Appendix G

Preliminary Project Specific Water Quality Management Plan

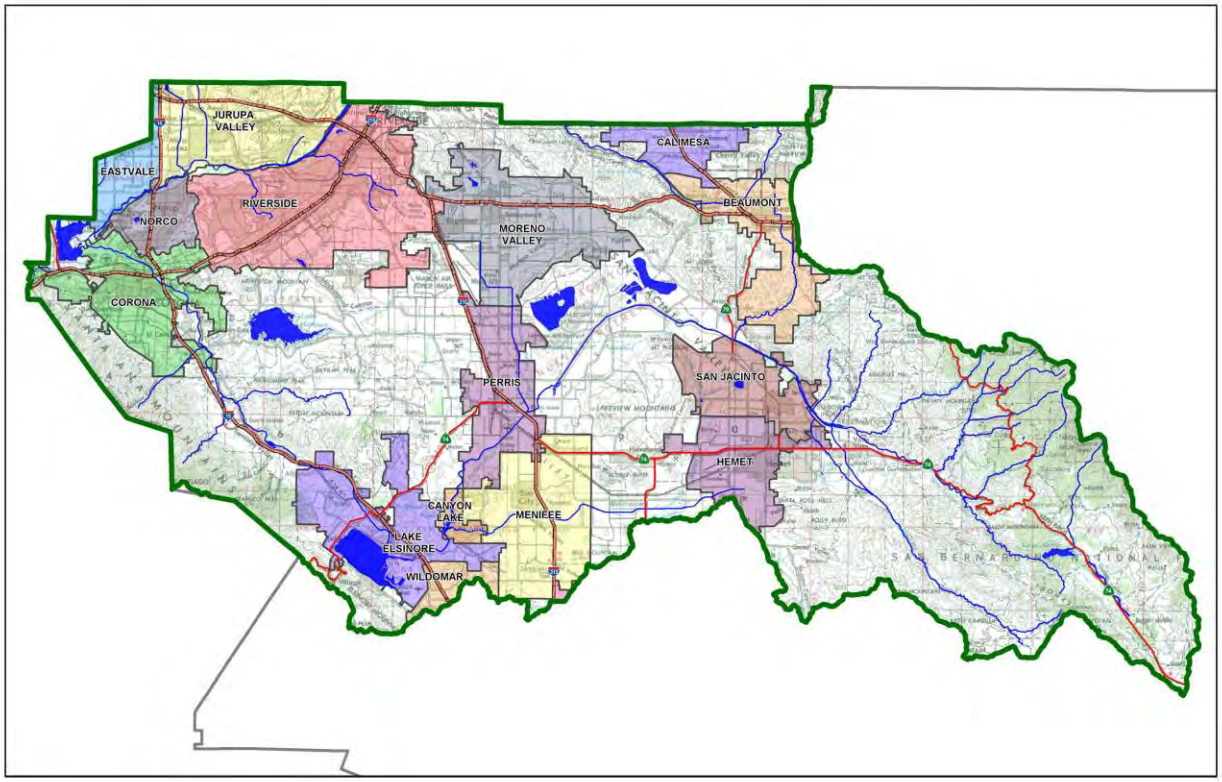
PRELIMINARY

Project Specific Water Quality Management Plan

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

Project Title: COLLIER COMMERCIAL PROPERTIES (Collier Ave. & Minthorn St.)

Design Review/Case No: PA No. 2021-22



☒ **Preliminary**
☐ **Final**

Original Date Prepared: January 6, 2022

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

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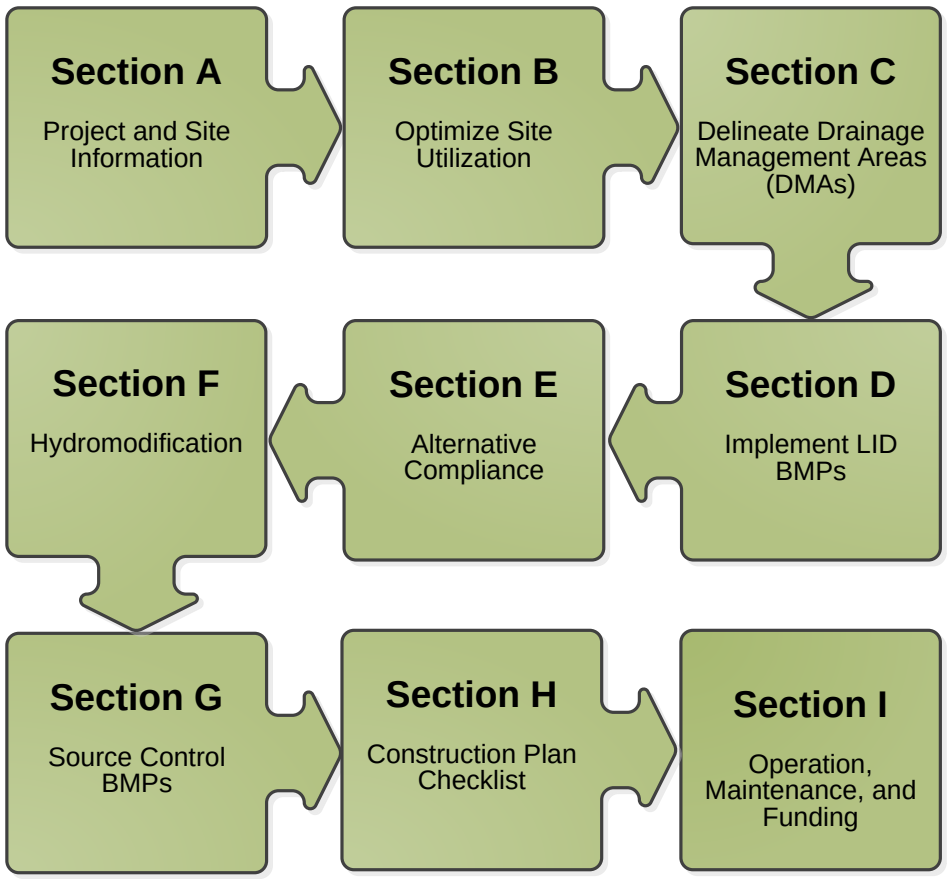
A Brief Introduction

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 **Edward & Leslie Hamud** by **NM Civil Engineering, Inc.** for the **COLLIER COMMERCIAL PROPERTIES** the project.

This WQMP is intended to comply with the requirements of **City of Lake Elsinore** for **Design Review for the construction of a new Collier Commercial Properties, PA 2021-22,** 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 Perris Water Quality Ordinance (Municipal Code Section 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."

Edward Hamud
Edward Hamud (Oct 11, 2022 14:53 MDT)

Owner's Signature

Oct 11, 2022
Date

EDWARD AND LESLIE HAMUD
Owner's Printed Name

OWNER'S
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

10/11/2022
Date

NELSON M MANLOLO
Preparer's Printed Name

CIVIL ENGINEER
Preparer's Title/Position

Preparer's Licensure:

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Section A: Project and Site Information

PROJECT INFORMATION	
Type of Project:	New Commercial Building Construction
Planning Area:	Northside
Community Name:	
Development Name:	COLLIER COMMERCIAL PROPERTIES

PROJECT LOCATION
Latitude & Longitude (DMS): Latitude: N33°40'34"W Longitude: -117°19'55"
Project Watershed and Sub-Watershed: San Jacinto River/Lake Elsinore
Sub-Water Shed: Lake Elsinore
APN(s): 377-190- 02, 03, 04
Map Book and Page No.: Thomas Bros. Map; Page 748 D-7, 1999 edition

PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Commercial Bldg.
Proposed or Potential SIC Code(s)	No
Area of Impervious Project Footprint (SF)	121,966 S.F.
Total Area of proposed Impervious Surfaces within the Project Limits (SF)/or Replacement	80,072 S.F.
Does the project consist of offsite road improvements?	☒ Y ☐ N
Does the project propose to construct unpaved roads?	☐ Y ☒ N
Is the project part of a larger common plan of development (phased project)?	☐ Y ☒ N
EXISTING SITE CHARACTERISTICS	
Total area of existing Impervious Surfaces within the project limits (SF)	0.00 S.F.
Is the project located within any MSHCP Criteria Cell?	☐ Y ☒ N
If so, identify the Cell number:	N/A
Are there any natural hydrologic features on the project site?	☐ Y ☒ N
Is a Geotechnical Report attached?	☐ Y ☒
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	N/A
What is the Water Quality Design Storm Depth for the project?	0.65 FT

A.1 Maps and Site Plans

Project Description:

The site is vacant with three (3) Parcels having a total site gross area of 2.80 Acres (121,966 S.F.). An existing block wall fence in the easterly property line, an existing chain link fence in the westerly property line, Collier Avenue to the North, Minthorn Street to the South and a 50' access road connecting Collier Avenue and Minthorn Street. The site is surrounded by vacant land and slopes from the northerly to southerly direction characterized by sheet flow following the slopes that exited on the access road and surface flow on to Minthorn Street. Flow will ultimately reach and discharge into Lake Elsinore.

