.
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 (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 checked="" type="checkbox"/> Y <input type="checkbox"/> N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	Infiltration Report Available
What is the Water Quality Design Storm Depth for the project?	0.63 inches

Project Description:

The project site encompasses approximately 25.13 acres. Proposed improvements include one light industrial warehouse type building with approximately 549,786 square feet utilized for the transfer and storage of finished goods. There is a truck dock area (including a truck yard) located on the northerly side of the building. Proposed trash enclosures will be covered and located north of the building. Approximately 94.4% (roughly 21.90 acres) of the site will consist of impervious cover, while the remaining 5.6% (roughly 1.41 acres) will consist of LID landscape.

Per the infiltration report, the geotechnical engineer concluded that infiltration is not considered feasible due to non-permeable soils that underlay the site. Based on this, the rates are assumed to be 0.0 in/hr which puts the site at biotreatment BMPs such as the extended detention basin. However, the site is located within Riverside County's Airport Land Use Commission's (ALUC) jurisdiction; specifically, within Zones B1 and B2. ALUC guidelines ("Wildlife Hazard Management at Riverside County Airports: Background and Policy" dated October 2018, Table 5-4) specifically states that extended detention basins are prohibited in Zones A through D. As a result, the project proposes to use an equivalent underground biotreatment solution with an underground detention system (StormTech MC-3500 Detention Chambers) and proprietary biotreatment unit (Bio Clean Modular Wetlands System) to treat runoff produced by the 85th percentile storm rainfall depth. A hydrodynamic separator will be provided in order to pre-treat runoff prior to entering the water quality devices.

Existing Site:

The site is currently a vacant dirt lot with natural weeds and grasses. The site is relatively flat. The westerly portion of the site tends to drain southerly to Harley Knox Boulevard. The easterly portion of the site tends to drain easterly towards Indian Avenue.

Hydrology:

Runoff from the westerly parking lot, the loading dock, the truck yard, and the northerly portion of the proposed building drains to catch basins in the parking lot and truck yard, where it is conveyed in an easterly direction via proposed storm drain Line "A". Runoff from the southerly portion of the proposed building drains into roof drains that will be hardlined into proposed storm drain Line "B" and also conveyed in an easterly direction. Line "B" then turns north (at the end of the building) and picks up runoff from the easterly vehicle parking lot before connecting to Line "A" at the northeast corner of the project site. The project ultimately discharges into the existing Flood Control channel Lateral "B".

Prior to discharging offsite, a proposed diversion structure will convey the design capture volume (DCV) to the StormTech MC-3500 Chambers for detention, and one Modular Wetlands System for biotreatment. The BMP system has a treatment capacity of 44,965 cu-ft which is greater than the DCV of 44,975 cu-ft.

Runoff from the landscaping along the northwesterly and northeasterly corners of the site, and along the southerly side of the building (DMAs B-2, C-2 and D-2) will sheet flow offsite without being routed to the proposed LID BMPs. These landscaped areas are considered self-treating areas.

A.1 Maps and Site Plans

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

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

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

A.2 Identify Receiving Waters

Using Table A.1 below, list in order of upstream to downstream, and 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 Storm Drain	None	None	Not classified as a RARE waterbody.
San Jacinto River, Reach 3	None	AGR, GWR, REC1, REC2, WARM, WILD	Not classified as a RARE waterbody.
Canyon Lake (aka San Jacinto River, Reach 2)	Nutrients	MUN, AGR, GWR, REC1, REC2, WARM, WILD	Not classified as a RARE waterbody.
San Jacinto River, Reach 1	None	MUN, AGR, GWR, REC1, REC2, WARM, WILD	Not classified as a RARE waterbody.
Lake Elsinore	DDT, Nutrients, Organic Enrichment/Low Dissolved Oxygen, PCBs, Toxicity	REC1, REC2, WARM, WILD	Not classified as a RARE waterbody.

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 checked="" type="checkbox"/> Y	<input type="checkbox"/> N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
US Army Corps of Engineers, CWA Section 404 Permit	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Statewide Construction General Permit Coverage	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Statewide Industrial General Permit Coverage (dependent on tenant)	<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 (please list in the space below as required) City of Perris Grading Permit	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Other (please list in the space below as required) City of Perris 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.

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?

- *There are no creeks, wetlands, or riparian habitats nearby.*
- *Existing drainage patterns flow from west to east toward Indian Avenue and ultimately into the Perris Valley Storm Drain. Proposed condition drainage patterns mimic pre-development conditions.*

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

- *Not applicable, the entire site was previously disturbed (mass-graded).*
- *Not applicable, there are no sensitive areas.*
- *No applicable, there are no existing trees or vegetation to preserve.*

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

- *Per the infiltration report, testing at two points located at the proposed northern truck yard resulted with very low measured infiltration rates of 0.5 and 1.4 inches/hour. The geotechnical engineer concluded that infiltration is not considered feasible due to non-permeable soils; therefore, the project proposes to use an underground detention system and proprietary biotreatment unit to treat runoff produced by the 85th percentile storm rainfall depth.*

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

- *Impervious area on the site has been minimized to City standards.*

- *Due to the nature of the project site (large trucks), substitution of pavement for landscaping is not feasible. The project does not propose overflow parking where substitution of pavement for landscaping would be optimal. Landscaping has been provided wherever applicable and to the maximum extent practicable.*
- *The entire Design Capture Volume (DCV) is handled by the proposed underground detention system and proprietary biotreatment unit. Permeable pavement is not needed to meet the DCV.*

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

- *Roof runoff is directed to the underground detention system and proprietary biotreatment unit for treatment.*
- *The site is not on a hillside.*
- *All stormwater runoff will be piped or sheet flow into the underground detention system and proprietary biotreatment unit; therefore, curb-cuts into landscaped areas are not utilized.*

Section C: Delineate Drainage Management Areas (DMAs)

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

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s) ¹	Area (Sq. Ft.)	Area (Acres)	DMA Type
A-1	Roofs/Conc/Asphalt	953,964	21.90	Type D
A-2	Ornamental Landscaping	50,094	1.15	Type D
B-2	Ornamental Landscaping	12,197	0.28	Type A
C-2	Ornamental Landscaping	67,082	1.54	Type A
D-2	Ornamental Landscaping	11,326	0.26	Type A

¹Reference Table 2-1 in the WQMP Guidance Document to populate this column.

DMAs B-2, C-2 and D-2 consists of landscape areas that drain offsite.

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

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
B-2	12,197	California Native Vegetation	Timed Sprinklers
C-2	67,082	California Native Vegetation	Timed Sprinklers
D-2	11,326	California Native Vegetation	Timed Sprinklers

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) [A]	Storm Depth (inches) [B]	DMA Name / ID	[C] from Table C.4 = [C]	Required Retention Depth (inches) [D]
n/a	n/a	n/a	n/a	n/a	n/a	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	Runoff factor	Product	DMA name /ID	Area (square feet)	Ratio
	[A]		[B]	[C] = [A] × [B]		[D]	[C]/[D]
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

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

DMA Name or ID	BMP Name or ID
A-1	StormTech MC-3500 Chambers & Modular Wetlands System (STC-A & MWS-A)
A-2	StormTech MC-3500 Chambers & Modular Wetlands System (STC-A & MWS-A)

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

Section D: Implement LID BMPs

D.1 Infiltration Applicability

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

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

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Co-permittee 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: Per the infiltration report, testing at two points located at the proposed northern truck yard resulted with very low measured infiltration rates of 0.5 and 1.4 inches/hour. The geotechnical engineer concluded that infiltration is not considered feasible due to non-permeable soils; therefore, the project proposes to use an underground detention system and proprietary biotreatment unit to treat runoff produced by the 85th percentile storm rainfall depth.		
...have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
...geotechnical report identify other site-specific factors that would preclude effective and safe infiltration?		X
Describe here:		

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

D.2 Harvest and Use Assessment

Please check what applies:

- ☐ Reclaimed water will be used for the non-potable water demands for the project.
- ☐ Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Copermittee).
- ☐ The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the Design Capture Volume will be infiltrated or evapotranspired.
- ☒ None of the above

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

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: 1.41 acres

Type of Landscaping (Conservation Design or Active Turf): Conservative Design

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: 21.90 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: 1.05

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: 23.0 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)
23.0 acres	1.41 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: 188 (approximate # of parking stalls)

Project Type: Light Industrial

- 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: 21.90 ac

- 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: 185

- 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: 4,052

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

Minimum required Toilet Users (Step 4)	Projected number of toilet users (Step 1)
4,052	188

Other Non-Potable Use Feasibility

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

N/A

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

Average Daily Demand: N/A

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: N/A

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

Enter the factor from Table 2-3: N/A

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

Minimum required use: N/A

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

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

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

D.3 Bioretention and Biotreatment Assessment

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

Select one of the following:

- ☒ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).
- ☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

D.4 Feasibility Assessment Summaries

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

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				Alternative Compliance (Modular Wetlands System)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
A-1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
A-2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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.