On-site flows generated by the proposed project will surface flow through the site pave areas that will discharge to landscape areas and eventually to Lake Elsinore.

The proposal is to construct a 11,975 sq. ft. building to serve us office, storage, and an outdoor lounge within the Light Industrial (LI) zone of the PVCC Specific Plan. Improvements include a pave parking area

a peripheral road and concrete apron around the building of 80,072 sq. ft., a landscape area of 29,919. An off-site street improvement with curb and gutter and sidewalk are to be constructed fronting the property along Minthorn Street. No entrance are provided along Collier Avenue.

The proposed water quality design for this project is a bioretention area (BMP A) constructed on-site of the property. Drainage Area No. 1 (DMA 1) building, access road and parking runoffs will drain to BMP A. Landscape Areas and gravel filled site are self-retaining.

Appendix 1 includes a map of the local vicinity and existing site. In addition, WQMP Site Plan, located in Appendix 1 includes 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

A.2 Receiving Waters

In order of upstream to downstream, the receiving waters that the project site is tributary to are as follows: A map of the receiving waters is included in Appendix 1.

Table A.1 Identification of Receiving Waters

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
San Jacinto River, HU# 802.32 & 802.31	None	MUN – AGR – GWR – REC1 – REC2 – WARM - WILD	1.0 MILES
Lake Elsinore, HU# 802.31	Nutrients - Organic Compounds/Oxygen Demanding Substances - Sediment/Turbidity - Unknown Toxicity	REC1 - REC2-WARM - WILD	1.5 MILE

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

Table A.2 Other Applicable Permits

State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	☐ Y	☒ N
US Army Corps of Engineers, CWA Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☐ Y	☒ N
Statewide Industrial General Permit Coverage (Order No. 2014-0057-DWQ)	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)* DESIGN REVIEW,BUILDING PERMIT, GRADING PERMIT, STREET IMPROVEMENTS PERMIT	☒ Y	☐ N

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

Section B: Optimize Site Utilization (LID Principles)

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

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

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. Existing natural drainage systems are protected, retained, and incorporated in the design. The lot is protected from any offsite runoffs coming from the northerly with the existing Collier Avenue and onsite drainage are directed to the proposed bioretention area onsite that will overflow to Minthorn Street on the south.

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

No. There are no existing trees on-site to be removed or protected. Existing pervious area are open field with no vegetation.

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

Yes. Landscape and gravel areas are provided as catchment for runoff coming from the roof gutters of the building, access road and pave parking area.

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

Yes. The building and its walkway are designed as such to minimize impervious area. Pave parking area has been minimized to the minimum required.

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

Yes, landscaped areas are utilized as self-treating while remainder open areas are covered with gravel that will also serve as areas for water quality treatment in addition to the bioretention areas.

Section C: Delineate Drainage Management Areas (DMAs)

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

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s)[1]	Area (Sq. Ft.)	DMA Type
R - 1	Roofs	11,975	D
H - 2	Concrete or Asphalt	80,072	D
L - 3	Landscape	29,919	A

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

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

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
L – 3	29,919	Vegetated	Sprinkler System

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]

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

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		Area (square feet)	Ratio
	[A]		[B]	[C] = [A] x [B]	DMA name /ID	[D]	[C]/[D]

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

DMA Name or ID	BMP Name or ID
R - 1	BMP
H - 2	BMP

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.

A Geotechnical Report is required by the City of Lake Perris to confirm present and past site characteristics that may affect the use of Infiltration BMPs, see Appendix 3.

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 1 and 2:		
…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 to identify other site-specific factors that would preclude effective and safe infiltration?		X
Describe here: None		

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

D.2 Harvest and Use Assessment

The following condition apply*:*

☐ 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 City of Riverside).

☐The Design Capture Volume will be addressed using Bioretention Area. Only BMPs. (Harvest and Use BMPs are still encouraged but are not required as the Design Capture Volume will be 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).

Harvest and Use BMPs need not be assessed for the site.

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: Acres

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

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: 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:

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: 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)

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:

Project 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 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: 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 or toilet users per tributary impervious acre (TUTIA).

Enter your 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:

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)**

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.

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

Average Daily Demand:

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

Total Area of Impervious Surfaces: 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: gpd

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:

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).

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

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment 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.

For the project, following applies:

X LID Bioretention BMPs will be used for some, or all DMAs of the project as noted below in Section D.4

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5.

D.4 Feasibility Assessment Summaries

Table D.2 LID Prioritization Summary Matrix

R-1	☐	☐	☒	☐	☐
H-2	☐	☐	☒	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐

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.

Runoffs from building roofs and parking are treated with the use of bioretention and gravel areas that also treats storm water runoff as it is slowly conveyed into the ground. These areas have very shallow slopes to allow maximum contact time with the gravel. Landscape and irrigated areas are treated as self-treating LID BMP's.

D.5 LID BMP Sizing

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 A / Building Roof, Parking and Trash Enclosure and Landscaping* *Bioretention LID*		
	[A]		[B]	[C]	[A] x [C]	*Design Storm Depth (in)* [E]	*Design Capture Volume, V_{BMP} (cubic feet)* [F]= *DXE/12*	*Proposed Volume on Plans (cubic feet)* [G]
R - 1	*11,975*	*Roof*	*1*	*0.892*	*10,682*			
H - 2	*87872*	*Concrete or Asphalt*	*1*	*0.892*	*71,424*			
L - 3	*29,919*	*Landscaping*	*0.1*	*0.11*	*3,291*			
TOTAL	*129,766*				85,397	0.65	4,824	***8,308***

[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 LID BMP design procedure sheet, placed in Appendix 6

Table D.4 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 B / Parking, Trash Enclosure* *Infiltration Trench B*		
	[A]		[B]	[C]	[A] x [C]	*Design Storm Depth (in)* [E]	*Design Capture Volume, V_{BMP} (cubic feet)* [F]= *DXE/12*	*Proposed Volume on Plans (cubic feet)* [G]
TOTAL								

[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 LID BMP design procedure sheet, placed in Appendix 6

Table D.5 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 Landscape / Self-Retaining* *Vegetated Landscape*		
	[A]		[B]	[C]	[A] x [C]	*Design Storm Depth (in)* [E]	*Design Capture Volume,* $\mathbf{V_{BMP}}$ *(cubic feet)* [F]= *DXE/12*	*Proposed Volume on Plans (cubic feet)* [G]
TOTAL								

[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 LID BMP design procedure sheet, placed in Appendix 6

Table D.6 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* *Vegetated Channel (TC-30)*		
	[A]		[B]	[C]	[A] x [C]	*Design Storm Depth (in)* [E]	*Design Capture Volume,* $\mathbf{V_{BMP}}$ *(cubic feet)* [F]= *DXE/12*	*Proposed Volume on Plans (cubic feet)* [G]

[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 LID BMP design procedure sheet, placed in Appendix

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 Co-permittee). 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.

None

E.1 Identify Pollutants of Concern

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

Table E.1 Potential Pollutants by Land Use Type

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

P = Potential

N = Not Potential

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

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

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

(4) Specifically petroleum hydrocarbons

(5) Specifically solvents

(6) Bacterial indicators are routinely detected in pavement runoff

E.2 Stormwater Credits

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

Table E.2 Water Quality Credits

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

[1]*Cannot Exceed 50%*
[2]*Obtain corresponding data from Table 3-8 in the WQMP Guidance Document*

E.3 Sizing Criteria

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

Table E.3 Treatment Control BMP Sizing

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	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)*

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document
[E] is obtained from Exhibit A in the WQMP Guidance Document
[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12
[H] is from the Total Credit Percentage as Calculated from Table E.2 above
[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

E.4 Treatment Control BMP Selection

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

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

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

Table E.4 Treatment Control BMP Selection

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

[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.

The project does not create a Hydrologic Condition of Concern (HCOC), meeting the criteria for HCOC Exemption as shown below:

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

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

If Yes, HCOC criteria do not apply.

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

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

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

The proximity of the proposed development of approximately 5 feet to the nearest discharge area is very small which makes the time of concentration negligible.

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	5 MINUTES	6 MINUTES	1.20%
Volume (Cubic Feet)	0.249 AC FT	0.382 AC FT	1.53%

[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 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:

Lake Elsinore will receive runoff from the project.