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	Design Storm Depth (in)	Design Capture Volume, V_{BMP} (cubic feet)	Proposed Volume on Plans (cubic feet)*
	[A]		[B]	[C]	[A] x [C]			
A-1	953,964	Roofs/Conc/Asphalt	1.00	0.89	850,935.9	0.63	44674.1	44,975
A-2	50,094	Ornamental Landscaping	0.10	0.11	5,533.3	0.63	290.5	
	1,004,058				856,469	0.63	44,965	44,975

[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

*Proposed volume = Installed Storage Volume + MWS Linear Static Capacity
= 44,546 cu-ft + 429 cu-ft = 44,975 cu-ft

Section E: Alternative Compliance (LID Waiver Program)

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

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

- Or -

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

E.1 Identify Pollutants of Concern

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

Table E.1 Potential Pollutants by Land Use Type

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

P = Potential

N = Not Potential

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

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

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

⁽⁴⁾ Specifically petroleum hydrocarbons

⁽⁵⁾ Specifically solvents

⁽⁶⁾ Bacterial indicators are routinely detected in pavement runoff

E.2 Stormwater Credits

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

Table E.2 Water Quality Credits

Qualifying Project Categories	Credit Percentage ²
N/A	
Total Credit Percentage¹	

¹Cannot Exceed 50%

²Obtain 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 Imp Fraction, I_f	DMA Runoff Factor	DMA Area x Runoff Factor				
	[A]		[B]	[C]	[A] x [C]				
N/A	N/A	N/A	N/A	N/A	N/A	Design Storm Depth (in)	Minimum Design Capture Volume (cubic feet)	Total Storm Water Credit % Reduction	Proposed Volume or Flow on Plans (cubic feet or cfs)

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

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

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

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

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

E.4 Treatment Control BMP Selection

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

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

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

Table E.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID ¹	Priority Pollutant(s) of Concern to Mitigate ²	Removal Efficiency Percentage ³
Modular Wetlands System	Metals	38%-69%
Modular Wetlands System	Trash & Debris/TSS	85%
Modular Wetlands System	Oil & Grease	95%

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

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

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

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

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

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

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

If Yes, HCOC criteria do not apply.

HCOC EXEMPTION 2: The volume and time of concentration¹ of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

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

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

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

Table F.1 Hydrologic Conditions of Concern Summary

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

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

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

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

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

F.2 HCOC Mitigation

As an alternative to the HCOC Exemption Criteria above, HCOC criteria is considered mitigated if the project meets one of the following conditions, as indicated:

- ☐ 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.
- ☐ d. None of the above.

All pertinent documentation used in analysis of the items a, b or c can be found in Appendix 7.

The project site is located within the exempted HCOC area, as presented in the April 20, 2017 approved Riverside County WAP Geodatabase/HCOC mapping as attached 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
A. On-site storm drain inlets	<ul style="list-style-type: none"> 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. Inlets to be equipped with filter inserts 	<ul style="list-style-type: none"> Maintain and repaint (or replace) inlet stencils annually. Filter inserts shall be inspected four times per year or following any rain event that would potentially accumulate a large amount of debris in the system. Replace boom twice per year, at a minimum. Provide stormwater pollution prevention information to new site owners, lessees, or operators upon occupancy and annually thereafter. See CASQA fact sheet SC-44 for "Drainage System Maintenance," included in Appendix 10 of this document. Include the following lease agreements: "Tenant shall not allow anyone to discharge anything to storm drain or to store or deposit materials so as to create a potential discharge to storm drains." See Appendix 10 for "Stormwater Pollution Solution Guide" brochure by EPA.
B. Interior floor drains and elevator shaft sump pumps	<ul style="list-style-type: none"> Interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer. 	<ul style="list-style-type: none"> Inspect and maintain drains semi-annually to prevent blockages and overflow.
D2. Landscape / Outdoor Pesticide Use	<ul style="list-style-type: none"> Landscape plans will 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. Pest-resistant plans will be used adjacent to hardscape. The landscape plans will consider plants appropriate to the site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions. 	<ul style="list-style-type: none"> Maintenance shall be conducted by a landscape contractor on a weekly basis to verify that the irrigation system is functioning properly and to repair as needed. Landscape contractor will also verify that there are no leaks or run-off from landscaped areas. Adjust irrigation heads and system run times as necessary to prevent overwatering of vegetation, overspray or run-off from landscaped areas to ensure the health and aesthetic quality of the landscape. Mowing and trimming waste shall be properly removed from the site and herbicides, pesticides and fertilizers shall be properly applied to prevent storm drainage contamination. Maintain landscaping only using minimum pesticides, when needed. See Appendix 10 for "Landscape and Gardening" brochure by RCFlood. Provide Integrated Pest Management (IPM) information to new owners, lessees and operators upon occupancy and annually thereafter. IPM is an effective and environmentally sensitive approach to pest management.

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
G. Refuse Areas	<ul style="list-style-type: none"> Site refuse will be handled by contractor on a weekly basis. Signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar. 	<ul style="list-style-type: none"> A minimum of two receptacles will be provided and located outdoors. Receptacles are to be inspected daily and repairs or replacements to leaky receptacles will be completed immediately. Receptacles are to remain covered when not in use. Dumping of liquid or hazardous wastes is prohibited. A "no hazardous materials" sign will be posted. Spills will be cleaned immediately upon discovery. Spill control materials will be available onsite. See Appendix 10 for CASQA fact sheet SC-34 for "Waste Handling and Disposal." Maintain cover to keep rain out.
H. Industrial processes	<ul style="list-style-type: none"> All process activities to be performed indoors. No processes to drain to exterior or to storm drain system. 	<ul style="list-style-type: none"> See Appendix 10 for CASQA fact sheet SC-10 for "Non-Stormwater Discharges". See Appendix 10 for brochure "Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities".
M. Loading Docks	<ul style="list-style-type: none"> Spills will be cleaned up immediately and disposed of properly. 	<ul style="list-style-type: none"> Move loaded and unloaded items indoors as soon as possible. Clean up spills immediately and keep spills from entering storm drain system. No discharges of wastewater or cleanup water from maintenance of loading docks into the storm drain system. Area shall be inspected weekly for proper containment and practices with spills cleaned up immediately and disposed of properly. Areas under "dock high" doors shall be swept daily. See Appendix 10 for CASQA fact sheet SC-30 for "Outdoor Loading and Unloading".
O. Miscellaneous Drain or Wash Water or Other Sources	<ul style="list-style-type: none"> Drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. 	
P. Plazas, sidewalks, and parking lots		<ul style="list-style-type: none"> Sweep plazas, sidewalks, and parking lots monthly 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)	Latitude	Longitude
A	On-site storm drain inlets	Conceptual Grading Plan Sheets 5 and 6	---	---
B	Interior floor drains and elevator shaft sump pumps	N/A	---	---
D2	Landscape / Outdoor Pesticide Use	On-site Landscape Improvement Plans	---	---
G	Refuse Areas	Conceptual Grading Plan Sheets 1 and 2	---	---
H	Industrial processes	Grading Plans (indoors, if any)	---	---
M	Loading Docks	Conceptual Grading Plan Sheets 1 and 2	---	---
P	Plazas, sidewalks, and parking lots	Conceptual Grading Plan Sheets 1 and 2	---	---
MWS-A	Modular Wetlands System	Conceptual Grading Plan Sheets 2 and 6	33.858871	-117.236103
STC-A	Underground Detention	Conceptual Grading Plan Sheets 2 and 6	33.858949	-117.235428
CDS-A	Hydrodynamic Separator	Conceptual Grading Plan Sheets 2 and 6	33.858903	-117.235624

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.

This section will be completed and addressed at the time of the final WQMP Submittal.

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: Water Quality Management Plan and Urban Runoff BMP Transfer, Access and Maintenance Agreement

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.

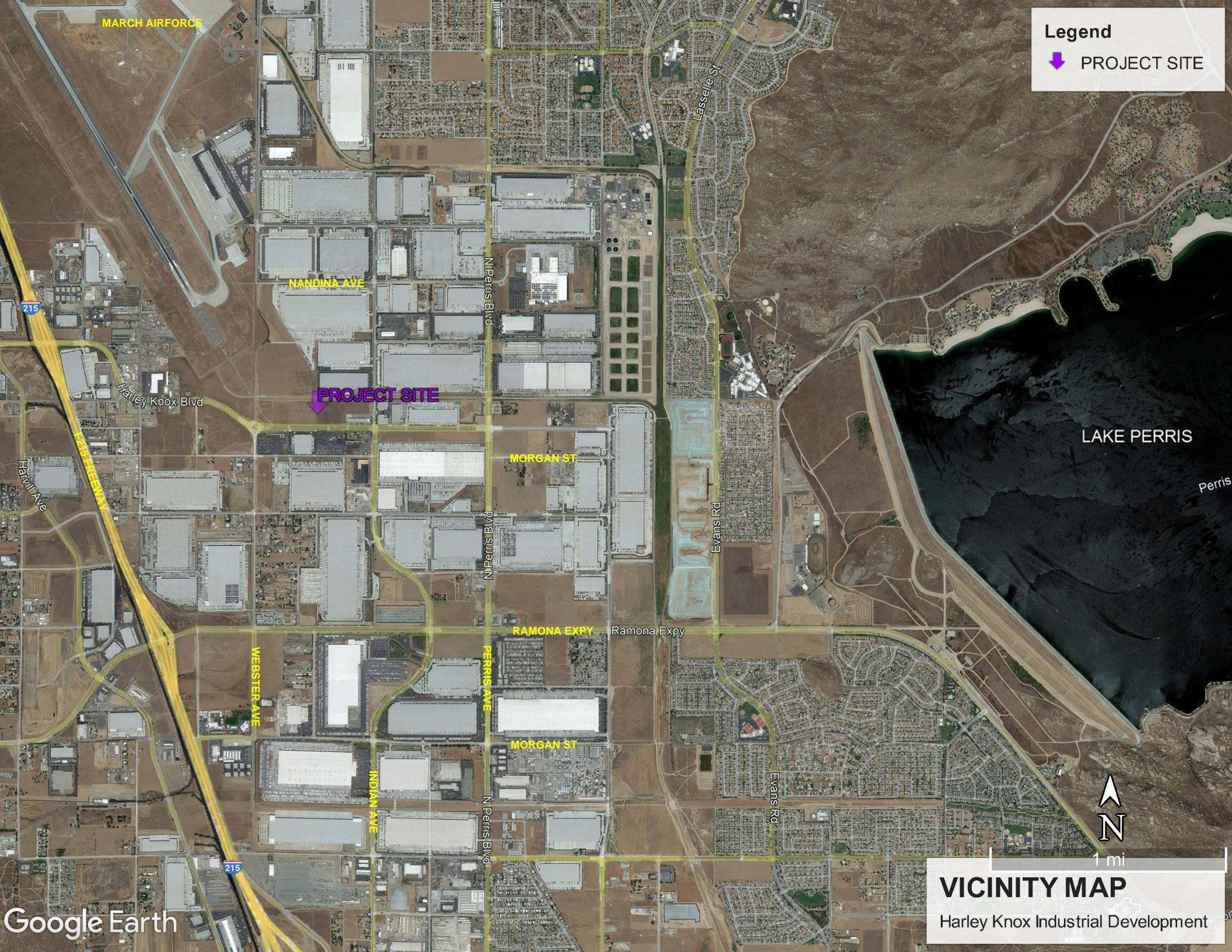
This section will be completed and addressed at the time of the final WQMP Submittal.

Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map

Legend

PROJECT SITE



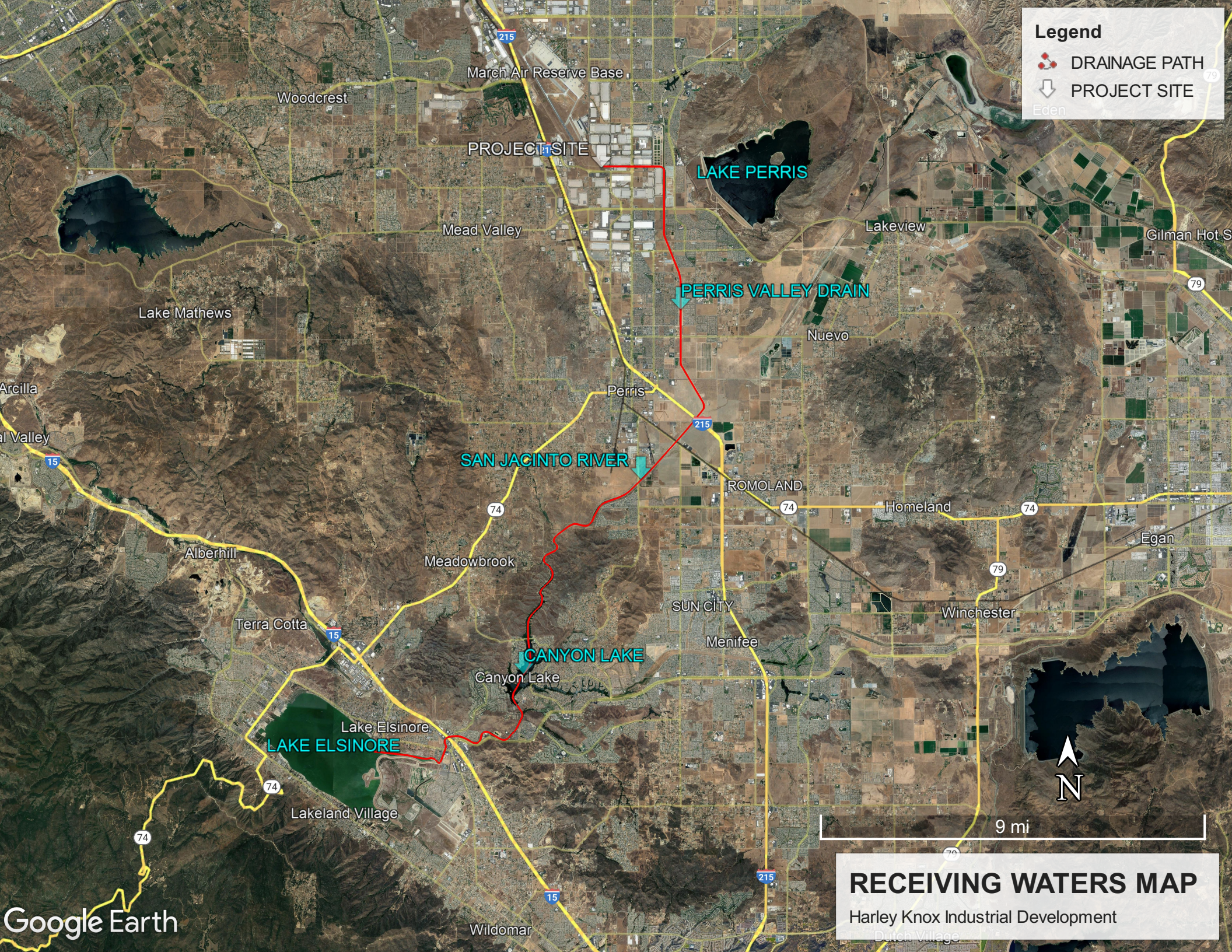
LAKE PERRIS




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VICINITY MAP

Harley Knox Industrial Development



Legend

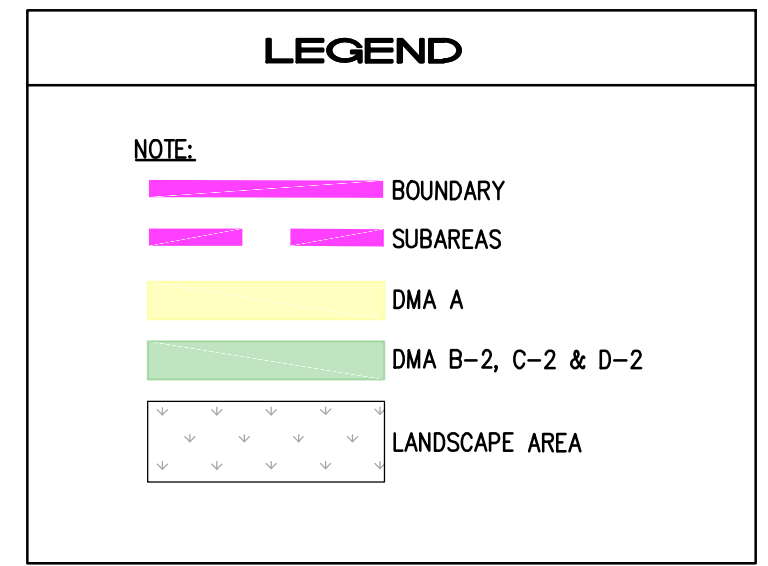
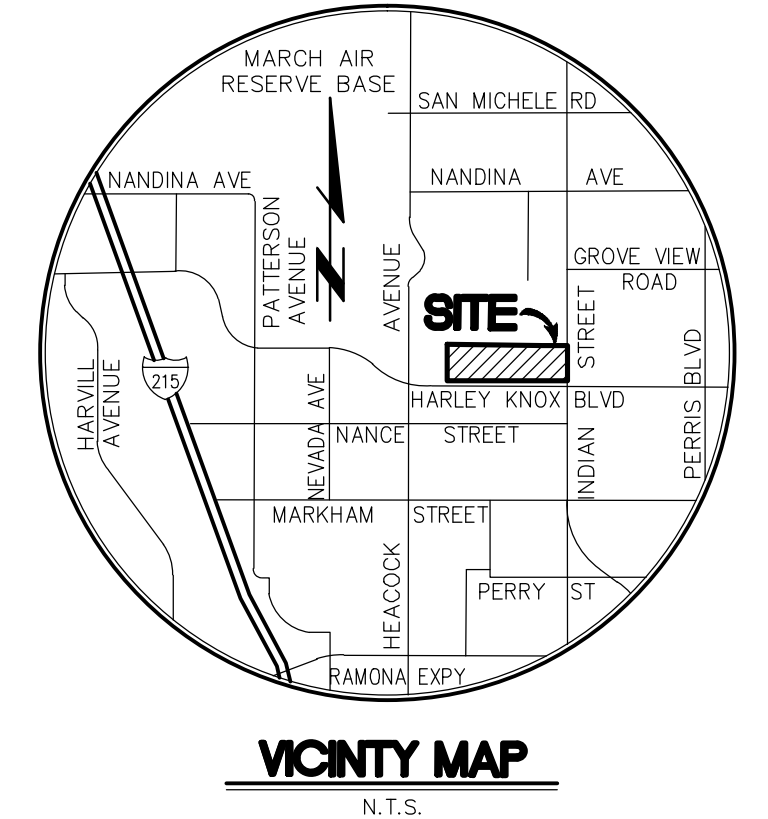
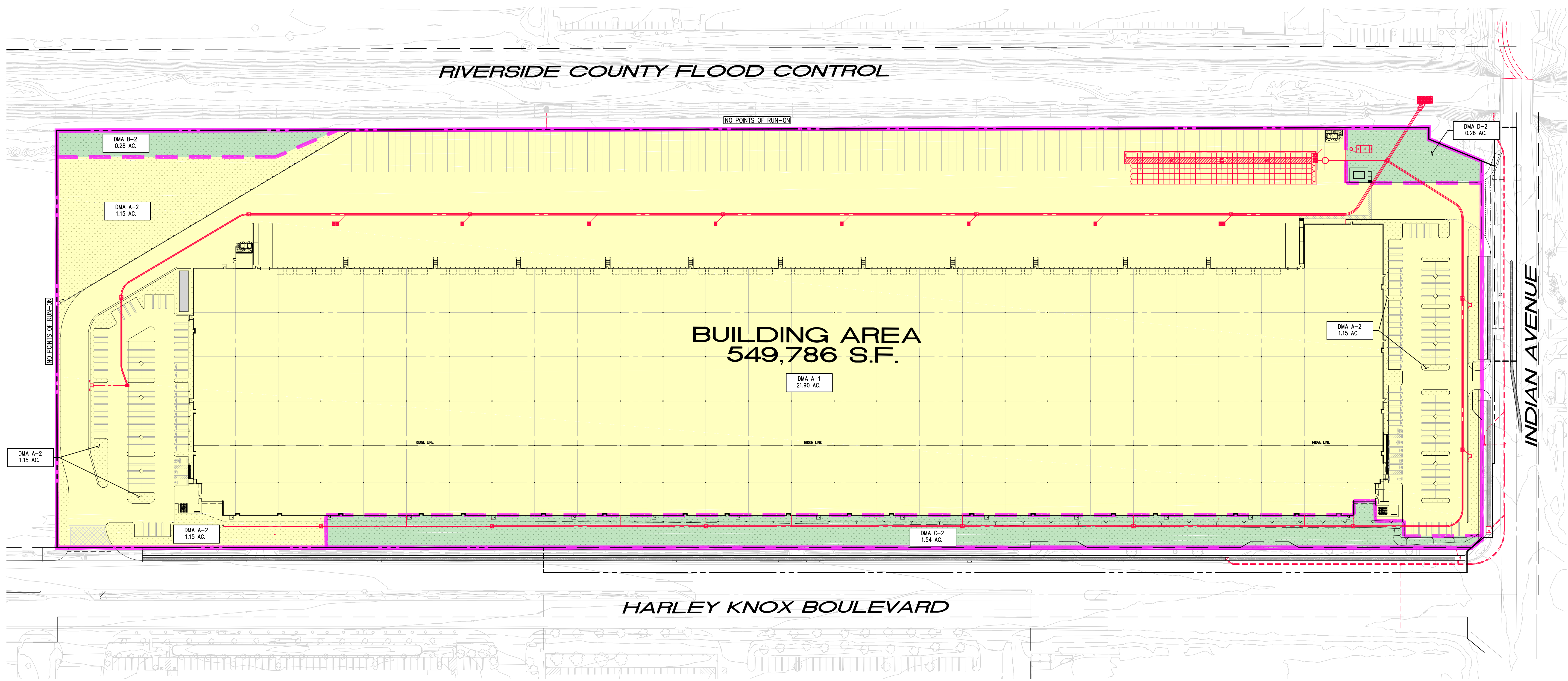
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 PROJECT SITE