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.

X d. None

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.

The following table identifies the potential sources of runoff pollutants for this project and specifies how they are addressed through permanent controls and operational BMP's:

Table G.1 Permanent and Operational Source Control Measures

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
A. Landscape/Outdoor Pesticide Use	The final landscape shall be designed to accomplish all of the following: Design landscape to minimize irrigation and runoff, to promote surface infiltration where appropriate and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.	Maintain landscaping using minimum or no pesticides. See applicable operational BMP's in "What you should know for Landscape and Gardening" at http://rcflood.org/stormwater and Appendix 10, Provide IPM information to new owners, lessees and operators. Landscape maintenance should include

	Consider using pest-resistant plants, especially adjacent to hardscape. To insure successful establishments, select plants appropriate to site, soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency and plant interactions. Pesticide usage should be at a necessary minimum and be consistent with the instructions contained on product labels and the regulations administered by the State Department of Pesticide Regulation. Pesticides should be used at an absolute minimum or not at all in the retention/infiltration basin. If used it should not be applied in close proximity to the rainy season.	mowing, weeding, trimming, removal of trash and debris, repair of erosion, revegetation, and removal of cut and dead vegetation. Irrigation maintenance should include the repair of leaky or broken sprinkler heads, the maintaining of timing apparatus accuracy, and the maintaining of shut-off valves in good working order.
B. Refuse Trash Storage Areas	Trash container storage areas shall be paved with and impervious surface, designed not to allow run-on from adjoining areas, designed to divert drainage from adjoining roofs and pavements from the surrounding area, and screened or walled to prevent off-site transport of trash. Trash dumpsters (containers) shall be roofed per City of Perris standards and details on the Appendix 1. See CASQA SD-32 BMP Fact Sheets in Appendix 10 for additional information. Signs shall be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar	Adequate number of receptacles shall be provided. Inspect receptacles regularly; repair or replace leaky receptacle. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wasted. Post "No hazardous materials" signs. Inspect and pickup litter daily and clean up spills immediately. Keep spill control materials available onsite. See Fact Sheet SC-34, in Appendix 10, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbook at www.cabmphandbooks.com
C. Parking Lots and walkways	Spill kits are to be kept on-site at all times per SC-11	Sweep sidewalks and parking lots regularly to prevent accumulation of litter and debris.
D. Bioretention Area	See Fact Sheet TC-32, in Appendix 10, "Bioretention" in the CASQA Stormwater Quality Handbook at www.cabmphandbooks.com	Remove trash, debris, sediment and other collected materials, as needed to maintain the original condition and capacity of the bioretention area.

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

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.

Note: This section will be completed during Final Engineering.

Section I: Operation, Maintenance and Funding

The Co-permittee will periodically verify that Stormwater BMPs on your site are maintained and continue to operate as designed. To make this possible, your Co-permittee 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:

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.

As required by the City of Perris, the following Operation, Maintenance and Funding details are provided as summarized.

6. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
7. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred.
8. An outline of general maintenance requirements for the Stormwater BMPs selected.

9. 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.

10. 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.

See Appendix 9 a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built onsite and an agreement assigning responsibility for maintenance and providing for inspections and certification.

Educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP are included in Appendix 10.

Note: This section will be completed during Final Engineering.

Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map

VICINITY MAP/N.T.S.

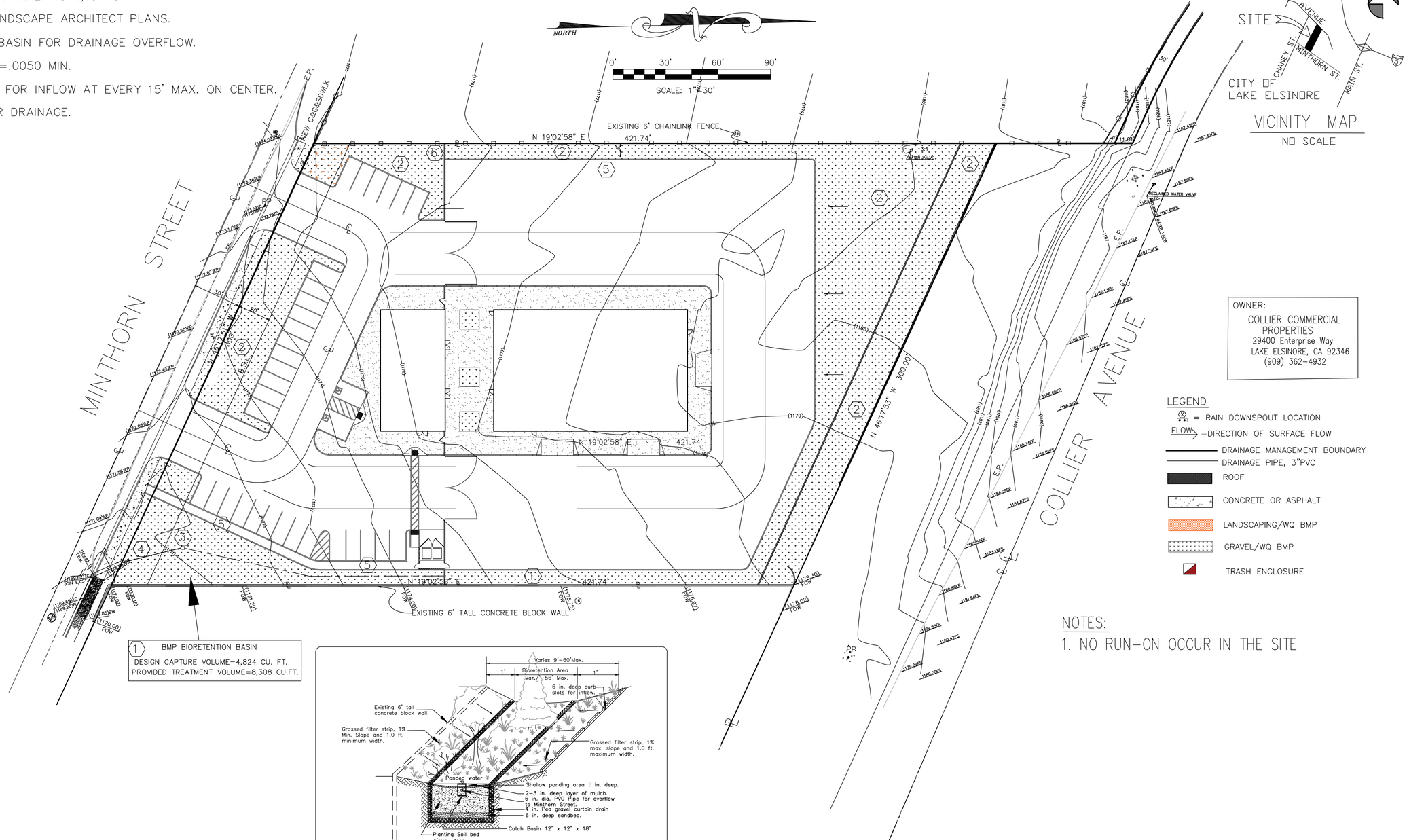
Appendix 2: Construction Plans

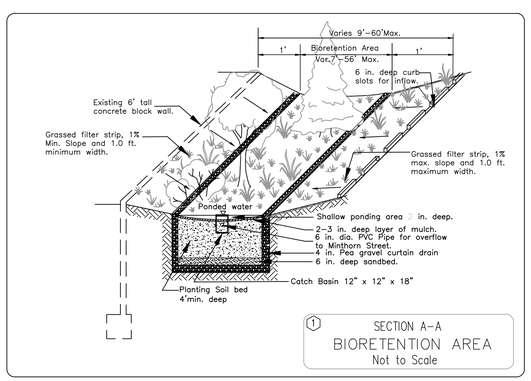
Grading and Drainage Plans Attached

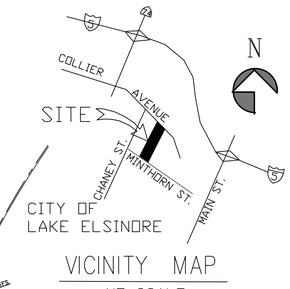
PRELIMINARY PLANS

CONSTRUCTION NOTES:

1. CONSTRUCT BIORETENTION BASIN AREA IS 4,154 S.F.
2. PROVIDE LANDSCAPING PER LANDSCAPE ARCHITECT PLANS.
3. CONSTRUCT 12" X 12" CATCH BASIN FOR DRAINAGE OVERFLOW.
4. CONSTRUCT 6" PVC PIPE AT S=.0050 MIN.
5. PROVIDE 6" DEEP CURB SLOTS FOR INFLOW AT EVERY 15' MAX. ON CENTER.
6. PROVIDE 6" WALL OPENING FOR DRAINAGE.