Eden

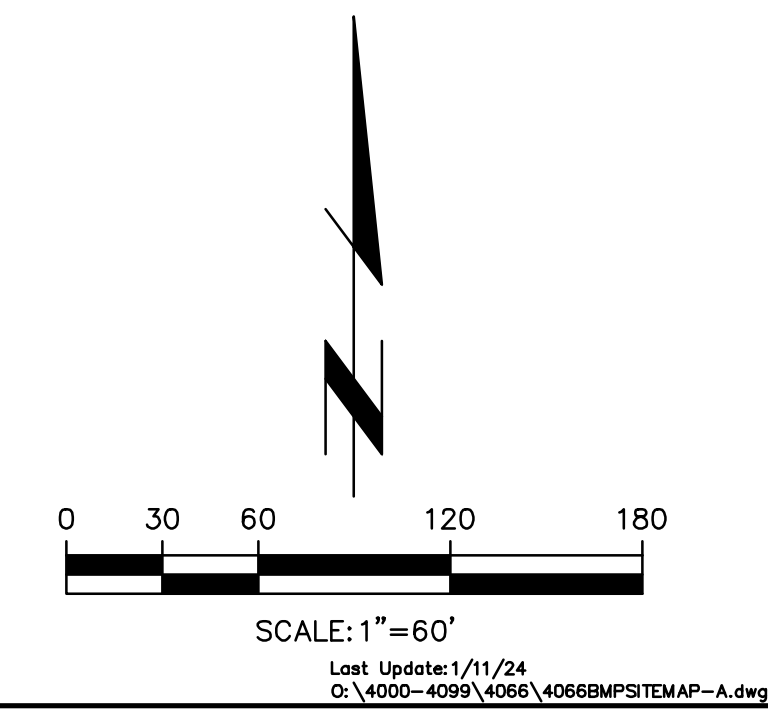
RECEIVING WATERS MAP

Harley Knox Industrial Development



DMA Name or ID	Surface Type(s)	Area (Sq. Ft.)	Area (Acres)	DMA Type
A-1	Roofs/Conc/Asphalt	953,964	21.90	Type D
A-2	Ornamental Landscaping	50,094	1.15	Type D
B-2	Ornamental Landscaping	12,197	0.28	Type A
C-2	Ornamental Landscaping	67,082	1.54	Type A
D-2	Ornamental Landscaping	11,326	0.26	Type A

SUMMARY TABLE								
DMA	AREA (ACRES)	DCV (CF)	MODULAR WETLANDS SYSTEM (MWS)		MC-3500 STORMTECH CHAMBERS			TOTAL VOLUME PROVIDED (CF)
			MWS MODEL	LINEAR STATIC CAPACITY (CF)	DETENTION REQUIRED (CF)	DETENTION PROVIDED (CF)	# OF CHAMBERS	
A	23.05	44,965	MWS-L-10-20	429	44,536	44,546	204	44,975
TOTAL	23.05	44,965		429	44,536	44,546	204	44,975



CITY OF PERRIS
PUBLIC WORKS DEPARTMENT

**POST-CONSTRUCTION
BMP SITE PLAN
DMA PLAN**

**HARLEY KNOX INDUSTRIAL DEVELOPMENT
657 HARLEY KNOX BOULEVARD
PERRIS, CA 92571**

P22-00026

Designed by _____	Approved by _____
Checked by _____	Date _____
Designed by _____	Public Works Director _____ R.C.E.
Checked by _____	Date _____

Sheet **1** of **1** Sheets

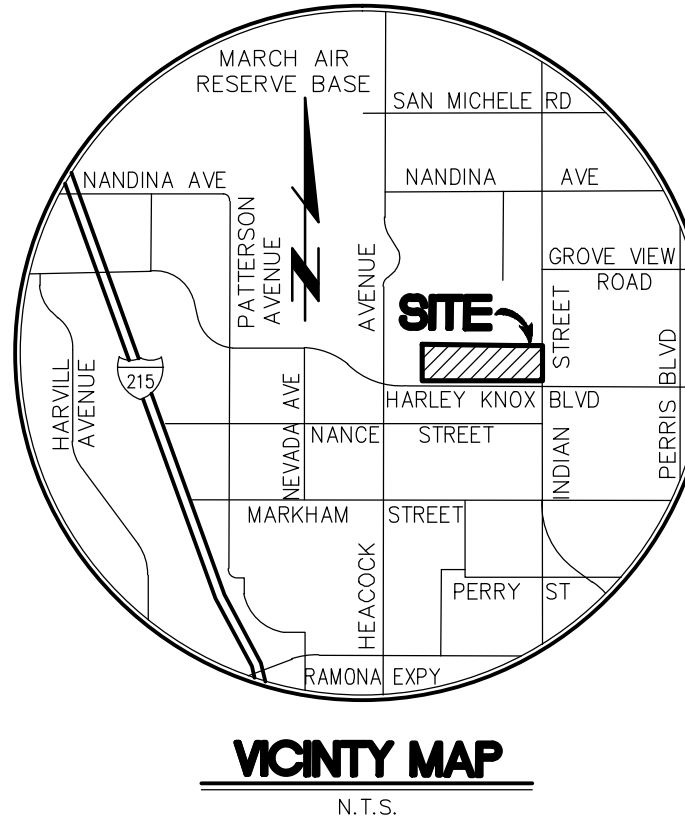
PREPARED FOR:
First Industrial Realty Trust, Inc.
896 N. Pacific Coast Highway Blvd., Suite 175
El Segundo, CA 90245
PHONE: (310) 414-5400

PREPARED BY:
T&E Thienes Engineering, Inc.
CIVIL ENGINEERING • LAND SURVEYING
14340 FIRESTONE BOULEVARD
LA BREA, CALIFORNIA 90639
PH: (714) 521-4811 FAX: (714) 521-4773

4066 / 1 OF 1 SHEET

RIVERSIDE COUNTY FLOOD CONTROL

BUILDING AREA
549,786 S.F.