OWNER:
COLLIER COMMERCIAL PROPERTIES
29400 Enterprise Way
LAKE ELSINORE, CA 92346
(909) 362-4932

LEGEND
- = RAIN DOWNSPOUT LOCATION
- FLOW = DIRECTION OF SURFACE FLOW
- DRAINAGE MANAGEMENT BOUNDARY
- DRAINAGE PIPE, 3"PVC
- ROOF
- CONCRETE OR ASPHALT
- LANDSCAPING/WQ BMP
- GRAVEL/WQ BMP
- TRASH ENCLOSURE

NOTES:
1. NO RUN-ON OCCUR IN THE SITE

PA-2021-22

MARK	REVISIONS	APPR.	DATE

THESE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE APPROPRIATE CONDITIONS OF DEVELOPMENT AND/OR CITY AND STATE LAWS AND HAVE BEEN FOUND ACCEPTABLE

REMON HABIB, RCE No. 83156
CITY ENGINEER
CITY OF LAKE ELSINORE

DATE

PREPARED BY:

1-20-2023
DATE

SEAL: REGISTERED PROFESSIONAL ENGINEER — Nelson M. Manlolo — No. C 36838 — Exp. 06-30-24 — CIVIL — STATE OF CALIFORNIA

NM Civil Engineering, Inc.
22880 Van Buren Street
Grand Terrace, CA 92313
(951)712-0623
NM.PE@manlolo.com

SCALE: 1' = 30'

DATE: JUNE 2021

BENCH MARK: E 307
1.9 miles north along Hwy 74 from the AT&SF Railway station at Elsinore, Riv. Co., at the junction of Hwy 74 station in the triangle formed by the junction on the AT& SF Railway R/W.
Date: 1935 ELEV.= 1174.889

CITY OF LAKE ELSINORE

Post-Construction BMP Site Plan & Details For Collier Properties

PA-2021-22

APN: 377-190-002,-003,-004

SHEET 1 OF 2 SHEETS

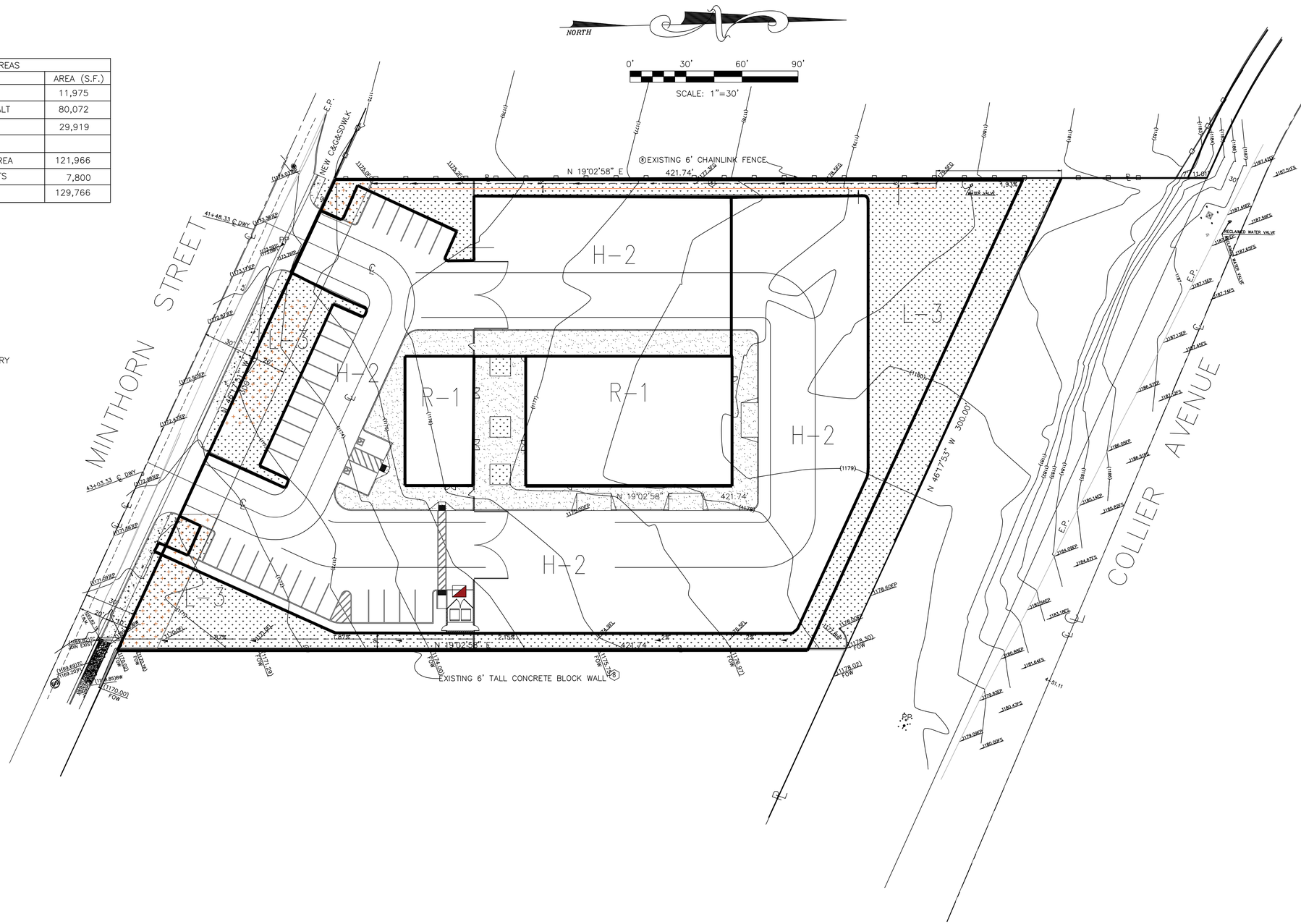
FILE No.

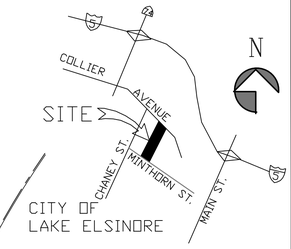
DRAINAGE MANAGEMENT AREA PLAN FOR COLLIER COMMERCIAL PROPERTIES, LAKE ELSINORE, CA.

DRAINAGE MANAGEMENT AREAS			
LEGEND	DMA ID	TYPE	AREA (S.F.)
	R-1	ROOF	11,975
	H-2	CONCRETE OR ASPHALT	80,072
	L-3	LANDSCAPE	29,919
TOTAL ON-SITE AREA			121,966
	H-2	STREET IMPROVEMENTS	7,800
TOTAL			129,766

LEGEND

- = RAIN DOWNSPOUT LOCATION
- FLOW = DIRECTION OF SURFACE FLOW
- DRAINAGE MANAGEMENT BOUNDARY
- DRAINAGE PIPE, 3"PVC
- ROOF
- CONCRETE OR ASPHALT
- LANDSCAPING/WQ BMP
- TRASH ENCLOSURE





VICINITY MAP
NO SCALE

PA-2021-22

MARK	REVISIONS	APPR.	DATE

THESE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE APPROPRIATE CONDITIONS OF DEVELOPMENT AND/OR CITY AND STATE LAWS AND HAVE BEEN FOUND ACCEPTABLE

REMON HABIB, RCE No. 83156
CITY ENGINEER
CITY OF LAKE ELSINORE

DATE

PREPARED BY:

1-18-2023
DATE

SEAL

REGISTERED PROFESSIONAL ENGINEER
Nelson M. Manlolo
No. C 36838
Exp. 06-30-24
CIVIL
STATE OF CALIFORNIA

NM Civil Engineering, Inc.
22880 Van Buren Street
Grand Terrace, CA 92313
(951)712-0623
NM.PE@manlolo.com

SCALE: 1' = 30'

DATE: DECEMBER 2021

BENCH MARK: E 307
1.9 miles north along Hwy 74 from the AT&SF Railway station at Elsinore, Riv. Co. at the junction of Hwy 74 station in the triangle formed by the junction on the AT& SF Railway R/W.
Date: 1935 ELEV.= 1174.889

CITY OF LAKE ELSINORE

Post-Construction DMA Site Plan & Details For Lake Elsinore Rentals

PA-2021-22

APN: 377-190-002,-003,-004

SHEET 2 OF 2 SHEETS

FILE No.

CITY OF LAKE ELSINORE

COLLIER COMMERCIAL PROPERTIES

GENERAL NOTES

1. All work shall be done in accordance with the City of Lake Elsinore Ordinances No. 801 and 882 and applicable standards and specifications and the latest edition of the U.B.C., Chapter 33
2. A permit shall be obtained from the Engineering Department, City of Lake Elsinore, prior to any operation.
3. The developer and/or contractor shall notify all utility companies and U.S.A. ALERT (1-800-227-2600) 48 hours prior to grading.
4. The contractor shall notify the City Engineering Department as least 24 hours in advance of beginning grading operations.
5. Dust shall be controlled by watering or other methods approved by the City Engineer.
6. Cut slopes shall be no steeper than 2 horizontal to 1 vertical, unless otherwise approved, and shall be shown on the plan.
7. Fill slopes shall be no steeper than 2 horizontal to 1 vertical, unless otherwise approved, shall be shown on plan, and shall not have less than 90% compaction out to the finished surface.
8. Fills shall be compacted throughout to 90% density as determined by modified three layer A.S.T.M. D-1557-70 test method.
9. Fill areas shall be cleaned of all vegetation and debris, scarified, and inspected by the grading inspector and approved by soils testing agency prior to the placement of fill.
10. All fill material shall be clean earth. No fill shall be placed until preparation of ground is approved by the soils engineer.
11. Finish grade shall be sloped away from all exterior walls at not less than 1/4" per foot for a minimum of 3', then % (minimum) to flowline of earth swale.
12. Minimum building pad and drainage swale slope shall be % if cut slope is less than 10', and 2% if cut or fill is greater than 10'. Drainage s shall be a minimum of 0.5' deep and constructed a minimum of 2' from top of cut or fill slopes.
13. Provide 5' wide by 1' high berm or equivalent along the top of all fill slope over 5' high.
14. Provide a brow ditch, designed to handle 100 year storm flows along the top of cut slopes.
15. No obstruction of flood plains or natural water courses shall be permitted
16. A soils engineer shall be retained by the developer, to supervise grading and provide a final soils report, which includes foundation requirements (subdivisions) and expansive characteristics of the soil.
17. Grading certification by the developer's civil engineer and a final compaction report by a soils engineer shall be submitted to the building and engineering departments prior to issuance of building permits.
18. The soils engineering investigation dated_____prepared by _____ and the engineering geotechnical investigation dated _____ prepared by _____ shall be considered a part of this grading plan, and shall be complied with.
19. A registered civil engineer or licensed land surveyor shall submit certification of building pad elevation. Where specific elevations are required, the elevation (with respect to mean sea level) shall be given. If an elevation with respect to adjacent ground surface is required, the actual distance above the adjacent ground shall be given.
20. All property corners shall be clearly delineated in the field prior to commencement of any construction/grading.
21. Stability calculations with a factor of at least 1.5 shall be submitted by a soils engineer to the Building and Engineering Departments for cut and fill slopes over 30' in vertical height.
22. A final compaction report will be required for all fills greater than one foot.
23. If steep sloping terrain occurs upon which fill is to be place, it must be cleared, keyed, and benched into firm natural soil for full support. Preparation shall be approved by a registered soils engineer prior to placement of fill material. Slopes greater than 5:1 are required to be keyed and benched.
24. The soil engineer should inspect the construction in the following stages:
    - A. Upon completion of clearing and during excavation and before backfill of alluvial, colluvial and terraced areas and any substructures.
    - B. During all rough grading and operations including pre-compaction, benching and filling operations.
    - C. During installation of buttress and canyon sub-drains and filter material.
    - D. When any unusual grading conditions are encountered during construction.
25. Erosion Control: All graded slopes shall be planted with rosea ice plant at 12" on centers or another approved ground cover. Slopes over 15' in vertical height, in addition to ground cover, shall be planted with approved trees, shrubs or combinations thereof. Shrubs shall be planted at 10' on centers; trees 20' on center; combinations, 15' on centers. Slopes over 3' in vertical height shall have permanent irrigation systems with backflow prevention devices per U.B.C., Chapter 70.
26. Approved protective measures and temporary drainage provisions must be used to protect adjoining properties during the grading project.
27. Approved erosion preventative devices shall be provided and maintained during the rainy season and shall be in place at the end of each day's work.
28. All work shall conform to the City and State construction safety orders.
29. The location and protection of all utilities is the responsibility of the permittee.
30. An approved set of grading plans shall be on the job site at all times.
31. Sanitary facilities shall be maintained on the site from beginning to completion of grading operation.
32. All slopes shall be planted and irrigation facilities shall be provided for all slopes in excess of 3 feet vertical height within 90 days after completion of the rough grading and shall be in accordance with ordinance No. 882 prior to the approval of final inspection.
33. Any contractor performing work on this project shall familiarize himself with the site and be solely responsible for any damage to existing facilities resulting, directly or indirectly from his operations, whether or not such facilities are shown on these plans.
34. The design engineer shall provide a minimum of one blue top per finished pad, prior to rough grade approval.
35. Approximate date of: Beginning operation: _____ Completion :_____
36. No rock or other irreducible material with a maximum dimension greater than 3" will be placed in fills within roadbed areas or 3' of finish grades, unless the location, materials, and disposal methods are specifically approved by the soils engineer.
37. The engineer must set grade stakes for all drainage devices and obtain inspection before approval.
38. Grading plans will not be approved until all retaining walls are approved by the Building Department.
39. This site has obtained a National Pollution Prevention Elimination System (NPDES) permit to regulate municipal and industrial storm water discharges.
    NPDES WDID #_____ DATE PERMIT ISSUED: _____
40. Drainage easements will be kept clear of all obstructions. No buildings or walls shall be placed within easement limits. Temporary improvements are subject to removal at owner's expense.

PAVING NOTES:

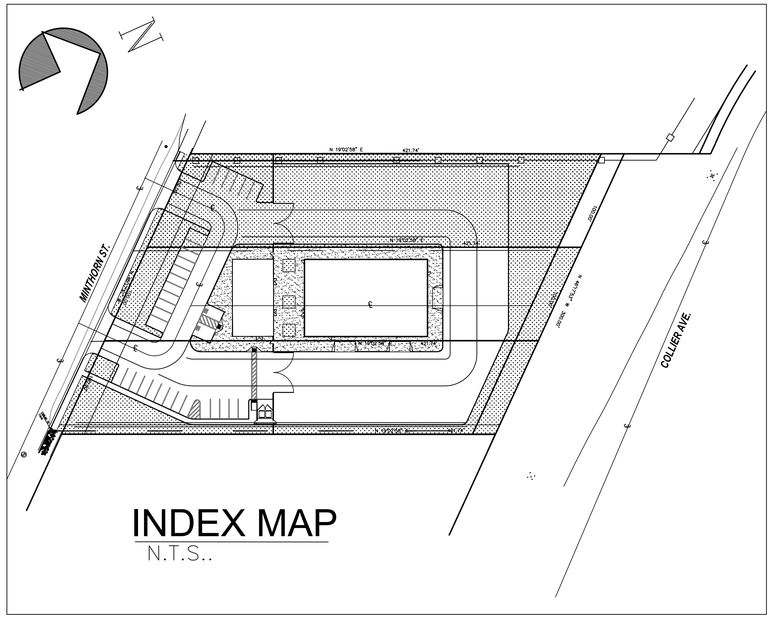
1. MININUM PARKING LOT GRADE SHALL BE 1
2. MINIMUM GRADE FOR RIBBON DRAINS SHALL BE 0.35 %.
3. AN APPROVED SOIL STERILIZER SHALL BE USED ON ALL SUBRADE SURFACES PRIOR TO PLACEMENT OF PAVING.
4. ASPHALTIC EMULSION (FOG SEAL) SHALL BE APPLIED NOT LESS THAN FOURTEEN DAYS FOLLOWING PLACEMENT OF THE ASPHALTIC SURFACING AND SHALL BE APPLIED AT A RATE OF 0.05 GALLONS PER SQUARE YARD. ASPHALT EMULSION SHALL CONFORM TO SECTION 37, 39 AND 94 OF THE STATE STANDARD SPECIFICATIONS.
5. THE SUBDIVIDER OR CONTRACTOR SHALL APPLY TO THE CITY ENGINEERING DEPARTMENT FOR AN ENCROACHMENT PERMIT FOR ALL WORK WITHIN THE RIGHT-OF-WAY.
6. A COMPACTION REPORT BY A SOILS ENGINEER SHALL CERTIFY 95% COMPACTION OF BASE PRIOR TO CALLING FOR SECOND INSPECTION AND PLACEMENT OF ASPHALT PAVING.
7. TWO SPECIAL INSPECTIONS ARE REQUIRED BY THE CITY ENGINEERING DEPARTMENT. ONE INSPECTION AT THE TIME THE BASE IS PLACED AND THE SECOND WHEN A.C. HAS BEEN PLACED.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEARING OF THE PROPOSED WORK AREA, AND RELOCATION AND COST OF ALL EXISTING UTILITIES. THE CITY SHALL BE INFORMED 48 HOURS PRIOR TO BEGINNING OF CONSTRUCTION AT (909) 674-3124.