LEGEND

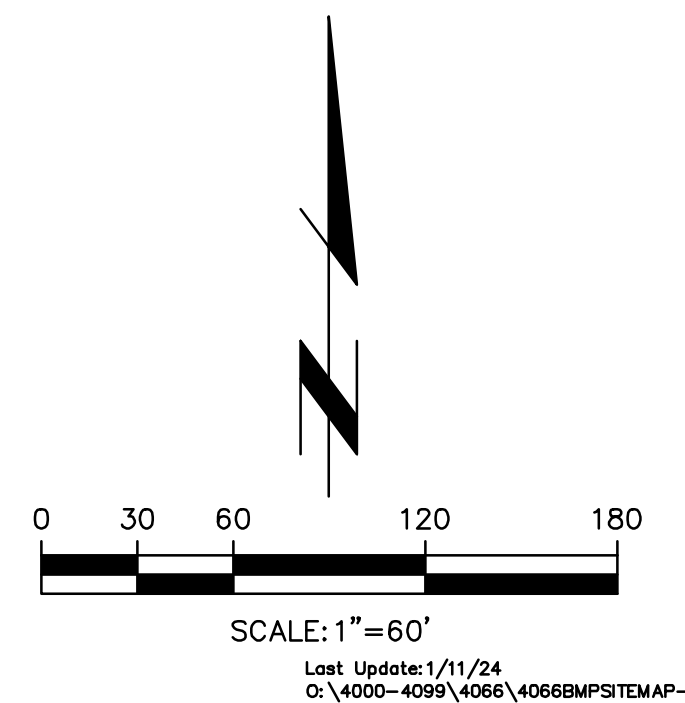
- LOADING/UNLOADING TRUCK DOCKS
- EDUCATIONAL MATERIAL
- STORM DRAIN STENCIL
- STORMTECH MC-3500 DETENTION CHAMBERS
- PARKING LOT MAINTENANCE (SWEEPING)
- PROPRIETARY BIOTREATMENT UNIT (MODULAR WETLANDS SYSTEM)
- HYDRODYNAMIC SEPARATOR
- SUMP PUMP
- SELF-TREATING LANDSCAPE
- DIVERSION STRUCTURE
- TRASH ENCLOSURE

NOTE:
ROOF DRAIN
BOUNDARY
SUBAREAS
SURFACE FLOW LINE
SD FLOW LINE
DMA A
DMA B
LANDSCAPE AREA

HARLEY KNOX BOULEVARD

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CITY OF PERRIS
PUBLIC WORKS DEPARTMENT
POST-CONSTRUCTION
BMP SITE PLAN
HARLEY KNOX INDUSTRIAL DEVELOPMENT
657 HARLEY KNOX BOULEVARD
PERRIS, CA 92571
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Designed by	Approved by	Date
Checked by	Public Works Director	R.C.E.
Designed by		
Checked by		
Date		

Sheet 1 of 2 Sheets

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Thienes Engineering, Inc.
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LA MIRADA, CALIFORNIA 90638
PH: (714) 521-4011 FAX: (714) 521-4173

StormTech® MC-3500 Chamber

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private (commercial) and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.

Nominal Chamber Specifications (not to scale)

Size (L x W x H)
26.5' x 71" x 45.1"
673 mm x 1803 mm x 1145 mm

End Cap Storage

14.9 ft³ (0.42 m³)

Min. Installed Storage*

175.0 ft³ (4.96 m³)

Weight

134 lbs (60.8 kg)

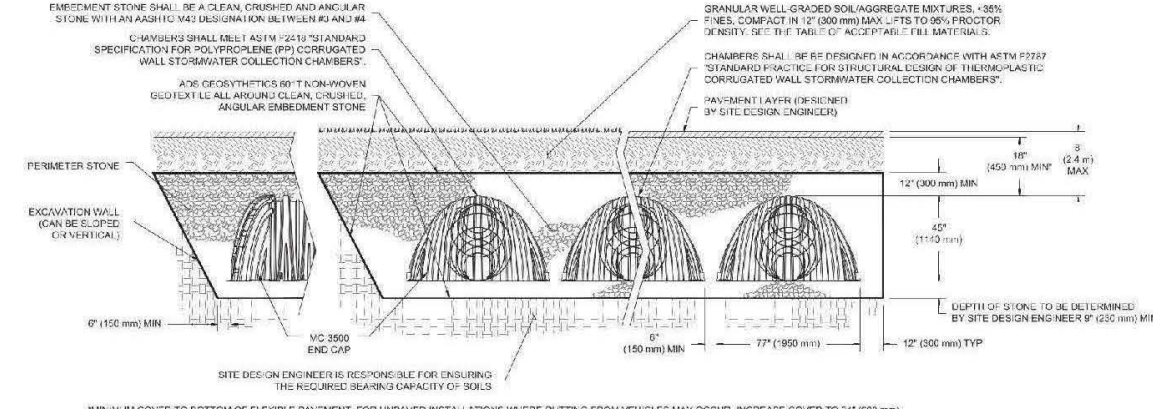
Shipping

15 chambers/pallet

7 end caps/pallet

7 pallets/truck

*Assumes a minimum of 12" (300 mm) of stone above, 9" (230 mm) of stone below chambers, 6" (150 mm) of stone between chambers/ end caps and 40% stone porosity.



ADS StormTech

SAMPLE STORM DRAIN STENCIL



StormTech MC-3500 Specifications

Storage Volume Per Chamber

	Bare Chamber Storage ft³ (m³)	9 in (230 mm)	12 in (300 mm)	15 in (375 mm)	18 in (450 mm)
Chamber	109.9 (3.11)	175.0 (4.96)	179.9 (5.09)	184.9 (5.24)	189.9 (5.38)
End Cap	14.9 (0.42)	45.1 (1.28)	46.6 (1.32)	48.3 (1.37)	49.9 (1.41)

Note: Assumes 6" (150 mm) row spacing, 40% stone porosity, 12" (300 mm) stone above and includes the bare chamber/end cap volume.

Amount of Stone Per Chamber

	English Tons (yds³)	9 in	12 in	15 in	18 in
Chamber	8.5 (6.0)	9.1 (6.5)	9.7 (6.9)	10.4 (7.4)	10.4 (7.4)
End Cap	3.9 (2.8)	4.1 (2.9)	4.3 (3.1)	4.5 (3.2)	4.5 (3.2)

Note: Assumes 6" (150 mm) of stone above and 6" (150 mm) row spacing and 6" (150 mm) of perimeter stone in front of end caps.

Volume Excavation Per Chamber yd³ (m³)

	9 in (230 mm)	12 in (300 mm)	15 in (375 mm)	18 in (450 mm)
Chamber	11.9 (9.1)	12.4 (9.5)	12.8 (9.8)	13.3 (10.2)
End Cap	4.0 (3.1)	4.1 (3.3)	4.3 (3.3)	4.4 (3.4)

Note: Assumes 6" (150 mm) of separation between chamber rows and 24" (600 mm) of cover. The volume of excavation will vary as depth of cover increases.

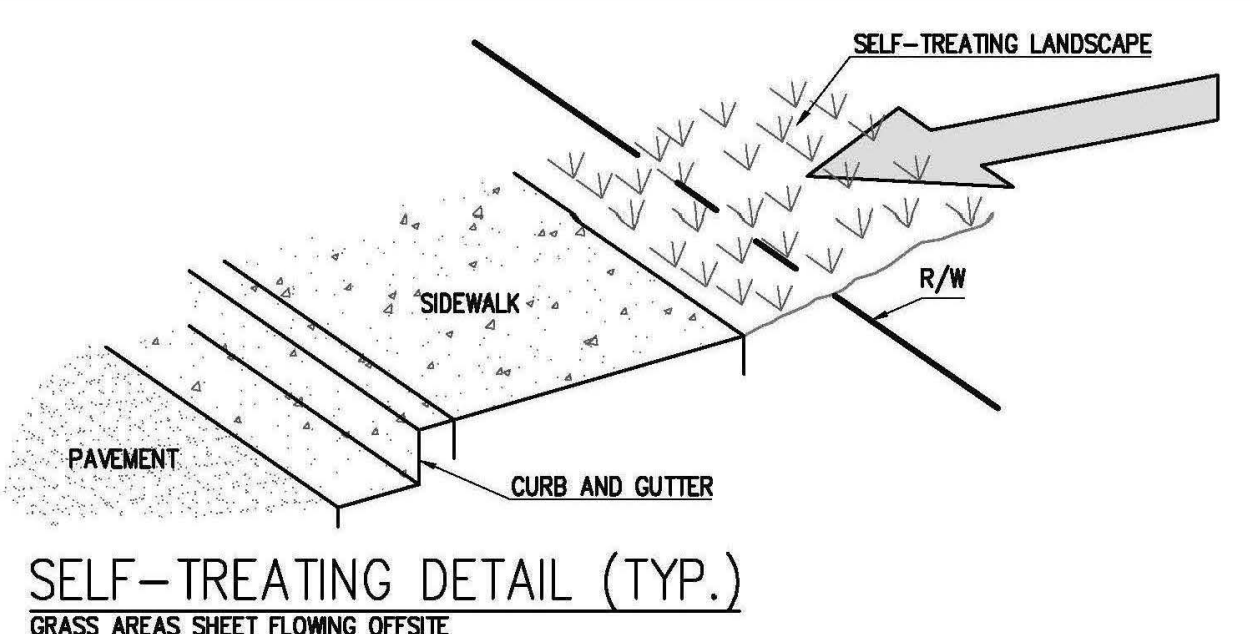
ADS StormTech products, manufactured in accordance with ASTM F2418 or ASTM F2922, comply with all requirements in the Build America, Buy America (BABA) Act.