APPROXIMATE EARTHWORK QUANTITIES:

CUT: 280 CU. YDS. FILL : 1,000 CU.YDS.

IMPORT=720 CU. YDS.

The above quantities do not reflect any shrinkage, swelling, subsidence, over excavation or any special conditions that maybe specified in the preliminary soils report and are for reference and fee purposes only. Since the engineer cannot control the exact method or means used by the contractor during grading operations, nor can the engineer guarantee the exact soil condition over the entire site, the engineer assumes no responsibility for final earth work quantities. The contractor shall be responsible for determining his own earthwork quantities for contract and construction purposes. If it appears there will be an excess or shortage of material, the contractor may notify the engineer to determine if possible grade adjustments can be made to alleviate said material excess or shortage.

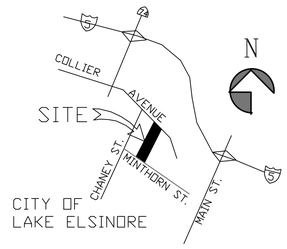


INDEX MAP

N.T.S..

CONSTRUCTION NOTES AND ESTIMATED QUANTITIES:

		QUANTITY	UNIT
1	CONSTRUCT BIORETENTION AREA = 4,154 S.F. X 2' DEPTH	4,154	S.F.
2	CONST 6" CURB TYPE "D" PER COUNTY STD. NO. 204	600	L.F.
3	CONST. 4" A/C W/ SEAL COAT OVER 8" AGGREGATE BASE CLASS 2 (SECTION MAYBE ALTERED BY SOILS ENGINEER AFTER ROUGH GRADING)	44,760	S.F.
4	RELOCATE EXISTING POWER POLE.	1	E.A.
5	CONSTRUCT 8' HIGH BLOCKWALL FENCE BY OTHERS AND SEPARATE PERMIT.	450	L.F.
6	INSTALL LANDSCAPING PER LANDSCAPE ARCHITECT'S PLAN	19,805	S.F.
7	CONSTRUCT TRASH ENCLOSURE PER ARCHITECT'S PLAN.	1	E.A.
8	PROTECT EXISTING BLOCKWALL, CHAINLINK FENCE AND WATER VALVE.	LUMP SUM	
9	INSTALL 4" WIDE STRIPPED PARKING STALLS PER CITY STD. AND ARCHITECT'S PLAN.	460	L.F.
10	INSTALL 4" WIDE 45 DEGREE STRIPPING AT 36" O.C. TO DENOTE HANDICAPPED PARKING AISLE AND ACCESS FROM WALK TO BUILDING . SEE ARCHITECT DRAWINGS FOR DETAILS.	1	E.A.
11	INSTALL HANDICAPPED PARKING SIGNS PER CITY STD. AND ARCHITECT'S PLAN.	1	E.A.
12	INSTALL 40' POWER GATES BY OTHERS.	3	E.A.
13	REFER TO ARCHITECT'S PLAN FOR BUILDING AND OTHER DETAILS	LUMP SUM	
14	CONSTRUCT 4" PCC CONCRETE APRON OVER PREPARED BASE.	10,125	S.F.
15	CONSTRUCT 12" X 12" CATCH BASIN FOR DRAINAGE OVERFLOW.	1	E.A.
16	CONSTRUCT 6" PVC PIPE AT S=.0050 MIN.	35	L.F.
17	PROVIDE 6" DEEP CURB SLOTS FOR INFLOW AT EVERY 15' MAX. ON CENTER.	LUMP SUM	



VICINITY MAP

NO SCALE

SHEET INDEX

TITLE SHEET	SHEET 1
PRECISE GRADING PLAN	SHEET 2

OWNER:	TOPOGRAPHIC SURVEY BY:
COLLIER COMMERCIAL PROPERTIES 29400 Enterprise Way LAKE ELSINORE, CA 92346 (909) 362-4932	JAMES WILLIAMS, L.S.7432 9965 Walnut Tree Lane YUCAIPA, CA 92399 (909) 709-8131 Date: JUNE, 2021

LEGEND

T.C.	Top of Curb	C.F.	
F.L.	Flowline	T.P.	
F.S.	Finished Surface	P.P.	
G.B.	Grade Break	F.G.	
T.W.	Top Wall	T.G.	
T.B.	Top of Berm	C.M.U.	
C.F.	Curb Face		
T.P.	Top of Pavement		
P.P.	Power Pole		
F.G.	Finished Grade		
T.G.	Top of Grate		
C.M.U.	Cement Mortar Units		
L.P.	Low Point		
H.P.	High Point		
E.P.	Edge of Pavement		

CONCRETE

ASHALT

PA-2021-22

MARK	REVISIONS	APPR.	DATE

THESE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE APPROPRIATE CONDITIONS OF DEVELOPMENT AND/OR CITY AND STATE LAWS AND HAVE BEEN FOUND ACCEPTABLE

REMON HABIB, RCE No. 83156
CITY ENGINEER
CITY OF LAKE ELSINORE

DATE

PREPARED BY:

1-20-2023
DATE

SEAL

REGISTERED PROFESSIONAL ENGINEER
Nelson M. Manlolo
No. C 36838
Exp. 06-30-24
CIVIL
STATE OF CALIFORNIA

NM Civil Engineering, Inc.
22880 Van Buren Street
Grand Terrace, CA 92313
(951)712-0623
NM.PE@manlolo.com

SCALE: 1' = 30'

DATE: DECEMBER 2021

BENCH MARK: E 307
1.9 miles north along Hwy 74 from the AT&SF Railway station at Elsinore, Riv. Co., at the junction of Hwy 74 station in the triangle formed by the junction on the AT& SF Railway R/W.
Date: 1935 ELEV.= 1174.889

CITY OF LAKE ELSINORE

PRECISE GRADING PLAN

TITLE SHEET

SHEET 1 OF 2 SHEETS

FILE No.

CONSTRUCTION NOTES AND ESTIMATED QUANTITIES:

1. CONSTRUCT BIORETENTION AREA = 4,154 S.F. X 2' DEPTH
2. CONST 6" CURB TYPE "D" PER COUNTY STD. NO. 204
3. CONST. 4" A/C W/ SEAL COAT OVER 8" AGGREGATE BASE CLASS 2 (SECTION MAYBE ALTERED BY SOILS ENGINEER AFTER ROUGH GRADING)
4. RELOCATE EXISTING POWER POLE.
5. CONSTRUCT 8' HIGH BLOCKWALL FENCE BY OTHERS AND SEPARATE PERMIT.
6. INSTALL LANDSCAPING PER LANDSCAPE ARCHITECT'S PLAN
7. CONSTRUCT TRASH ENCLOSURE PER ARCHITECT'S PLAN.
8. PROTECT EXISTING BLOCKWALL, CHAINLINK FENCE AND WATER VALVE.
9. INSTALL 4" WIDE STRIPPED PARKING STALLS PER CITY STD. AND ARCHITECT'S PLAN.
10. INSTALL 4" WIDE 45 DEGREE STRIPPING AT 36" O.C. TO DENOTE HANDICAPPED PARKING AISLE AND ACCESS FROM WALK TO BUILDING . SEE ARCHITECT DRAWINGS FOR DETAILS.
11. INSTALL HANDICAPPED PARKING SIGNS PER CITY STD. AND ARCHITECT'S PLAN.
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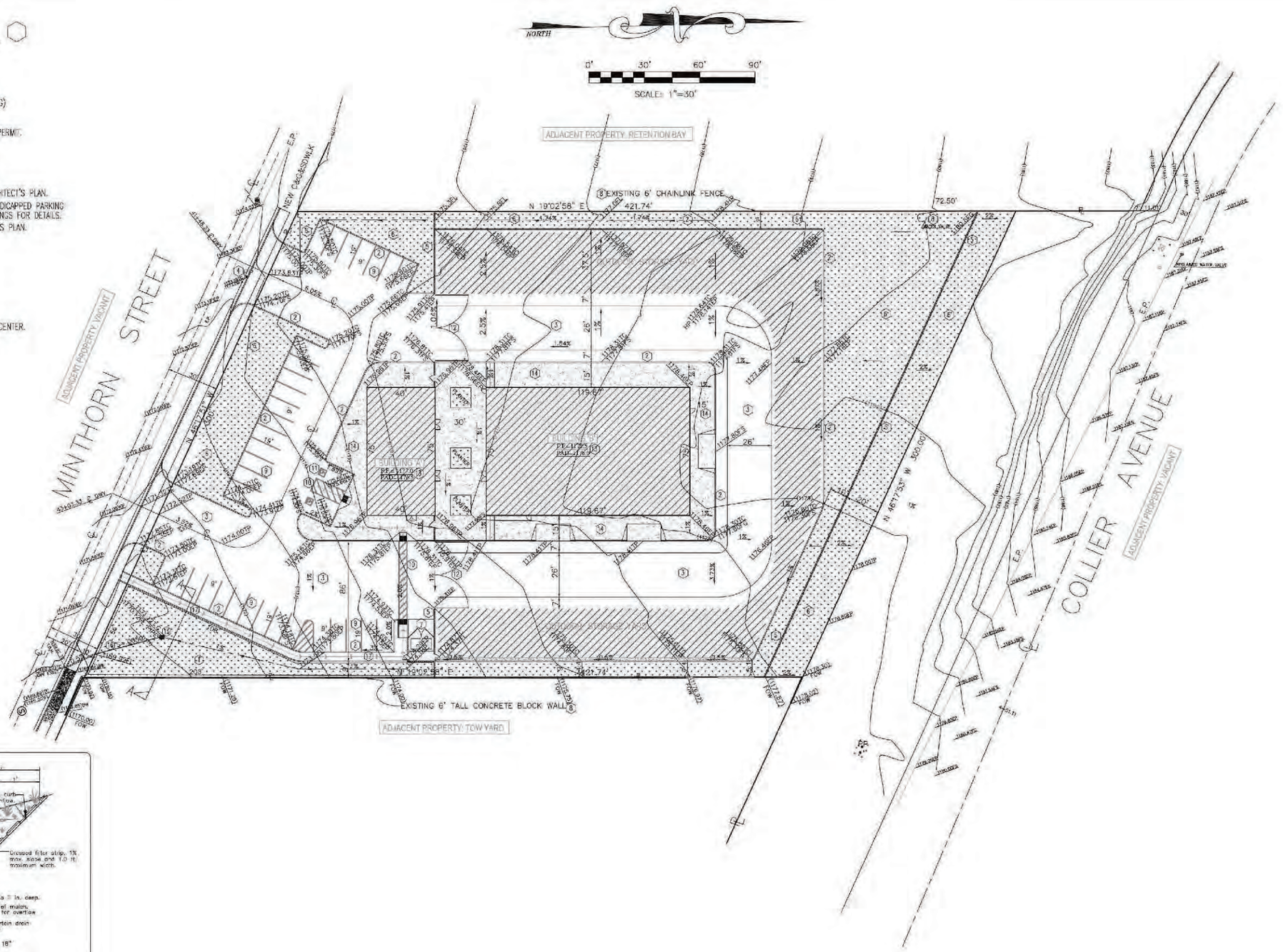
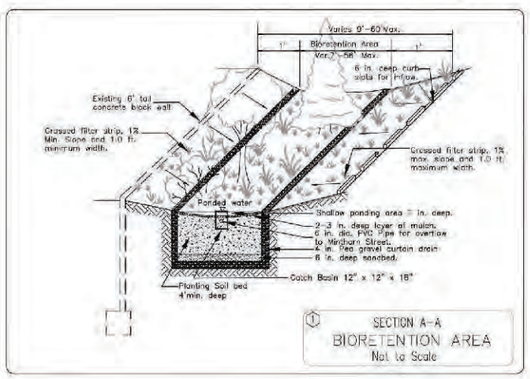




① SECTION A-A
BIORETENTION AREA
Not to Scale

PA-2021-22

MARK	REVISIONS	APPR.	DATE

THESE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE APPROPRIATE CONDITIONS OF DEVELOPMENT AND/OR CITY AND STATE LAWS AND HAVE BEEN FOUND ACCEPTABLE.

REMON HABIB, RCE No. 83156
CITY ENGINEER
CITY OF LAKE ELSINORE

DATE

PREPARED BY:

1-20-2023
DATE

SEAL: REGISTERED PROFESSIONAL ENGINEER — Nelson M. Manlolo — No. C 36838 — 06-30-22 — CIVIL — STATE OF CALIFORNIA

NM Civil Engineering, Inc.
22880 Von Buren Street
Grand Terrace, CA 92313
(951)712-0623
NM.PE@manlolo.com

SCALE: 1" = 30'

DATE: DECEMBER 2021

BENCH MARK: E 307
1.9 miles north along Hwy 74 from the AT&SF Railway station at Elsinore, Riv. Co., at the junction of Hwy 74 station in the triangle formed by the junction of the AT& SF Railway R/W.
Date: 1935 ELEV.= 1174.669

CITY OF LAKE ELSINORE

PRECISE GRADING PLAN
COLLIER COMMERCIAL PROPERTIES

PLANS AND DETAILS

SHEET 2 OF 2 SHEETS

FILE No.

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data.

To be provided during Final Engineering

Appendix 4: Historical Site Conditions

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

N/A

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

There are no constraints that will make the site LID infeasible.

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

Attached

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

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

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

Company Name	NM Civil Engineering Inc.	Date	1/16/2023
Designed by	Nelson M Manlolo	Case No	PA No, 2021-22
Company Project Number/Name	Collier Commercial Properties		

BMP Identification

BMP NAME / ID: DMA 1

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

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

D_{85}= 0.65 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)*
R-1	*11,975*	*Roofs*	*1*	*0.89*	*10681.7*			
H-2	*87,872*	*Concrete or Asphalt*	*1*	*0.89*	*78381.8*			
	99847		***Total***		**89063.5**	**0.65**	***4824.3***	***8,308***

Notes:

Bioretention Facility - Design Procedure	BMP ID	Legend:	Required Entries	
			Calculated Cells	

Company Name:	NM Civil Engineering Inc.	Date:	
Designed by:	Nelson Manlolo	County/City Case No.:	PA2021-22

Design Volume

Enter the area tributary to this feature	A_T=	2.11	acres
Enter V_{BMP} determined from Section 2.1 of this Handbook	V_{BMP}=	4,824	ft^3