Working on a project?
Visit us at adspipe.com/stormtech and utilize the Design Tool

ADS StormTech

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adspipe.com
800-821-6710



SELF-TREATING DETAIL (TYP.)
GRASS AREAS SHEET FLOWING OFFSITE

SITE SPECIFIC DATA			
PROJECT NUMBER	-----		
PROJECT NAME	-----		
PROJECT LOCATION	-----		
STRUCTURE ID	-----		
TREATMENT REQUIRED	-----		
VOLUME BASED (CF)	15000		
TREATMENT HGL AVAILABLE (FT)	-----		
PEAK BYPASS REQUIRED (CFS) - IF APPLICABLE	-----		
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	N/A	PVC	4"
INLET PIPE 2	N/A	PVC	2"
OUTLET PIPE	-4.19	PVC	6"
PRETREATMENT	BIOFILTRATION	DISCHARGE	-----
RIM ELEVATION	0.00	0.00	0.00
SURFACE LOAD	PEDESTRIAN	N/A	PEDESTRIAN
FRAME & COVER	(2) 36"x36"	N/A	(2) #24"
WETLAND MEDIA VOLUME (CY)	12.49		
ORIFICE SIZE (DIA. INCHES)	1.89		

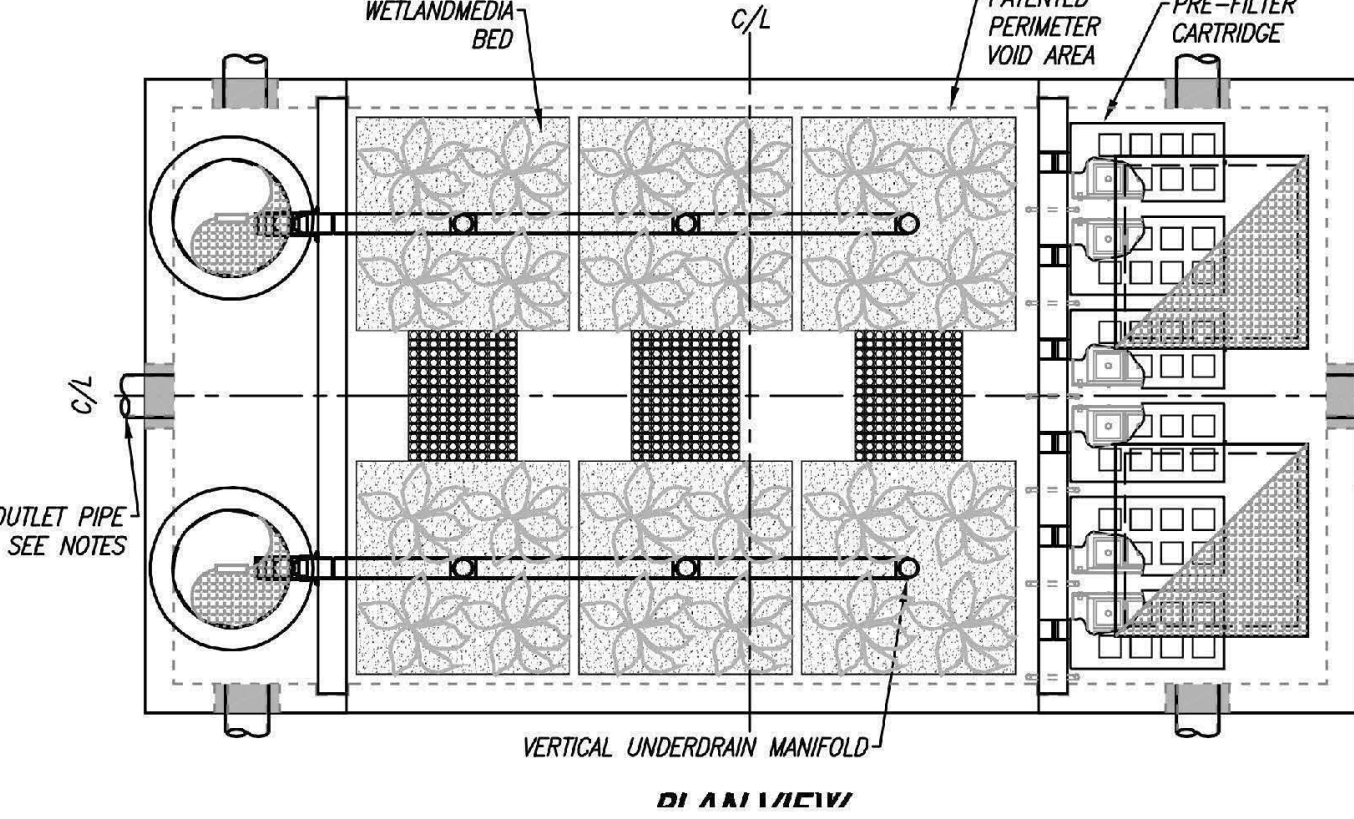
NOTES: PRELIMINARY, NOT FOR CONSTRUCTION.

INSTALLATION NOTES

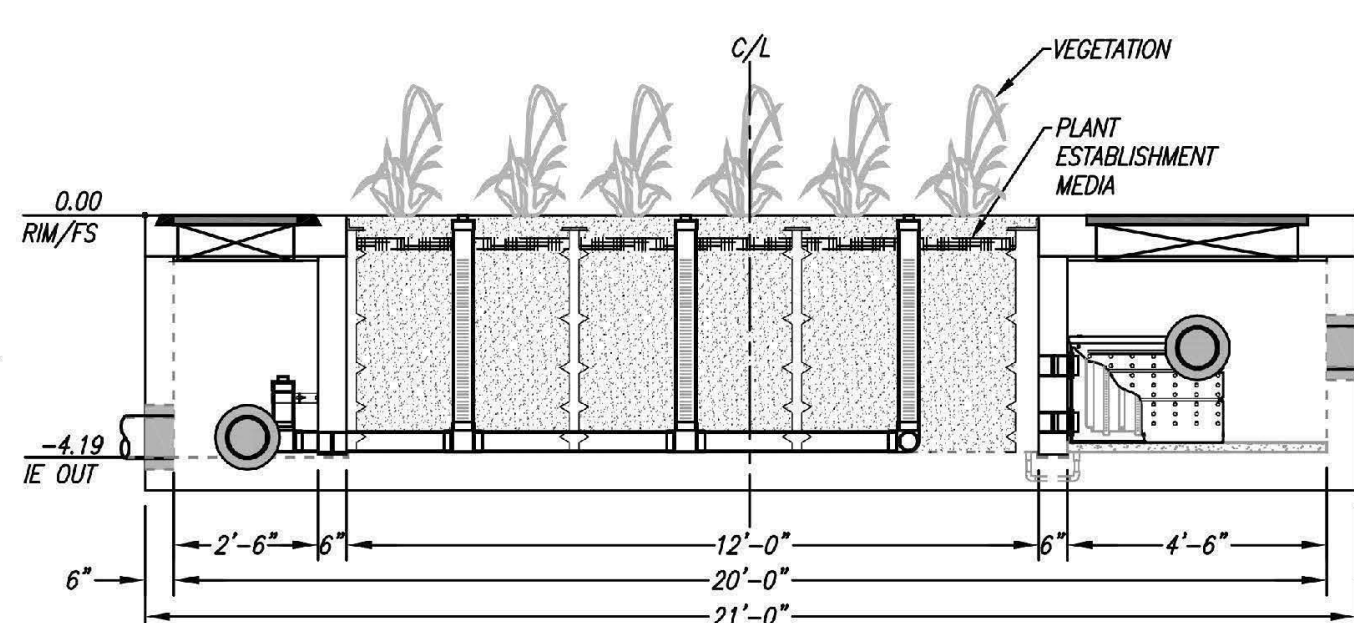
- CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPEARANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
- UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING PROJECT ENGINEER'S RECOMMENDED BASE SPECIFICATIONS.
- CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL PIPES SHALL BE SEALED WATERTIGHT PER MANUFACTURER'S STANDARD CONNECTION DETAIL.
- CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL PIPES, RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO USE GROUT AND/OR BRICKS TO MATCH COVERS WITH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
- VEGETATION SUPPLIED AND INSTALLED BY OTHERS. ALL UNITS WITH VEGETATION MUST HAVE DRIP OR SPRAY IRRIGATION SUPPLIED AND INSTALLED BY OTHERS.
- CONTRACTOR RESPONSIBLE FOR CONTACTING BIO CLEAN FOR ACTIVATION OF UNIT. MANUFACTURER'S WARRANTY IS VOID WITHOUT PROPER ACTIVATION BY A BIO CLEAN REPRESENTATIVE.

GENERAL NOTES

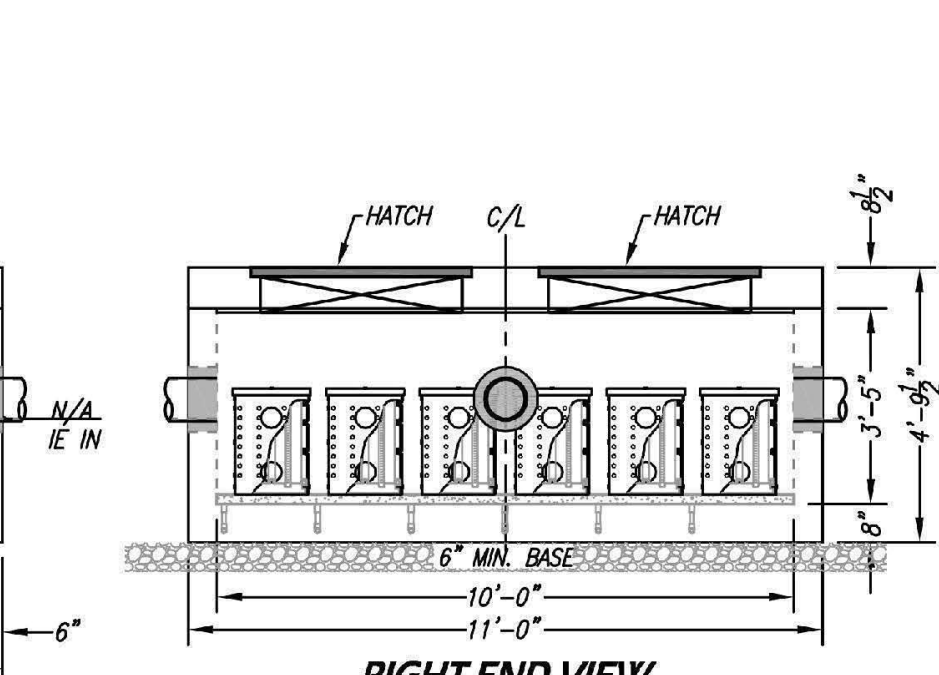
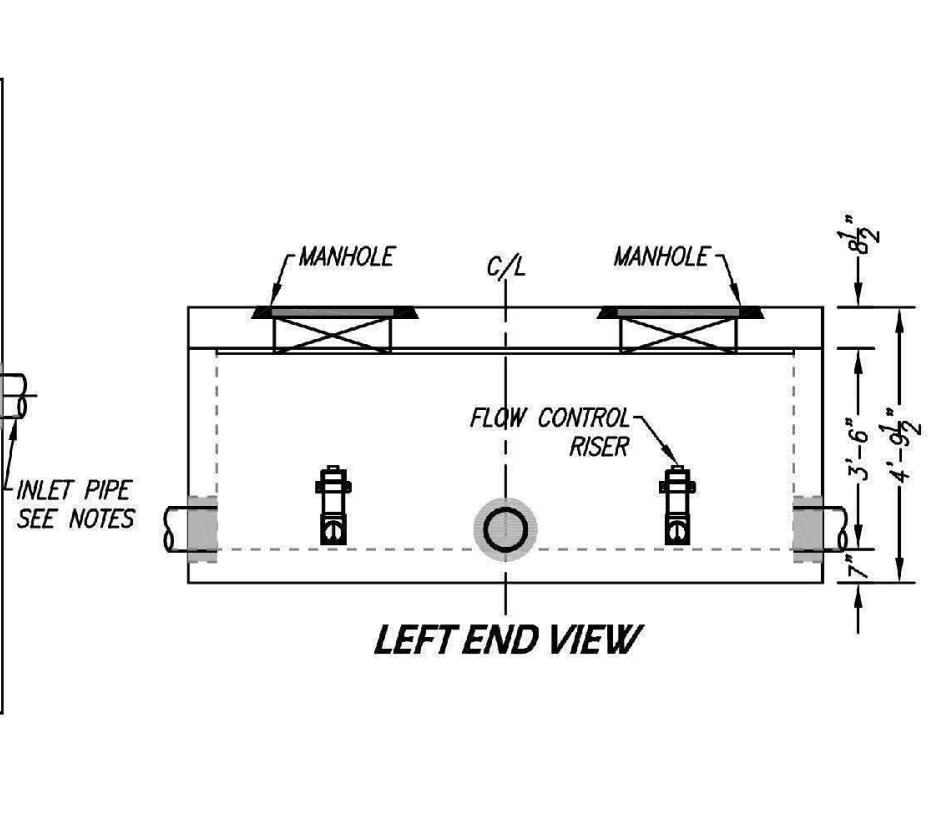
- MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT BIO CLEAN.



PLAN VIEW

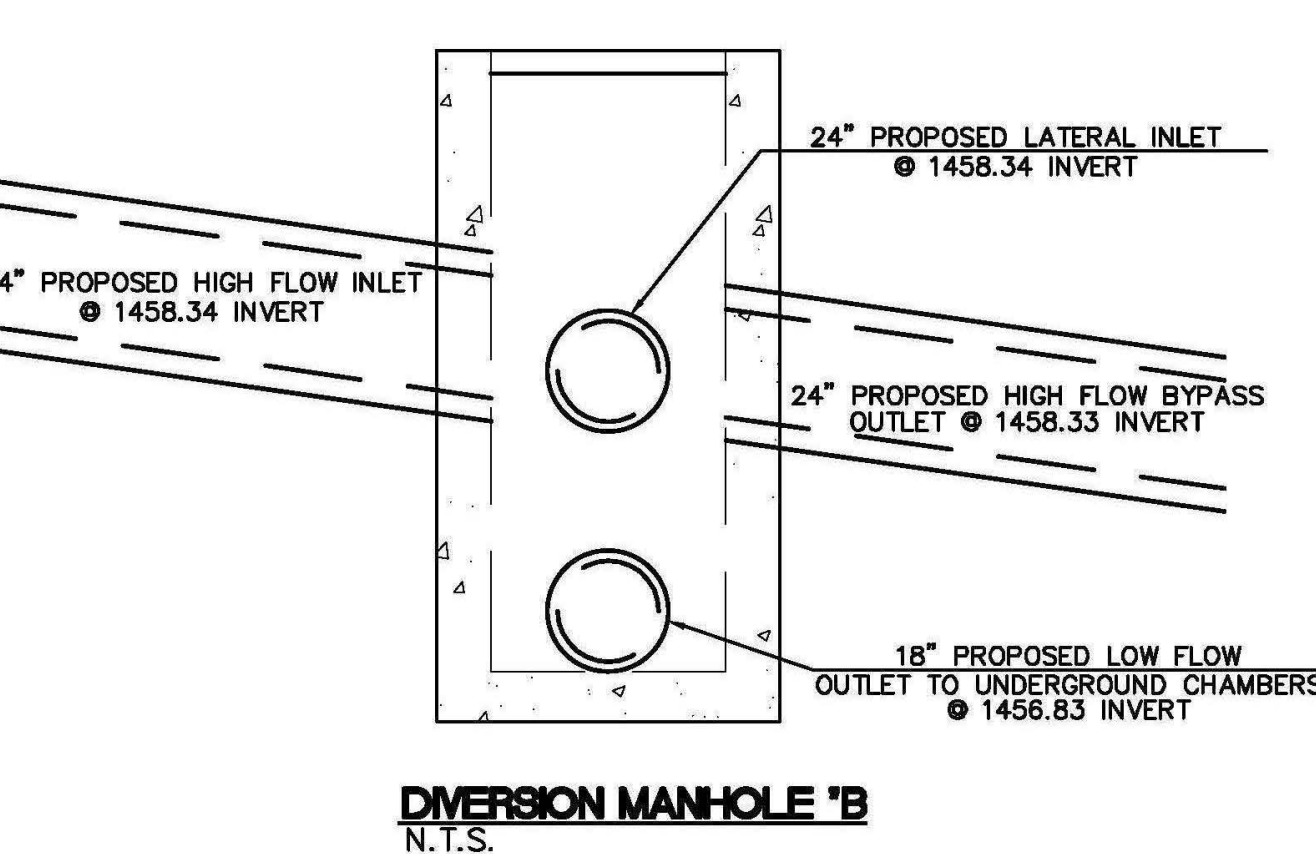


ELEVATION VIEW

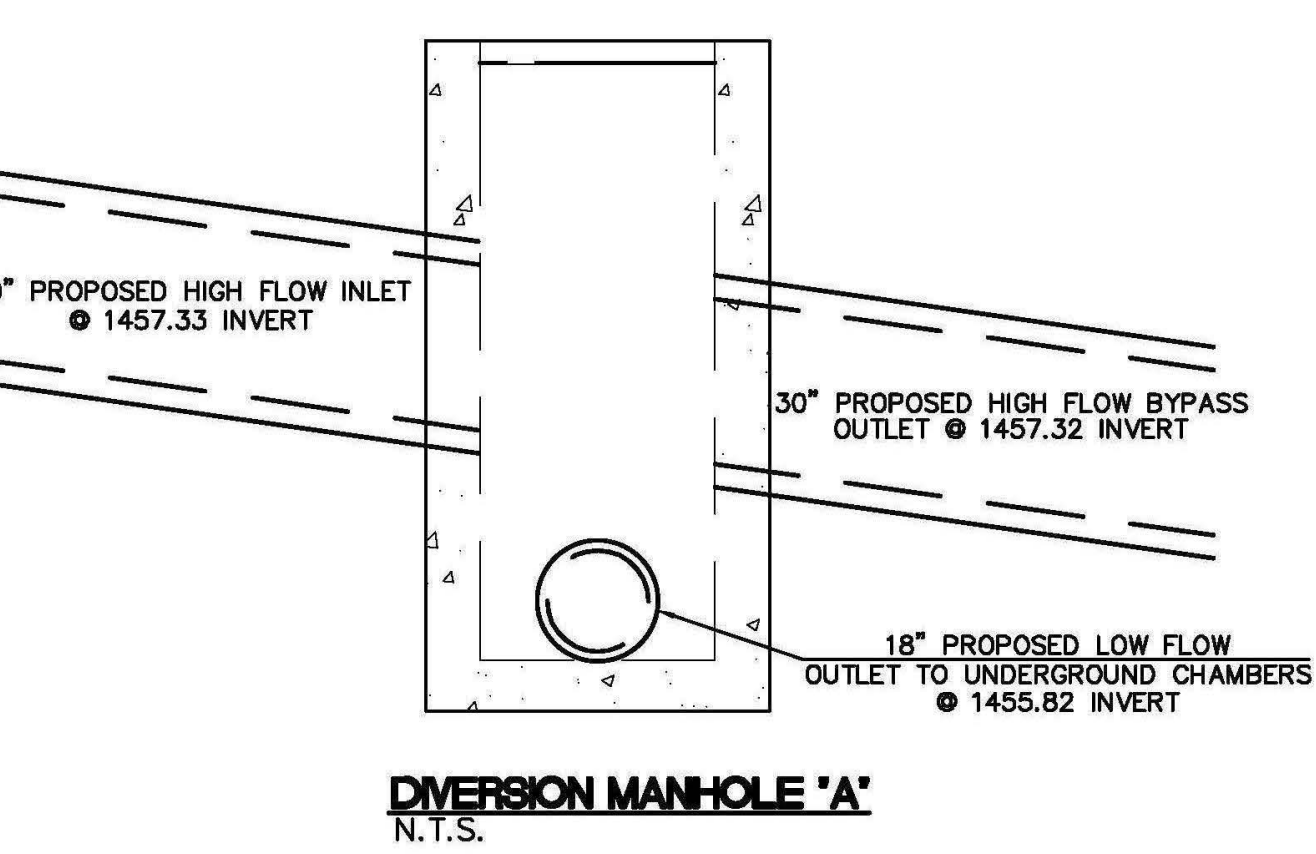


REQUIRED TREATMENT VOLUME (CF)	15,000
DRANDOWN DURATION (HOURS)	24
AVERAGE DISCHARGE RATE PER MWS UNIT (GPM)	78.50
OPERATING HEAD (FT)	3.4
WETLAND MEDIA INFILTRATION RATE (IN/Hr)	28
WETLAND MEDIA LOADING RATE (GPM/CF)	0.28

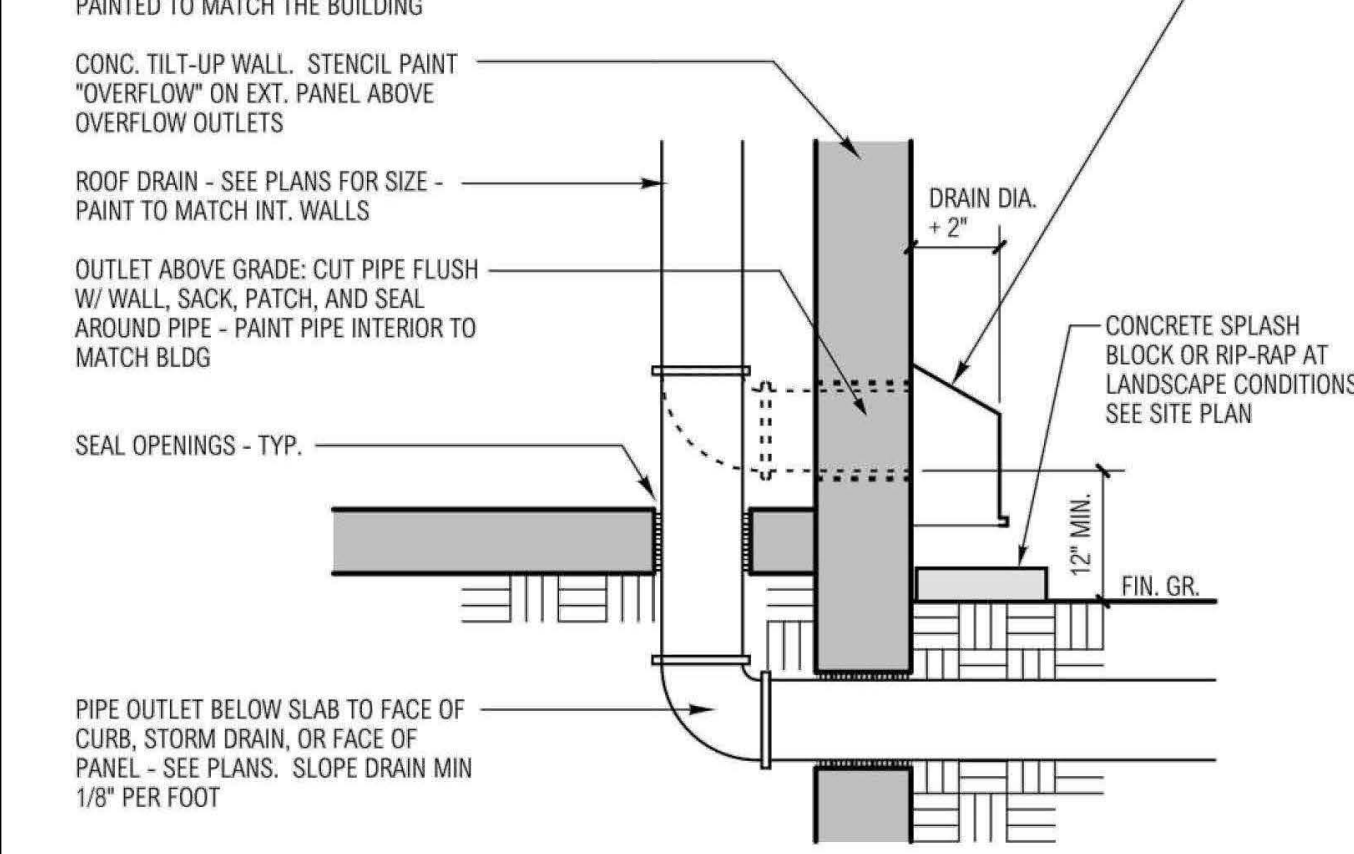
MWS-L-10-20-4'-1"-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL



DIVERSION MANHOLE "B"
N.T.S.

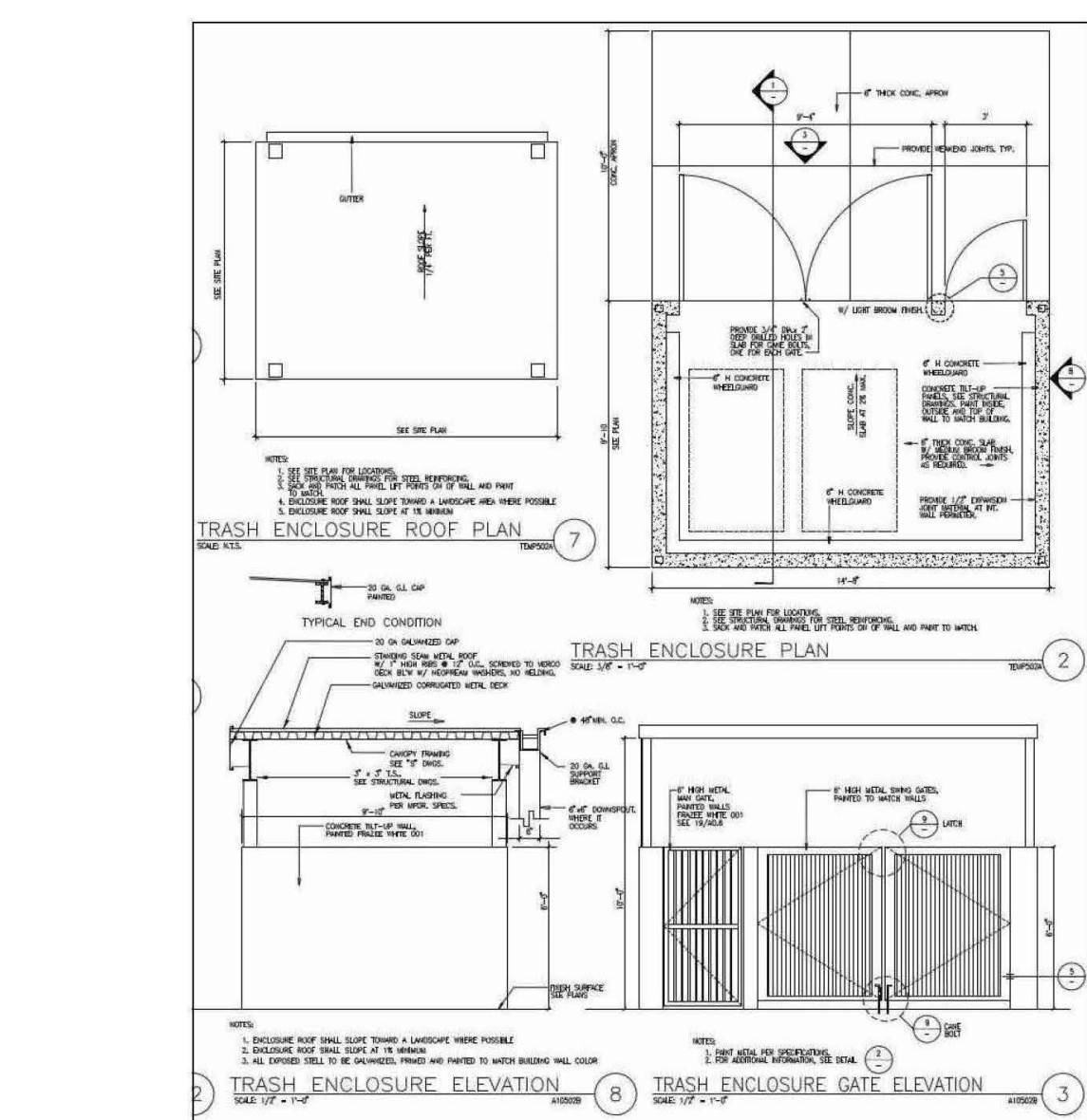


DIVERSION MANHOLE "A"
N.T.S.



NOTES:
1. SEE SITE PLAN FOR CONFIGURATION @ EACH DRAIN LOCATION.
2. PIPING TO BE NO-HUB CAST IRON ASSEMBLIES

ROOF DRAIN/DOWNSPOUT DETAIL (TYP.)



TRASH ENCLOSURE DETAIL

PREPARED FOR:
Fret Industrial Realty Trust, Inc.
888 N. Pacific Coast Highway Blvd., Suite 175
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PHONE: (310) 414-5400

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PH: (714) 821-4811 FAX: (714) 821-4773

CITY OF PERRIS PUBLIC WORKS DEPARTMENT POST-CONSTRUCTION BMP SITE PLAN DMA PLAN HARLEY KNOX INDUSTRIAL DEVELOPMENT 657 HARLEY KNOX BOULEVARD PERRIS, CA 92571 P22-00026		Designed by _____ Date _____ Checked by _____ Date _____ Designed by _____ Date _____ Checked by _____ Date _____	Approved by _____ Date _____ Public Works Director R.C.E.	Sheet 2 of 2 Sheets

4066 / 2 OF 2 SHEET