Type of Bioretention Facility Design

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

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

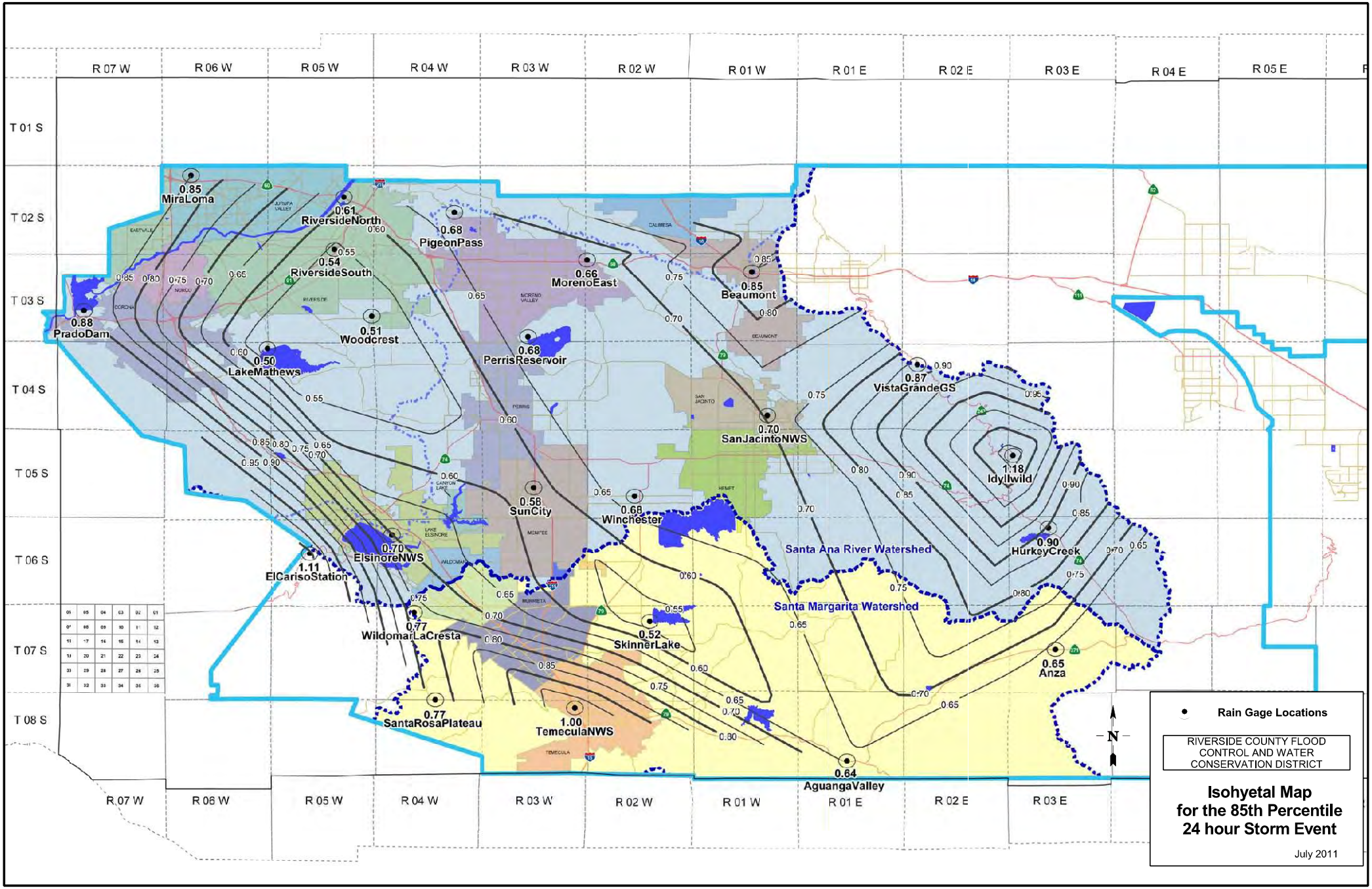
Bioretention Facility Surface Area

Depth of Soil Filter Media Layer	d_S =	2.0	ft
Top Width of Bioretention Facility, excluding curb	w_T =	40.0	ft
Total Effective Depth, d_E			
$d_E = [(0.3) \times d_S + (0.4) \times 1] + 0.5$	d_E =	1.50	ft
Minimum Surface Area, A_m			
$A_M\ (ft^2) = \frac{V_{BMP}\ (ft^3)}{d_E\ (ft)}$	A_M =	3,216	ft^2
Proposed Surface Area	A=	4,154	ft^2
Minimum Required Length of Bioretention Facility, L	L =	80.4	ft

Bioretention Facility Properties

Side Slopes in Bioretention Facility	z =	0	:1
Diameter of Underdrain		6	inches
Longitudinal Slope of Site (3% maximum)		1	%
6" Check Dam Spacing		25	feet
Describe Vegetation:		Natural Grasses	

Notes:


R 07 W
R 06 W
R 05 W
R 04 W
R 03 W
R 02 W
R 01 W
R 01 E
R 02 E
R 03 E
R 04 E
R 05 E
T 01 S
T 02 S
T 03 S
T 04 S
T 05 S
T 06 S
T 07 S
T 08 S
0.85 MiraLoma
0.61 RiversideNorth
0.68 PigeonPass
0.54 RiversideSouth
0.66 MorenoEast
0.85 Beaumont
0.88 PradoDam
0.51 Woodcrest
0.68 PerrisReservoir
0.50 LakeMathews
0.87 VistaGrandeGS
0.70 SanJacintoNWS
1.18 Idyllwild
0.58 SunCity
0.68 Winchester
0.70 ElsinoreNWS
1.11 ElCarisoStation
0.90 HurkeyCreek
Santa Ana River Watershed
Santa Margarita Watershed
0.77 WildomarLaCresta
0.52 SkinnerLake
0.65 Anza
0.77 SantaRosaPlateau
1.00 TemeculaNWS
0.64 AguangaValley
N
Rain Gage Locations
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
Isohyetal Map for the 85th Percentile 24 hour Storm Event
July 2011

Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern

Calculations Attached

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

To be provided during Final Engineering

Appendix 9: O&M

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

Operation and Maintenance Plan

BMP & Start Up Date	ReponsibleParty(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
Education for Property Owners, Tenants and Occupants Start Date: Building Occupancy and move in of new tenants	Edward & Leslie Hamud or current owner	Owner shall familiarize himself with the contents of this WQMP and the BMP Educational materials in Section 6.4 and shall use these materials to inform occupants and employees on methods to reduce pollutants in stormwater and non-stormwater runoff from this site including: 1. Posting quick reference guide at the office to reinforce educational seminars and training. 2. Educate how to reduce or avoid human errors that lead to accidental releases and 3. Provide necessary tools to immediately stop and begin cleanup should an emergency occur.	Repeat Annually or as often as necessary.
Activity Restrictions Start Date: Upon Project Completion	Edward & Leslie Hamud or current owner	1. Pesticide application in common areas must be performed by an applicator certified by the California Department of Pesticide Regulation. 2. Prohibition of outdoor storage of materials and chemicals 3. Prohibition of Outdoor manufacturing processes. 4. Prohibition of outdoor equipment repair and storage. 5. Prohibition of outdoor equipment and vehicle cleaning	Repeat Annually or as often as necessary.
Employee Training/Educa-tion Program Start Date: Upon Permit Issuance	Edward & Leslie Hamud or current owner	Owner will provide staff and employees training on Stormwater BMP's and methods to identify non-stormwater discharges and report discharges to the appropriate Agency. Also training in identifying and documenting illegal dumping incidents is required	Repeat Semi Annually or as often as necessary.
Sweeping Concrete Apron and Parking Lot SC-41 Start Date: Upon Project Completion	Edward & Leslie Hamud or current owner	Sweep by hand or vacuum sweep parking lots, drive and walkways area. No hosing down of area with water is allowed. Properly dispose of debris offsite. Keep log of sweeping activities.	After heavy storms and repeated monthly at a minimum.

Operation and Maintenance Plan

BMP & Start Up Date	ReponsibleParty(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
Landscaping Planning and Installation SD-10 Start Date: Upon Project Design and after landscaping are installed.	Edward & Leslie Hamud or current owner	Landscape planning will couple consideration of land suitability for urban uses with consideration of community goals and projected growth. Project plan designs will conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels. Plants will be grouped with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Landscaping will correlate to the climate, soil, related natural resources and existing vegetation of the site, as well as the type of development proposed. Ongoing maintenance consistent with County Administrative Design Guidelines (available at: http://www.co.sanbernardino.ca.us/landuseservices/Informational%20Handouts/Administative%20Design%20Guidelines-Jan%202002.pdf) or local equivalent, plus fertilizer and pesticide usage consistent with the instructions contained on product labels and with the regulations administered by the State Department of Pesticide Regulation shall be implemented.Check for landscape to be in healthy condition. Replace dead or barren areas with plants consistent with the original type of plants.	Rpeate annually as needed.
Efficient Irrigation and installation SD-12 Start Date: Upon Project Design and after installation	Edward & Leslie Hamud or current owner	Install irrigation timers to minimize runoff of excess irrigation water across impervious surfaces. Used rain triggered shutoff devises to eliminate or reduce irrigation during and immediately after precipitation, using mulches such as wood chips to minimize sediments in runoff and to maintain soil infiltration capacity and coordinating design of the irrigation system and landscape to minimize overspray and runoff. Use flow reducers and shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or water supply lines. Use water conservation devices such programmable irrigation timers and soil moisture sensors. Inspect siltation or debris washing out of planters. Sweep silt to planters and check amount of irrigations used and for properly functioning irrigation. Check irrigation system for leaks and over spray, provide necessary maintenance as needed.	Repeate monthly or as needed.

Operation and Maintenance Plan			
BMP & Start up Date	ReponsibleParty(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
Trash Storage Area and Litter Control SD-32 Start Date: At Permit Issuance	Edward & Leslie Hamud or current owner	Trash enclosures areas shall be constructed with a permanent roof over them and the container (dumpster) areas shall have drainage from adjoining roofs and pavements diverted around the area(s). Dumpsters shall be leak proof and have attached permanent roof structures. Trash compactors will be roofed and set on a concrete pad. The pad shall be a minimum of one foot larger all around than the trash compactor and sloped to drain to a sanitary sewer line. Inspect trash enclosure area and bins for spill contamination and debris Keep log of inspection activities.	Repeate monthly or after trash pick-up.
Bioretention Area and Catch Basin Inspection and Maintenance Start Date: Upon Project Completion	Edward & Leslie Hamud or current owner	Maintain adjacent landscape and remove trash, debris, sediment and other collected materials in the bioretention area and catch basin areas.	Before and after heavy storms and repeated quarterly at a minimum.

Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines

To be provided during Final Engineering

Appendix 11: