SAFE, CLEAN WATER PROGRAM

FEASIBILITY STUDY REPORT

Regional Program Projects Module

PROJECT NAME	Encanto Park Stormwater Capture Project
PROJECT LEAD(S)	City of Monrovia
SCW WATERSHED AREA	Upper San Gabriel River
PRELIMINARY SCORE	76
TOTAL FUNDING REQUESTED	$ 2,482,248.00
PROJECT CAPITAL COST	$ 2,732,248.00

Created On: Thursday, August 6, 2020

Created By: Alex Tachiki, Administrative Officer, City of Monrovia (Alexander Tachiki)

OVERVIEW

The objective of the Regional Infrastructure Program under the Safe, Clean Water (SCW) Program is to plan, build, and maintain multi-benefit watershed-based projects that improve water quality and increase water supply and/or enhance communities. A Feasibility Study is required before a project can be submitted for consideration and scoring for funding through the Los Angeles Region Safe, Clean Water (SCW) Program's Regional Infrastructure Program. Each Feasibility Study should provide enough information about a potential project to allow the Watershed Area Steering Committee members to make an informed decision for as to which projects should move forward for consideration for funding. The Minimum Feasibility Study Requirements for the Scoring and Consideration of Regional Infrastructure Program Projects is available at: https://portal.safecleanwaterla.org/projects-module/.

This document is based upon an output from the web-based tool called the 'SCW Regional Projects Module' (https://portal.safecleanwaterla.org/projects-module/). This output summarizes the information and data provided to Regional Projects Module, and also provides an initial estimate of project scoring per the SCW Infrastructure Program Project Scoring Criteria.

IMPORTANT: *ALL SCORING ESTIMATES GENERATED BY THE PROJECTS MODULE ARE PRELIMINARY AND SUBJECT TO REVIEW AND REVISION BY THE SCORING COMMITTEE.*

ORGANIZATIONAL OVERVIEW:

1 GENERAL INFORMATION

This section provides general information on the project including location and project description.

1.1 Overview

The following table provides an overview of the project and the Project Developer(s):

Project Name:	Encanto Park Stormwater Capture Project
Project Description:	This project proposes a storm drain diversion to intercept stormwater and convey it to a subsurface infiltration gallery underneath the existing park. This project is part of the Rio Hondo/San Gabriel River Water Quality Group's approved Revised Watershed Management Plan (rWMP).
SCW Watershed Area:	Upper San Gabriel River
Call for Projects year:	FY20-21
Total Funding Requested:	$ 2,482,248.00
Project Weather Type:	Wet
Project Lead(s):	City of Monrovia
Additional Project Collaborators:	Rio Hondo/San Gabriel River Water Quality Group
Additional Project Collaborators:	N/A
Additional Project Collaborators:	N/A
Is this a non-municipal project?	No

1.2 Project Location

The following table summarizes the project location:

Latitude:	34.14409
Longitude:	-117.93771
Street Address:	751 Encanto Parkway
City:	Duarte
State:	CA
Zip Code:	91010

Please see the following attachment(s) for a project location map.

Attachments for this Section	
Attachment Name	Description
ENC_parcel_map.pdf	

Is the project located within or providing a benefit to a Disadvantaged Community (DAC)?

Yes

Provide a summary of how the project will benefit its DAC with a discussion of measures on displacement avoidance.

Located within 1/2 mile from DAC and provides direct benefits to these communities. Parking lot enhancements with permeable parking lots, bioswales, trails, and habitat areas benefit all park visitors.
Potential water supply benefits from subsurface infiltration.

1.3 Project Description

Provide a detailed description and historical background of the project. Please also state which regional water management plan includes the proposed project (SWRP, E/WMP, IRWMP, or other [must identify and justify as equivalent per 18.07.B.1.c.3]):

1.3.1 Regulatory Context

The Rio Hondo /San Gabriel River watershed management area, consisting of the County of Los Angeles and the Cities, Arcadia, Bradbury, Duarte, Monrovia, and Sierra Madre, contains mostly residential area as well steep slopes from the San Gabriel Mountains. This watershed management area (19,416 acres) is comprised of three major drainage systems: Rio Hondo, San Gabriel River, and Big Dalton Wash. In 2018, the existing Enhanced Watershed Management Plan (EWMP) underwent revision and was subsequently accepted and approved unanimously in 2019 by the Los Angeles Regional Water Quality Control Board as the Watershed Management Plan (WMP). The Rio Hondo/San Gabriel River Water Quality Group (Water Quality Group) voluntarily developed the WMP in response to meaningful progress pursuing activities to improve water quality in the Rio Hondo and San Gabriel River watersheds.

The highest priority pollutant addressed by the WMP is metals, which based on the TMDL established by the Regional Board as well as an assessment of pollutant loadings at the compliance points selected for the WMP jurisdictions. The WMP analysis specifically identified zinc as the pollutant driving implementation of new pollutant source control and watershed control measures. The WMP evaluated the potential to meet the Rio Hondo /San Gabriel River WMP water quality compliance targets through the cumulative performance of several proposed regional BMPs, in addition to the contribution from enhanced Minimum control measures (MCMs) and non-structural distributed BMPs. This report focuses on one of these proposed regional BMPs, the Encanto Park Stormwater Capture Project.

This stormwater capture project is located at Encanto Park in the City of Duarte directly west of the San Gabriel River. Active use parks provide unique opportunities for multi-benefit regional projects because of the large available public space where a subsurface infiltration gallery can be constructed beneath an existing parking lot and/or recreational field and then restored back to the same, or better condition. Encanto Park has two large storm drainpipes that converge on the west side of the property before discharging to the San Gabriel River. This project proposes a storm drain diversion to intercept stormwater and convey it to a subsurface infiltration gallery beneath the parking lot that will reduce pollutant loading to the San Gabriel River. This project complements the green stormwater infrastructure already installed at Encanto Park. There is also a potential for onsite treatment and reuse of captured stormwater to offset the irrigation demand of the park if onsite monitoring reveals a sufficient supply of dry weather runoff.

1.3.2 Project Objectives

The Encanto Park Stormwater Capture Project objectives include:

- Primary
  - o Improve the water quality of the San Gabriel River
  - o Divert stormwater runoff to local groundwater aquifers via infiltration
  - o Update/improve existing park surfaces and amenities
- Secondary
  - o Educate the public on the local water supply and demands

The primary mechanisms by which the Project will achieve the primary objectives are through runoff/pollutant capture, treatment, infiltration, filtration, and release to the San Gabriel River.

1.3.3 Watershed Characterization

Encanto Park sits at the bottom of a 189-acre drainage area consisting of residential, institutional, industrial, and transportation land uses. Stormwater runoff is conveyed through the storm drain network

to the storm drains at the project site. The drainage area encompasses City of Duarte and City of Azusa lands, providing benefit to multiple watershed partners. Table 1 3 provides a summary of the jurisdictional areas draining to the project site. The land use breakdown and impervious coverage information is contained in Section 2.2 of this report.

Table 1 3: Jurisdiction Summary

Jurisdiction	Area (acres)	% Watershed
Duarte	145	76.7
Azusa	44	23.3
TOTAL	189	100.0

2 DESIGN ELEMENTS

This section provides an overview of the project design details.

2.1 Configuration

The following table is a summary of the project configuration:

Project Configuration Summary	
BMP Type:	Treatment Facility
Infiltration Footprint Area:	0.26 ac
Ponding Depth:	5 ft
Media Layer Depth:	0 ft
Media Layer Porosity:	0 ft
Underdrain Layer Depth:	0 ft
Underdrain Layer Porosity:	0 ft

Calculated Storage Volume	
Module-generated Storage Volume:	1.3000 ac-ft

Please upload a description and detailed schematic of the project layout including its anticipated footprint and key components such as, but not limited to: inlets, outlets, diversion point, recreational components, nature-based components, pumps, treatment facilities, underdrains, conveyance, above ground improvements, and other project components.

Attachments for this Section	
Attachment Name	Description
ENC_ProjectDescriptionForUpload_v2.pdf	

2.2 Capture Area

The size and land uses of the capture area upstream of a project plays an important role in its water quality and water supply benefits. The capture area information here is used by the Module for scoring:

Capture Area Summary	
Capture Area:	189 ac
Impervious Area:	52 ac
Pervious Area:	137 ac

The following table is a summary of the land use breakdown for the area that drains to the project:

Breakdown of Impervious Acreage in Capture Area		
Land Use Type	Percent Impervious	Acres
Single Family Residential	74.3 %	38.64
Institutional	0.06 %	0.03
Industrial	0.06 %	0.03
Secondary Roads and Alleys	25.58 %	13.3

Attachments for this Section	
Attachment Name	Description
ENC_landcover_map.pdf	
ENC_drainage_area_map.pdf	Map of drainage area to the project
ENC_municipality_map.pdf	Map of jurisdictions in the project drainage area.

2.3 Diversion

Diversion Structures generally apply to 'off-line' regional projects where stormwater is diverted from a major water conveyance (e.g., gravity main) and directed to the project at a predetermined maximum rate. Smaller distributed projects, like bioretention, do not normally utilize these devices.

Does the project have a diversion structure?

Yes

The following table provides details on the diversion type and maximum diversion rate:

Diversion Details	
Type of Diversion	Typical Max Diversion Rate (cfs)
Gravity Flow	10 cfs

Estimated Average Inflow Captured by Project:

0.052 cfs

Description of Diversion:

2.3.1 Diversion Structure Description & Conditions
A new diversion manhole is proposed along the MTD 1267 reinforced concrete pipe to divert stormwater during low-flow and storm events to the pretreatment device and eventually the subsurface storage.
2.3.1.1 MTD 1267 Pipe Diversion
At the proposed flow rate of 10 cfs, the structure on the 72-inch reinforced concrete pipe will require a 1.0-foot drop below the existing invert and a 24-inch diameter diversion pipe at a 0.5% slope. The drop inlet structure will have dimensions of approximately 8.5-feet wide and 10-feet long. A schematic of the structure is shown in Attachment B.
2.3.2 Pretreatment System
Stormwater runoff transports sediment, metals, nutrients, trash, and debris that can compromise the performance of the stormwater facility and pollute downstream receiving waters. Pretreatment will be an integral component of the treatment train strategy to extend the life of the system. It is prescribed to reduce the maintenance frequency of the Encanto Park facilities, focus maintenance efforts to a

concentration and accessible area, and bolster watershed compliance.
For this project, a hydrodynamic separator is proposed to be installed after the diversion point near the park. One hundred percent of floatables and neutrally buoyant debris larger than the screen aperture (2400 microns or 2.4 mm) is collected and settle in the isolated sump of the system, eliminating scour potential. In addition to the screen aperture filtration, at least 80% of particles that are 130 microns or larger in size are removed for flows up to 10 cfs. With the chambered system, hydrocarbons float to the top of the water surface and are prevented from being transported downstream. A target flow rate for each of the devices will be based on the final design of the diversion structure. Currently a total of 10 cfs from the pipe is anticipated to be diverted to a single pretreatment device. It will be designed to have the capacity to treat the maximum flow diverted to the unit. The size of the unit will also be based on the estimated sediment that will be collected in the sump to maximize sediment removal while balancing the routine maintenance required.

2.4 Site Conditions & Constraints

Please provide an upload for each of the attachments below that describes the methods, outcomes and how the information will be incorporated into the project design.:

2.4.1 Site History
The site originally was a part of the agriculture and ranching common to the Duarte area. The site was designed and constructed as a park in the 1970s. The site has continued to operate as a park and currently contains a multipurpose field, basketball courts, tennis courts, a playground area, sand volleyball courts, nature trail, picnic tables, and the Duarte Historical Museum.
2.4.2 Geotechnical Investigation
Based upon findings from a web soil survey provided by National Resource Conservation Service (NRCS), the typical soil profile at the site below the invert of the proposed BMP facility is very cobbly to extremely cobbly sand, with good drainage characteristics. NCRS's interpretation of these soils correspond to Hydrologic Soil Group A. The capacity of the most limiting layer to transmit water is approximately 5.95 to 19.98 in/hr. The minimum required infiltration rate established by the Los Angeles County Department of Public Works (LACDPW) guidelines for in-site infiltration systems is 0.3 in/hr. The preliminary findings suggest that the project area has the potential to meet the minimum infiltration rate, but this cannot be determined until a subsurface investigation is performed and the applicable factors of safety are applied.
A review of the well data from the LACDPW database (http://dpw.lacounty.gov/general/wells/) and the Geotracker database (http://geotracker.waterboards.ca.gov/gama/) for nearby wells was conducted and indicate groundwater depths ranging from 26.0 feet to 282.5 feet. As shown, the shallowest groundwater depth was recorded at 26 feet in 1970. Based on this database search, preliminary results show that the groundwater has been deeper than 25 feet within the last 50 years. This research suggests that groundwater is not expected to impact the design and construction of the proposed BMP as the height of the proposed facility is only 5 feet.
2.4.3 Hydrology, Hydraulics, and Water Quality
For this project, the Los Angeles County Watershed Management Modeling System (WMMS) was used within the Loading Simulation Program C++ (LSPC) to simulate the contaminant loading, runoff volume, and flow rates associated with the critical year as determined in the RH/SGR WMP study. WMMS was also used to estimate runoff volume and peak flow for the 85th percentile storm to the diversion point. Table 2 5 summarizes the existing baseline hydrology and water quality for the primary pollutant of concern.
Table 2 5: Summary of Hydrologic Conditions
Diverted Pipe ID Critical Year Runoff (ac-ft) Critical Year Zinc Loading (lbs) 85th Percentile Surface Runoff (ac-ft) 85th Percentile Peak Flow (cfs)
MTD 1267 11.1 2.6 6.2 9.7
2.4.4 Utility Data Review
To locate the existing utilities in the Encanto Park area, various sources were utilized. The following

utilities were identified to be near the project area.
2.4.4.1 Utilities Near MTD 1267 Diversion and Encanto Park
Existing utilities running near the pipe, the park area, and overflow connection include street and park lighting owned by the City of Duarte and irrigation lines owned by the City of Duarte.
2.4.5 Site Access & Right-of-Way
The project requires access to the park and the existing 72-inch storm drain. Access to the park will be done through the driveways on Encanto Parkway and will travel directly to the parking lot area. Access to 72-inch storm drain will be acquired through the park area where existing access roads lead to the pipe location. Entry into the existing 72-inch storm drain will be done through surface manhole entry. Entry will require close coordination with the LA County Flood Control District. Confined space requirements will apply and must be adhered to.
The LACFCD will be consulted following the completion of this feasibility report to request for conceptual review of the proposed modifications to the LACFCD storm drain system. A more rigorous hydraulic study and structural analysis will be performed during the design phase to secure all necessary LACFCD permits.

Additional details can be found in supporting documentation under "Additional Feasibility Information" subsection "Other".

Does the project involve LACFCD infrastructure, facilities, or right-of-way?

No

Please see the following attachments for additional details on geotechnical, hydrology, right-of-way and/or LACFCD, and utility conditions.

2.5 Cost

The following tables provide details on the project's capital and annualized costs:

Capital Cost Breakdown	
Construction Cost:	$ 2,029,388.00
Planning and Design Cost*	$ 702,860.00

*Includes early concept design, pre-project monitoring, feasibility study development, site investigations, formal project design, intermediate and project completion audits, CEQA and other environmental impact studies and permitting.

Annual Cost Breakdown	
Annual Maintenance Cost:	$ 50,000.00
Annual Operation Cost:	$ 5,520.00
Annual Monitoring Cost:	$ 15,000.00
Project Life Span:	50 years

The following table provide details on calculated life-cycle costs for the project (either calculated the Module, or estimated by the Project Developer)**.**

Note: these life-cycle costs are used in Section 4.3 of this output for Water Supply Benefit scoring.

Module-generated Life-Cycle Cost for Project*	$ 4,424,297.88
Module-generated Annualized Cost for Project*	$ 184,392.61
Use Project Developer estimate instead?	No
Custom Value specified by User:	N/A
Please provide a description of methods used to calculate Life Cycle costs, and attach supplemental information with details of the methodology, assumptions and calculations:	N/A
Supporting PDF	See attachment if applicable.

*Applies an annual discount rate as a static rate equal to 3.375%. The only costs not included in total life-cycle cost are the dismantling and replacement costs at the end of life.

2.6 Schedule

Provide a preliminary schedule required to design, permit, construct, operate, and maintain the

Project:

Schedule	
Milestone Name	Completion Date
Notice-to-Proceed	09/01/2020
30% Draft Design & Review	12/04/2020
60% Draft Design & Review	03/12/2021
90% Draft Design & Review	06/18/2021
100% Final Design	09/24/2021
LACFCD Permit	09/24/2021
Environmental Documentation	09/24/2021
Construction	09/30/2023
Start of Operation & Maintenance	10/01/2023

2.7 Monitoring

This section provides an overview of monitoring data related to the project.

Has any monitoring data been compiled related to the project?

No

Please provide an overview of the monitoring performed to date:

N/A

Please upload a monitoring plan to measure the effectiveness of the proposed project once completed, including metrics specific to the identified benefits. Also attach supplemental information on monitoring conducted to date, if applicable.

2.8 O & M

Provide an overview of the plan for how operations and maintenance of the Project will be carried out. Identify the responsible party and describe any technical expertise required for O&M.

Long-term maintenance of the system is vital to its continued operation. The responsible party for the operation and maintenance of the completed project will be the RH/SGR Water Quality Group.

A full draft maintenance plan will be developed as a part of the 100% final design. The maintenance plan will include details on equipment needed and standard practices and procedures. The final maintenance plan will be completed at the end of construction when actual brands and part information is made available.

Table 2 10: Operations & Maintenance Requirements and Costs
Description No. of Times per Year No. of Personnel & Hours per Visit Personnel Expertise Level Unit Price Annual Total
Diversion Structure – Inspection & Cleaning 6 2 @ 2 hr Trash Removal crew $500 $3,000
Pretreatment Device – Vacuum 1 2 @ 2 hrs Vactor Truck Operator $1,000 $1,000
Wet Well – Dry Season Inspection & Cleaning 2 2 @ 2 hrs Vactor Truck Operator $1,000 $2,000
Wet Well – Wet Season Inspection & Cleaning 6 2 @ 2 hrs Vactor Truck Operator $1,000 $6,000
Valve Maintenance 1 1 @ 4 hrs Mechanical Labor $1,000 $1,000
Control Panel Maintenance 1 1 @ 2 hrs Electrician $1,000 $1,000
Storage – Dry Season Inspection & Cleaning 3 4 @ 5 hrs Vactor Truck Operator $5,000 $15,000
Storage – Wet Season Inspection & Cleaning 3 4 @ 5 hrs Vactor Truck Operator $5,000 $15,000

Filter – Inspection & Cleaning 1 4 @ 8 hrs Cartridge Cleaning $6,000 $6,000

3 WATER QUALITY BENEFITS

This section provides an overview of project elements related to water quality benefits, including calculations used for Section A (Water Quality Benefits) of SCW Project Scoring Criteria.

3.1 24-hour Storm Capacity

Please enter information below regarding key parameters of the project's capacity. The Module will use those values to estimate the 24-hour capacity:

24-hour Storm Capacity Breakdown	
Effective Draw Down Rate:	11.85 in/hr
Stormwater Use During 24-hr Design Event:	0 gal

Calculated 24-hour Storm Capacity	
Module-generated 24-hr Capacity:	7.4620 ac-ft
Use Project Developer estimate instead?	No
Custom Value specified by User:	N/A
Please provide a description of methods used to calculate 24-hour capacity, and attach supplemental information with details of the methodology, assumptions and calculations.	N/A

3.2 Event-based Design Details

n this section, details regarding the project inlets and outlets are provided, along with estimates generated for the project design event. The event-based information is envisioned as basic estimates that would be generated during the project design, and will support review of the project details.

Estimated Total Inflow Volume during Design Event:

6.2 ac-ft

Describe the event used for project design. Describe the portion of the peak inflow that would be retained by the project through infiltration, capture, diversion, use, or other means. Tooltip for 'Treatment Description' under outlets:

A 1.18 inch 85th percentile LA County hyetograph was modeled to determine flows to the site through the WMMS model. Flows were developed for this rain event to the points of diversion for the project. As currently designed, gravity-fed diversions would catch as much of the event as possible given maximum diversion rates and the capacity and throughflow of the regional project. Real-time controls could be added for better peak management given the limited size of diversions and large drainage area producing an event that is impractical to capture by a single practice. Inflows could be delayed until flows were high enough to target the peak of the storm event to accomplish this.

Describe whether and how the 85th percentile is being captured/diverted. If not, is there opportunity to do so? If feasible but not incorporated, explain why. If not feasible, explain why.

The full 85th percentile storm is captured and treated by the unit as the diversion is large enough to capture the peak flowrate and the storage and throughflow are large enough to capture the full storm event volume.

Project inlet flows are based on a water budget calculation over 24 hours for the unit considering hourly flows to the diversion point on an hourly basis and subject to storage capacity

The following tables detail inflow and outflow from the project during the design event:

Inlets	
Estimated Max Inflow Rate (cfs)	Total Inflow (ac-ft)
10 cfs	6.2 ac-ft

Outlets			
Estimated Max Outflow Rate (cfs)	Treated?	Treatment Description	Percent of Volume Treated (%)
0.85 cfs	Yes	Infiltration	100 %
5.71 cfs	Yes	A pump station and filtration will treat stormwater prior to discharge to the storm drain.	100 %

Describe the methods used to generate estimates:

The WMMS modeled 85th percentile storm was routed through the proposed diversion and subject to

proposed storage and outlet infiltration capacities.

3.3 Long-term Performance

This section present details of the calculation of long term (10-year) water quality benefit for Section A.1.2 (Water Quality Benefit) of SCW Project Scoring Criteria. These estimates were either generated by the Module using a 10-year hourly simulation with the Watershed Management Modeling System (WMMS), or generated by the Project Developer.

The following tables present selected primary and secondary pollutants and calculated reductions for water quality benefit per Section A.1.2 (Water Quality Benefit) of SCW Project Scoring Criteria.

Note: these estimates are based on the hourly 10-year WMMS simulation performed by the Module, or as estimated by the Project Developer.

Primary Pollutant	
Primary Pollutant	Total Zinc
Reduction Method used for Scoring	Method 2 (% Load Reduction)
Justification for selecting Primary Pollutant	Limiting pollutant – RH/SGR WMP
Calculated 10-year Pollutant Reduction	100.0
Use Project Developer estimate instead?	No
Own Value	N/A
Justification for using own value	N/A
Secondary Pollutant	
Secondary Pollutant	Bacteria
Reduction Method used for Scoring	Method 2 (% Load Reduction)
Justification for selecting Secondary Pollutant	Secondary limiting pollutant – RH/SGR WMP
Calculated 10-year Pollutant Reduction	100.0
Use Project Developer estimate instead?	No
Own Value	N/A
Justification for using own value	N/A

The following table presents calculated water quality benefit achieved by the project based on the hourly 10-year WMMS simulation performed by the Module, for all the simulated pollutants.

Note: this output includes all pollutants and methods, including those not selected as Primary or Secondary for scoring.

Pollutant Name	Method 1 (% Concentration Reduction)	Method 2 (% Load Reduction)	Method 3 (% Exceedance Reduction)
Total Zinc	30.6 %	94.7 %	N/A
Total Copper	-23.5 %	90.6 %	N/A
Total Lead	-24.7 %	90.5 %	N/A
Total Nitrogen	43.4 %	95.7 %	N/A
Total Phosphorous	24.8 %	94.3 %	N/A
E.coli	-69.4 %	87.1 %	N/A
Toxics	N/A	N/A	N/A
Chloride	N/A	N/A	N/A
Trash	N/A	N/A	N/A
N/A = Modeling results not available from Projects Module, must be manually generated by user			

The following table presents inflow and outflow details for calculated water quality benefit achieved by the project based on the hourly 10-year WMMS simulation performed by the Module, for all the simulated pollutants.

Note: this output includes pollutants not selected as Primary or Secondary for scoring, and reduction methods not selected for scoring.

Metric	Runoff from Capture Area	Minimally Treated Outflow from Project	Inflow into Project Inlet	Outflow from Project Outlet	Reduction by Project	% Reduction by Project
Runoff Volume (ac-ft)	82.849	6.030	79.205	6.030	73.175	92.387 %
Total Zinc (ug/L)	135.230	96.790	139.510	96.790	42.720	30.621 %
Total Zinc (lbs)	30.467	1.587	30.049	1.587	28.462	94.718 %
Total Copper (ug/L)	47.670	59.470	48.160	59.470	-11.310	-23.484 %
Total Copper (lbs)	10.740	0.975	10.374	0.975	9.399	90.600 %
Total Lead (ug/L)	22.100	28.010	22.470	28.010	-5.540	-24.655 %
Total Lead (lbs)	4.979	0.459	4.841	0.459	4.382	90.513 %
Total Nitrogen (mg/L)	4.126	2.378	4.202	2.378	1.823	43.399 %
Total Nitrogen (lbs)	929.662	38.997	904.988	38.997	865.990	95.691 %
Total Phosphorous (mg/L)	0.493	0.374	0.497	0.374	0.123	24.793 %
Total Phosphorous (lbs)	111.002	6.134	107.125	6.134	100.991	94.274 %
E.coli (#/100mL)	7.437E+004	1.246E+005	7.355E+004	1.246E+005	-5.107E+004	-69.431 %
E.coli (#)	7.599E+013	9.268E+012	7.185E+013	9.268E+012	6.258E+013	87.101 %
Toxics	N/A	N/A	N/A	N/A	N/A	N/A
Chloride	N/A	N/A	N/A	N/A	N/A	N/A
Trash	N/A	N/A	N/A	N/A	N/A	N/A
N/A Modeling results not available from Projects Module, must be manually generated by user						

Attachments for this Section

Attachment Name	Description
3_2019-05-17 RHSGR rWMP - Attachment B (Evaluation of Multi-Benefit Projects).pdf	Project modeling evaluation.

4 WATER SUPPLY BENEFITS

This section provides an overview of project elements related to water supply benefits, including calculations used for Section B (Significant Water Supply Benefits) of SCW Project Scoring Criteria.

4.1 Water Supply Nexus

Please describe and clearly justify the nexus between water supply and the stormwater and/or urban runoff that is captured/infiltrated/diverted by the Project:

There is some potential for this project to provide multiple benefits at the nexus of water supply and stormwater. The following describes how this has been considered in development of this project.

Onsite Irrigation Use
This project will possibly utilize captured flows to offset onsite irrigation needs. Dry weather flows are low compared to irrigation demand and do not appear to represent a consistent enough source for water that would justify the cost of filtration equipment and accompanying irrigation system components. Further analysis will be performed during design.

Water Recycling
This project does not currently involve any water recycling by a wastewater treatment facility. There are sanitary sewer lines in the vicinity of the project, but further capacity study would be required to determine if discharges to these would be possible.

Aquifer Recharge
This project is connected to a managed water supply aquifer (Main San Gabriel Basin). Infiltration rates are appreciable and will augment groundwater supply by approximately 9.8 ac-ft for the critical year. Confirmation that the Water Replenishment District and the San Gabriel Water Master concurs with this added benefit is still needed.

Does this project capture water for onsite irrigation use?

No

Description of onsite use by the project:

This project will possibly utilize captured flows to offset onsite irrigation needs. Dry weather flows are low compared to irrigation demand and do not appear to represent a consistent enough source for water that would justify the cost of filtration equipment and accompanying irrigation system components. Further analysis will be performed during design.

Does this project capture water used for water recycling by a wastewater treatment facility?

No

Description of water recycling by the project:

N/A

Is the project connected to a managed water supply aquifer?

Yes

If Yes, managed Aquifer Name:

Main San Gabriel Basin

If this project is augmenting groundwater supply, please provide confirmation that the agency managing the groundwater basin concurs with the added benefit.

4.2 Benefit Magnitude

Project Scoring Criteria Section B is based upon estimates of annual average water supply benefit. Water supply benefit can include, but is not limited to, water diverted to a separate groundwater recharge facility, into a water treatment plant, to a sanitary sewer to be converted into recycled water, etc. This section provides documentation of estimates of annual average water supply benefit.

Average dry weather inflow to project:

0.052 cfs

Describe the methods used to estimate average dry weather inflow to the project:

Flows from the WMMS model were average during dry weather. Wet weather was defined as any time period where rainfall was at least 0.1 in/hr and 24-hours after such timesteps.

The following tables present calculated annual inflow the project.

Note these estimates are based on an hourly 20-year hourly WMMS simulation performed by the Module, or as estimated by the Project Developer.

Module-generated annual average inflow to project:	79.205 ac-ft
Use Project Developer estimate instead?	No
Custom Value specified by User:	N/A
Please provide a description of methods used to calculate water supply inflow values	This is the baseline runoff to the project from WMMS for the critical year (WY 2004).
Supporting PDF	See attached PDF if applicable.

The following tables present calculated annual average capture by the project, which is used for the Section B2 scoring calculation (Benefit Magnitude of SCW Scoring Criteria).

Note these estimates are based on an hourly 20-year hourly WMMS simulation performed by the Module, or as estimated by the Project Developer.

Module-generated annual average capture for water supply:	73.175 ac-ft
Use Project Developer estimate instead?	No

Custom Value specified by User:	N/A
Please provide a description of methods used to calculate water supply benefit	This is the calculated annual stormwater capture from WMMS that will contribute to groundwater recharge via infiltration.
Supporting PDF	See attached PDF if applicable.

4.3 Cost Effectiveness

Project Scoring Criteria Section B2 incorporates life-cycle costs. The cost-effectiveness for water supply benefit is calculated from other sections in the Module. The calculation for B2 scoring is based on a numerator of life-cycle cost (from Design Elements > Cost) and a denominator of annual average benefit magnitude (from Water Supply > Benefit Magnitude).

Module-generated water supply cost-effectiveness:	$ 2,519.88 per ac-ft
Use Project Developer estimate instead?	No
Custom Value specified by User:	$ N/A
Justification	N/A
Supporting PDF	See attached PDF if applicable.

5 COMMUNITY INVESTMENT BENEFITS

This section provides an overview of project elements related to community investment benefits, which are used in calculations for Section C (Community Investment Benefits) of SCW Project Scoring Criteria.

The following table details the project's community investment benefits:

Community Investment		
Investment Type	Applicable?	Detailed Description
Does this project improve flood management, flood conveyance, or flood risk mitigation?	Yes	The system has detention capabilities that can contribute towards enhanced flood retention capabilities of the whole storm drain system. The project provides storage and infiltration of a portion of the excess volume providing a small relief during rain events.
Does this project create, enhance, or restore park space, habitat, or wetland space?	Yes	The installation of the underground structure will require the removal and replacement of the parking lot and parts of the multipurpose field. The project proposes to create a new parking lot including permeable pavement parking stalls. The field area will be replanted and restored to the original condition.
Does this project improve public access to waterways?	No	N/A
Does this project create or enhance new recreational opportunities?	No	N/A
Does this project create or enhance green spaces at school?	No	N/A
Does this project reduce heat local island effect and increase shade?	Yes	Landscape plans post construction include additional native trees, shrubs, and grasses to be installed at select spots impacted by the construction throughout the park and parking lot. This vegetation, the removal of the impervious parking surfaces and replacing with permeable surfaces, and the addition of zero impervious surfaces for this project will contribute to reductions in the heat island effect.
Does this project increase shade or the number of trees or other vegetation at the site location?	Yes	Native trees that are part of the post-construction landscape plane will contribute to increased tree count and shade for the park.

6 NATURE-BASED SOLUTIONS

This section provides an overview of project elements that leverage nature-based solutions, which are used in calculations for Section D (Nature-Based Solutions) of SCW Project Scoring Criteria.

Does this project implement natural processes?

Yes

Natural Processes Description:

Permeable pavement and vegetation will be installed within the parking lot on the east end of the park to promote on-site infiltration. The pavements are sized to convey all flows from the parking lot within Encanto Park.

Does this project utilize natural materials?

Yes

Natural Materials Description:

Landscape plans post construction include additional native trees, shrubs, and grasses to be installed at select spots impacted by the construction throughout the park.

Description of how nature-based solutions are utilized to the maximum extent feasible. If nature-based solutions are not used, include a description of what options where considered and why they were not included.

The City desires to continue use of the property as an active park with a suitable parking lot for the whole facility. To accommodate playing fields and a parking lot, the project is proposed beneath the current parking area limiting the impacts to the play surfaces. Because the project is installed within an impervious area and desires to continue operation as a parking lot, the nature-based solutions available are permeable paving materials with trees scattered around the perimeter. The permeable pavements and vegetation will promote infiltration into the groundwater. The permeable pavement parking stalls will treat flows from the parking lot.

The following table details the impermeable area removed by the project:

Removed Impermeable Area by Project	
Pre-Project Impervious Area:	Post-Project Impervious Area:
0.85 ac	0.42 ac

7 LEVERAGING FUNDS & LOCAL SUPPORT

This section provides an overview of the project's funding and community support, which are used in calculations for Section E (Leverage Funds and Community Support) of SCW Project Scoring Criteria.

7.1 Cost Share

Is additional funding being provided as a Cost Share for this project?

Yes

The following is a summary of what other sources of funding were explored and/or why funding could not be secured through these other sources:

The City of Monrovia is committed to providing an in-kind match of local staff time support and will look for opportunities to utilize the local return portion of the Safe, Clean Water Program funds for local compliance projects along with regional projects. The City is currently partnering with several agencies in cost sharing for projects and is willing to pursue other cost sharing opportunities with other agencies and entities. The City anticipates utilizing Safe, Clean Water local return funds for environmental feasibility studies. These studies will be essential to the planning and design efforts of this project prior to construction. The Rio Hondo San Gabriel River Water Quality Group has invited public bids for such work and anticipating awarding a contract in Spring 2020. Based on the preliminary bids received, the Group anticipates dedicating $246,079 of funds to offset regional funds once a contract has been awarded for the initial feasibility studies and planning efforts. Once the contract is fully awarded, the applicant will report the actual local match. In addition, the City has started to pursue other funding opportunities to increase funds from the municipalities to fund the project.

The following table details the additional funding attained for the project:

Additional Funding			
Funding Type	Description	Funding Amount	PDF

Agreements	The City of Monrovia is committed to providing an in-kind match of local staff time support and will look for opportunities to utilize the local return portion of the Safe, Clean Water Program funds for local compliance projects along with regional projects. The City is currently partnering with several agencies in cost sharing for projects and is willing to pursue other cost sharing opportunities with other agencies and entities. In addition, the City has started to pursue other funding opportunities to increase funds from the municipalities to fund the project.	$ 1,000,000.00	Encanto_share_benefit.pdf
Total Funding:		$ 1,000,000.00	

7.2 Local Support

Please describe the Outreach Plan conducted for this project:

During WMP development, the RH/SGR Group led numerous public engagement and outreach activities, including workshops with non-governmental organizations (specifically Amigos de los Rios, Los Angeles WaterKeeper, the Natural Resources Defense Council, and Nature for All) to discuss the details of this project. The outcomes included a unanimously approved WMP recommending this project and new, open lines of communication with environmental and community advocates that the Regional Water Quality Control Board applauded as a program "to be emulated by other groups." Since WMP approval, the RH/SGR Group has continued to engage with their NGO partners to keep them apprised of progress. Once the project is funded, a more detailed outreach plan will be developed during the full design process to ensure that the public is aware of--and understands the value of--their tax dollars being used to promote Safe, Clean Water in their community. Please see the attached approval letter from the Regional Board as evidence of multi-stakeholder support.

Does this demonstrate strong local, community-based support?

Yes

The following table details the support by local, community-based organizations for the project (also see attachments)**:**

Local Support		
Organization Name	Description	PDF
	During WMP development, the RH/SGR Group led numerous public engagement and outreach activities, including workshops with non-governmental organizations (specifically Amigos de los Rios, Los Angeles WaterKeeper, the Natural Resources Defense Council, and Nature for All) to discuss the details of this project. The outcomes	

RH/SGR Group	included an approved WMP recommending this project and new, open lines of communication with environmental and community advocates. Since WMP approval, the RH/SGR Group has continued to engage with their NGO partners to keep them apprised of progress. Once the project is funded, a more detailed outreach plan will be developed during the full design process to ensure that the public is aware of--and understands the value of--their tax dollars being used to promote Safe, Clean Water in their community.	Encanto_share_benefit.pdf
Regional Water Quality Control Board	rWMP conditional approval letter	06revised_draft_tentative_rhsgr_rEWMP_approval(fnl).pdf

8 ADDITIONAL FEASIBILITY INFORMATION

This section presents additional information regarding project feasibility and technical details gathered during project design and feasibility assessment.

8.1 Environmental Documents and Permits

Discuss what potential environmental documentations (e.g. CEQA, NEPA, etc.) will be required or has been completed for the Project. Describe potential permitting challenges and associated time requirements and costs.

Consultation with regulatory agencies and acquisition of permits is required before the project components can be constructed. The following table summarizes the plan checks, regulatory permits and approvals relevant to the project.
Table 8 1: Listing of Anticipated Required Permits
Agency Permit/Notification Name Rationale Initial Steps
City of Duarte Parks & Recreation -- City of Duarte Parks & Recreation is the property manager. Contact Parks & Recreation Department
LA County Flood Control District Discharge Permit Non-storm water (treated water) will be discharged directly into an existing District facility. Complete and submit application for review via EpicLA.
State Water Resources Control Board Construction General Permit One or more acres of soil will be disturbed during construction. Develop a Storm Water Pollution Prevention Plan (SWPPP).
State Water Resources Control Board Section 401 Water Quality Certification General discharge permit Complete and submit application for review. Dependent on USACE direction/interpretation.
LA County Department of Public Health Cross Connection and Water Pollution Control Program Ensure that there is no hazard to the potable water system. Undergo review and approval.
Greater LA County Vector Control District Mosquito Abatement District Potential mosquito concerns. Provide Vector Control District conceptual project plans for review.
South Coast Air Quality Management District Rule 403 Prevent, reduce, or mitigate fugitive dust emissions from construction activities. Construction in the South Coast Air Basin must incorporate best available control measures included in Table 1 of Rule 403
Southern California Edison Design Permit Installation of a new electrical service plan Contact SCE's Local Planning Department and complete Customer Project Information Sheet and Design Option Letter.
CA Natural Resources Agency CEQA Initial Study State mandated environmental review Prepare the Initial Study and associated anticipated Mitigated Negative Declaration

Past project experience has shown that the Initial Study most often identifies a Mitigated Negative Declaration for projects that are constructed within the existing park areas. The most significant impacts are temporary during the construction period and once construction is complete, will be gone entirely. Upon project completion, the project will ultimately provide a net benefit to the water quality and keep the park facilities unchanged.
The CEQA Initial Study and associated Mitigated Negative Declaration are anticipated to take up to one year and will occur simultaneously with the design phase. It is expected to cost between $50,000 and $100,000 and is reflected in the life-cycle cost information.
The acquisition and securing of all the required permits and environmental documentation are anticipated to be around 1% of the total project costs for a grand total of $17,795. All permits are anticipated to be filed and acquired by the end of the 100% final design phase.

8.2 Vector Minimization

This following provides details on vector minimization strategies.

Does the project have vector minimization plan?

No

Please see an attachment with proposed vector minimization plan.

8.3 Alternatives Studied

Describe alternatives that were considered and evaluated as part of the Project development:

Alternatives evaluated included combinations of diversion routes and rates, alternative footprints and orientations, and various outflow rates. The full discussion on alternatives studied can be found in Attachment F.

8.4 Effectiveness

Describe the effectiveness of similar types of projects already constructed if applicable:

Projects similar to the Encanto Park Stormwater Capture project are being designed and constructed throughout Los Angeles County. A couple (including Bolivar Park Stormwater Capture Project and Santa Monica Clean Beaches Project at the Pier) have recently been completed and are now beginning the monitoring phase. Numerous others are currently under construction (Caruthers Park in Bellflower, Mayfair Park in Lakewood, Carriage Crest Park in Carson, and Culver Boulevard in Culver City). In the future, it is anticipated that the project effectiveness will be obtained through monitoring efforts but at this time, there is no comparable completed and monitored project.

8.5 Legal Requirements and Obligations

Describe any legal requirements or obligations that may arise as a result of constructing the Project and how these requirements will be satisfied:

There are two primary legal issues that require addressing through the course of the Encanto Park project; access and regulatory compliance.
The main project site is owned and maintained by the City of Duarte. However, construction requires accessing the LACFCD storm drain as a key component of this project. The LACFCD requires that the hydraulics of the existing infrastructure not be negatively impacted, and that access is maintained. The RH/SGR Water Quality Group will require an operation and maintenance memorandum of understanding (MOU) with the LACFCD for continued access. All required permits and agreements will be in place through the construction of the project.
As stated in the project background, one of the key drivers for this project is the compliance with the water quality targets identified in the RH/SGR EWMP. Design and construction of the project brings the EWMP Group closer to watershed-wide compliance through water quality improvement. The Group is required to demonstrate project performance to the Water Resource Control Board for acceptance towards the water quality objectives. The project will be monitored and reported on as required.

8.6 Technical Reports

Please upload additional technical reports related to this project not provided above.

8.7 Other

Provide any additional information related to the Project as necessary:

The below attached documents contain all of the details needed in the development, optimization, evaluation, and submission of this program to the Safe, Clean Water Program.

Attachments for this Section	
Attachment Name	Description
3_2019-05-17 RHSGR rWMP - Attachment B (Evaluation of Multi-Benefit Projects).pdf	Project modeling and development details.
Encanto_SCW_Scoring_Criteria_FINAL_v2.pdf	
SCW_Scoring_Response_Encanto Park FINAL.pdf	

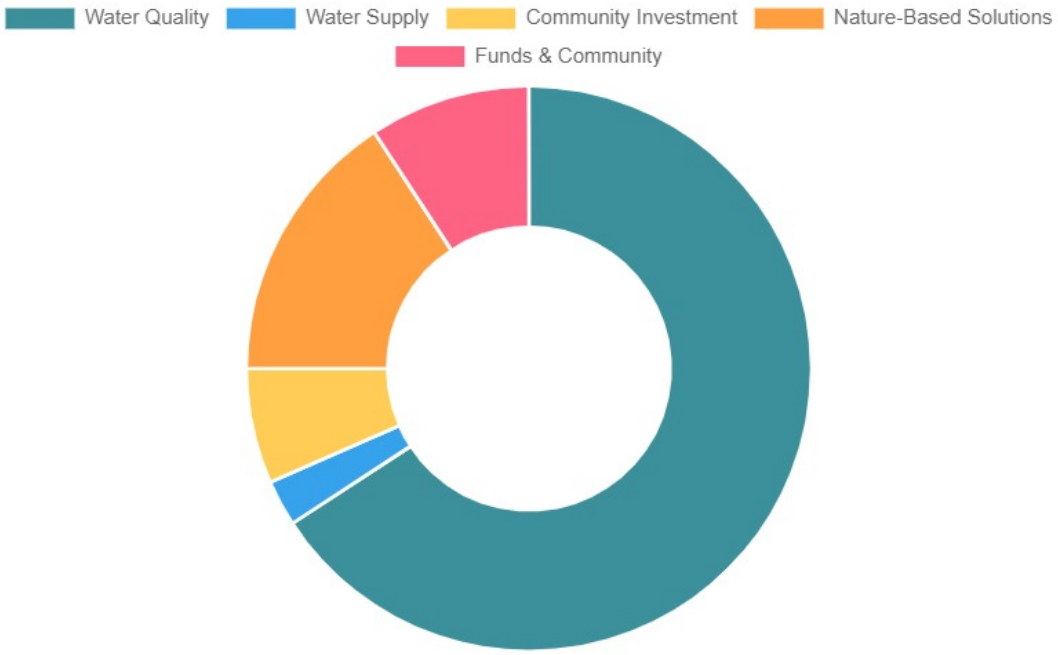
9 SCORING

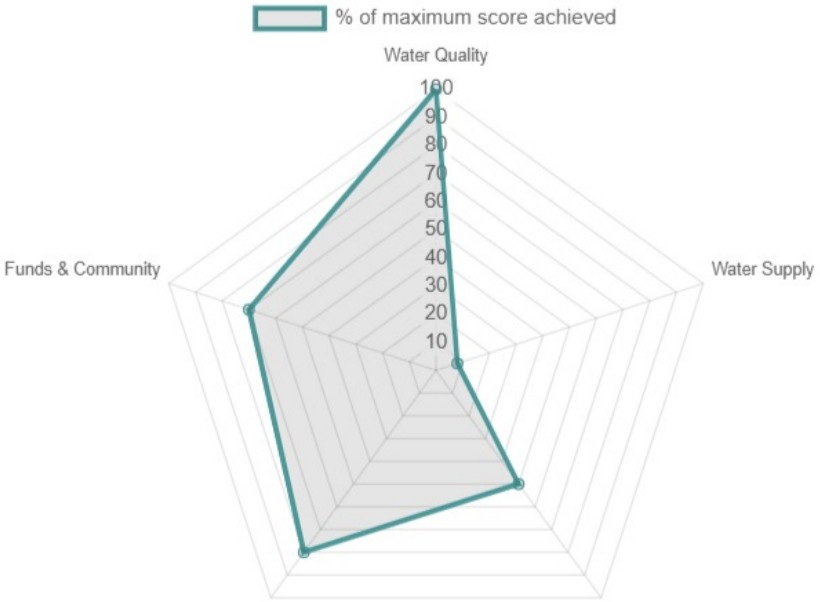
This section summarizes scoring calculations generated by the Module. All Regional Program Projects must meet the Threshold Score of 60 points or more using the following Project Scoring Criteria to be eligible for consideration.

Note: all scoring estimates are considered preliminary and subject to review and revision by the Scoring Committee.

Preliminary Estimated Project Score:
76 points

The following graphics summarize the project scoring. The first graphic shows the components of the project score, based on the different scoring sections. The second graphic shows the percent of maximum score achieved by the project within each scoring section.


Water Quality
Water Supply
Community Investment
Nature-Based Solutions
Funds & Community


% of maximum score achieved
Water Quality
100
90
80
70
60
50
40
30
20
10
Water Supply
Funds & Community

The following table details the scoring calculated for the project, along with the scoring thresholds from the SCW Project Scoring Criteria:

Scoring Section	Project Score	Max Score	Scoring Criteria Thresholds
Water Quality Wet + Dry Weather **Part 1**	20	20	Cost Effectiveness = (24-hour BMP Capacity) / (Construction Cost in $Millions) • <0.4 = 0 points • 0.4-0.6 = 7 points • 0.6-0.8) = 11 points • 0.8-1.0 = 14 points • >1.0 = 20 points
Water Quality Wet + Dry Weather **Part 2**	30	30	Primary Pollutant Reduction: • >50% = 15 points • >80% = 20 points Secondary Pollutant Reduction: • >50% = 5 points • >80% = 10 points
Water Supply Part 1	0	13	• >$2500/ac-ft = 0 points • $2,000–2,500/ac-ft = 3 points • $1500-2,000/ac-ft = 6 points • $1000–1500/ac-ft = 10 points • <$1000/ac-ft = 13 points
Water Supply Part 2	2	12	• <25 ac-ft/year = 0 points • 25 - 100 ac-ft/year = 2 points • 100 - 200 ac-ft/year = 5 points • 200 - 300 ac-ft/year = 9 points • >300 ac-ft/year = 12 points
Community Investment	5	10	• One Benefit = 2 points • Three Benefits = 5 points • Six Benefits = 10 points
Nature Based Solutions	12	15	• Implements natural processes or mimics natural processes to slow, detain, capture, and absorb/infiltrate water in a manner that protects, enhances and/or restores habitat, green space and/or usable open space = 5 points • Utilizes natural materials such as soils and vegetation with a preference for native vegetation = 5 points • Removes Impermeable Area from Project (1 point per 20% paved area removed) = 5 points
Leveraging Funds Part 1	3	6	• >25% Funding Matched = 3 points • >50% Funding Matched = 6 points

Leveraging Funds Part 2	4	4	The Project demonstrates strong local, community-based support and/or has been developed as part of a partnership with local NGOs/CBOs.
Total	**76**	110	

10 ATTACHMENTS

Attachments are bundled and organized in the following pages, with cover pages between each subsection.

Please note – at a minimum, a feasibility study must attach the following:

- A Location Map
- A Schematic with Proposed Footprint and Key Components
- A Map of the Capture Area (Tributary Map)
- Technical Reports (e.g. soil report, hydrology report, hydraulic study, utility search, survey, PEIR, EIR, monitoring data, etc.)

ATTACHMENTS FOR SECTION 1.1:

OVERVIEW

ATTACHMENTS FOR SECTION 1.2:

PROJECT LOCATION


N
Major Storm Drains
Open Channel
Encanto Park parcels
Roadway ROW
0
0.02
0.04
0.09 Miles

ATTACHMENTS FOR SECTION 2.1:

CONFIGURATION

1.1 CONFIGURATION

Table 2-1 is a summary of the project configuration. Attachment B and C contains the plan view and preliminary profile views of the project configuration.

Table 2-1: Project Configuration Summary

BMP Type:		Treatment Facility
Ponding Depth:	Ft	5.0
Footprint Area	Ac	0.26

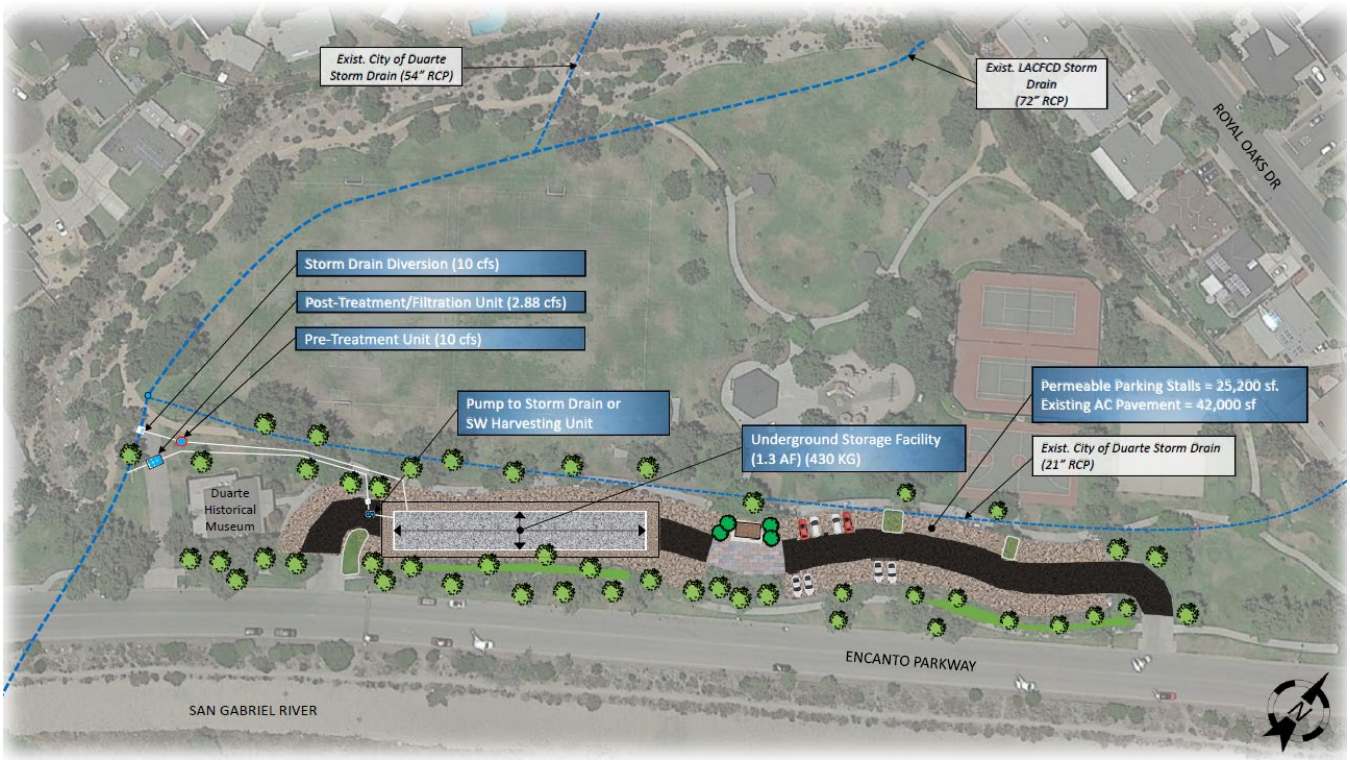


Figure 1. Conceptual layout configuration for Encanto Park project.

1.1.1 Diversion and Pretreatment

Information regarding the diversion and pretreatment system are discussed in Section 2.3 of this report.

1.1.2 Storage Component

Underground storage reservoirs provide stormwater detention and allow for implementation where surface space is limited or requires alternate uses. A 1.3 ac-ft storage reservoir is proposed for the Encanto Park with a storage depth of 5.0-feet, a freeboard depth of 1-foot, and a footprint of 0.26 acres.

The storage structure is proposed to be a precast concrete storage system made from durable, reinforced high-strength concrete. They are designed to withstand H-20 loading, allow for various depths of cover, and overcome any possible buoyant forces should groundwater be present.

1.1.3 Treatment and Discharge

The infiltration of water into the subsurface and eventual water table provide final pollutant removal. Additionally, a 2.88 cfs filtration system will be installed and operate during wet-weather events to provide additional treatment capacity within the proposed system. An emergency overflow connection serves as a redundant backup if the storage unit ever should require evacuation. A pump will lift the water from the storage tank and back to an elevation that matches the existing storm drain in the southwest area of the park. The estimated treatment rate for the Encanto Park is 3.08 cfs (based on recommended footprint and infiltration/filtration rate of 11.85 in/hr).

The filter system proposed is a cartridge system. Flow enters the filter where it is then provided sufficient contact time with the filter cartridges. The cartridges contain an opening size of 10 microns and can treat between 0.05 gallons per minute (gpm) to 1 gpm per square foot of cartridge surface area. Multiple cartridges are installed in a large concrete reservoir that can treat up to 2.88 cfs. Pollutants build up on the cartridge preventing migration back to the channel. The cartridges are cleaned and re-used provided an easy maintenance process.

In conjunction with the infiltration gallery, the project proposed to install an on-site irrigation treatment unit that will allow for the use of captured stormwater for park irrigation. Typical treatment involves a four-step filtration and sanitation process: (1) a mechanical filter that removes sediment and particulates greater than 50 microns, (2) a bag filter that removes any remaining particulates down to 5 microns, (3) an activated carbon filter to remove undesirable odors, colors, and dissolved solids, and (4) an ultraviolet (UV) treatment to remove bacteria. The treated water is then distributed to the irrigation system via pumps. A pump and irrigation system containment structure is proposed to be installed on-site. Discussion on the water demand and use is found in Section 4.0 of this report. A 1-cfs pump will also serve as the emergency outlet pump that can drain the system if needed.

1.1.4 Nature-Based Components

The parking lot will be reconfigured and rebuilt, and the parking stalls will be replaced with permeable pavement materials. This promotes infiltration of runoff into the subgrade and eventually to the groundwater table. The permeable pavement is sized to convey flow from the parking lot and roadways within the park.

1.1.5 Above Ground Improvements

The installation of the underground structure will require the removal and replacement of the existing parking lot. The project proposes to create a new parking lot that includes permeable parking stalls. Additional native trees, shrubs, and grasses will be installed at select spots impacted by the construction throughout the park.

1.2 CAPTURE AREA

Table 2-2 is a summary of the area that drains to the project.

Table 2-2: Capture Area Summary

Capture Area:	Ac	189
Impervious Area:	Ac	52
Pervious Area:	Ac	137

1.2.1 Land Use

Table 2-3 is a summary of the land use breakdown for the area that drains to the project. A map showing the distribution of the land uses can be found in Attachment A.

Table 2-3: Land Use Summary

Land Use Type	Percent of Impervious	Acres
Single Family Residential	74.30	38.64
Multi-Family Residential	0.0	0.0
Commercial	0.0	0.0
Institutional	0.06	0.03
Industrial	0.06	0.03
Highways & Freeways	0.0	0.0
Secondary Roads & Alleys	25.58	13.30

1.3 DIVERSION

This section provides details on the project's diversion structures and pretreatment system. Table 2-4 provides a summary of details on the diversion type and maximum diversion rate. Further descriptions of the diversion structures and pretreatment systems are included below.

Table 2-4: Diversion Details

Diverted Pipe ID	Type of Diversion	Typical Max Diversion Rate (cfs)
MTD 1267	Gravity	10

The diversion structure is estimated to have an average inflow captured of 0.052 cfs.

1.3.1 Diversion Structure Description & Conditions

A new diversion manhole is proposed along the MTD 1267 reinforced concrete pipe to divert stormwater during low-flow and storm events to the pretreatment device and eventually the subsurface storage.

1.3.1.1 MTD 1267 Pipe Diversion

At the proposed flow rate of 10 cfs, the structure on the 72-inch reinforced concrete pipe will require a 1.0-foot drop below the existing invert and a 24-inch diameter diversion pipe at a 0.5% slope. The drop inlet structure will have dimensions of approximately 8.5-feet wide and 10-feet long. A schematic of the structure is shown in Attachment B.

1.3.2 Pretreatment System

Stormwater runoff transports sediment, metals, nutrients, trash, and debris that can compromise the performance of the stormwater facility and pollute downstream receiving waters. Pretreatment will be an integral component of the treatment train strategy to extend the life of the system. It is prescribed to reduce the maintenance frequency of the Encanto Park facilities, focus maintenance efforts to a concentration and accessible area, and bolster watershed compliance.

For this project, a hydrodynamic separator is proposed to be installed after the diversion point near the park. One hundred percent of floatables and neutrally buoyant debris larger than the screen aperture (2400 microns or 2.4 mm) is collected and settle in the isolated sump of the system, eliminating scour potential. In addition to the screen aperture filtration, at least 80% of particles that are 130 microns or larger in size are removed for flows up to 10 cfs. With the chambered system, hydrocarbons float to the top of the water surface and are prevented from being transported downstream. A target flow rate for each of the devices will be based on the final design of the diversion structure. Currently a total of 10 cfs from the pipe is anticipated to be diverted to a single pretreatment device. It will be designed to have the capacity to treat the maximum flow diverted to the unit. The size of the unit will also be based on the estimated sediment that will be collected in the sump to maximize sediment removal while balancing the routine maintenance required.

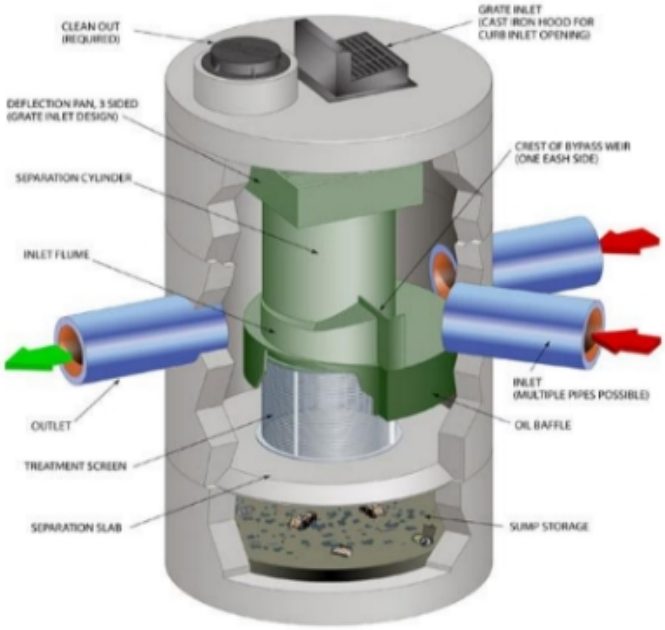
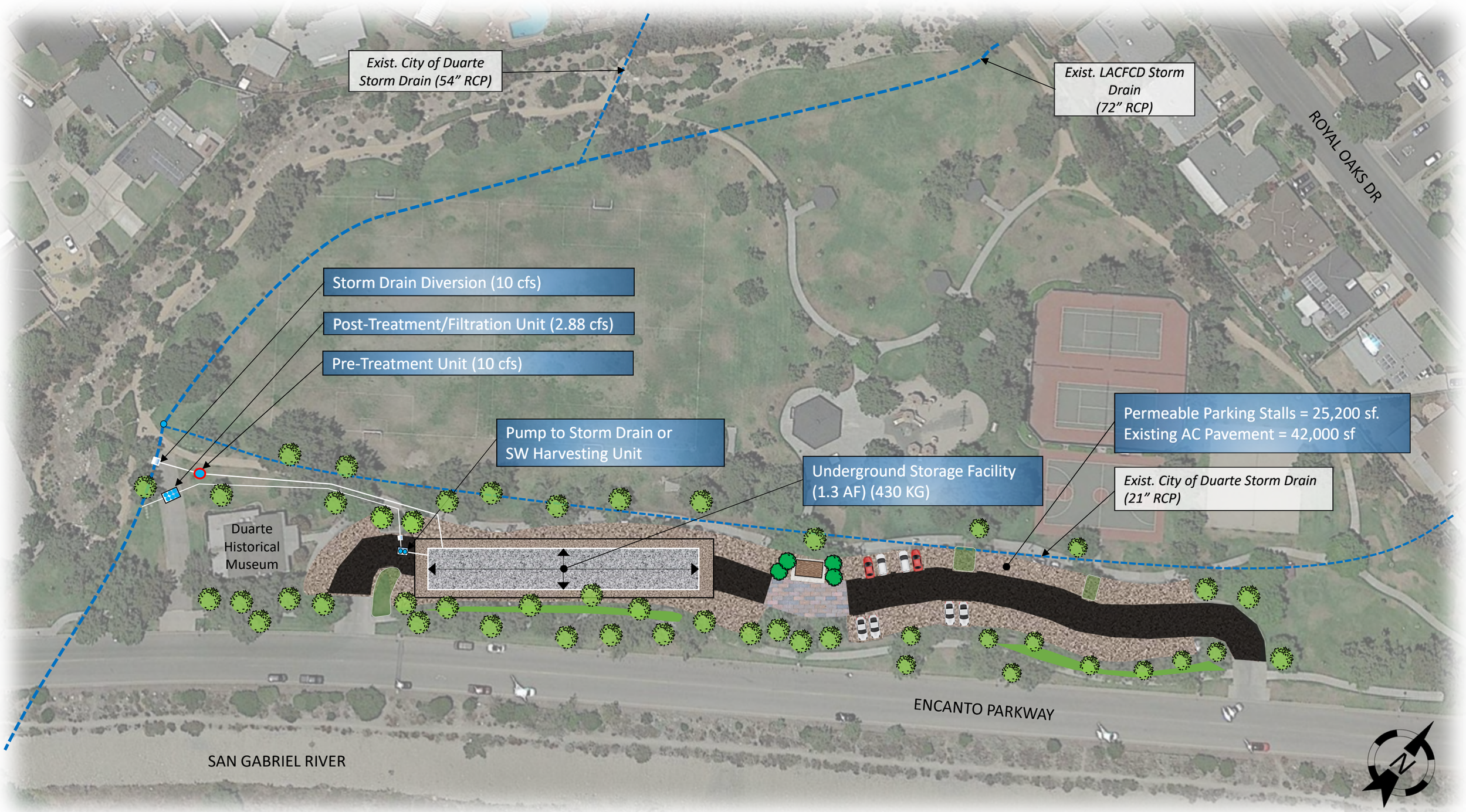


Figure 2. Typical Hydrodynamic Separator (Source: Contech Engineered Solutions)



RIO HONDO SAN GABRIEL RIVER

RIO HONDO /SAN GABRIEL RIVER WATERSHED MANAGEMENT PROGRAM

ENCANTO PARK REGIONAL BMP: SITE PLAN

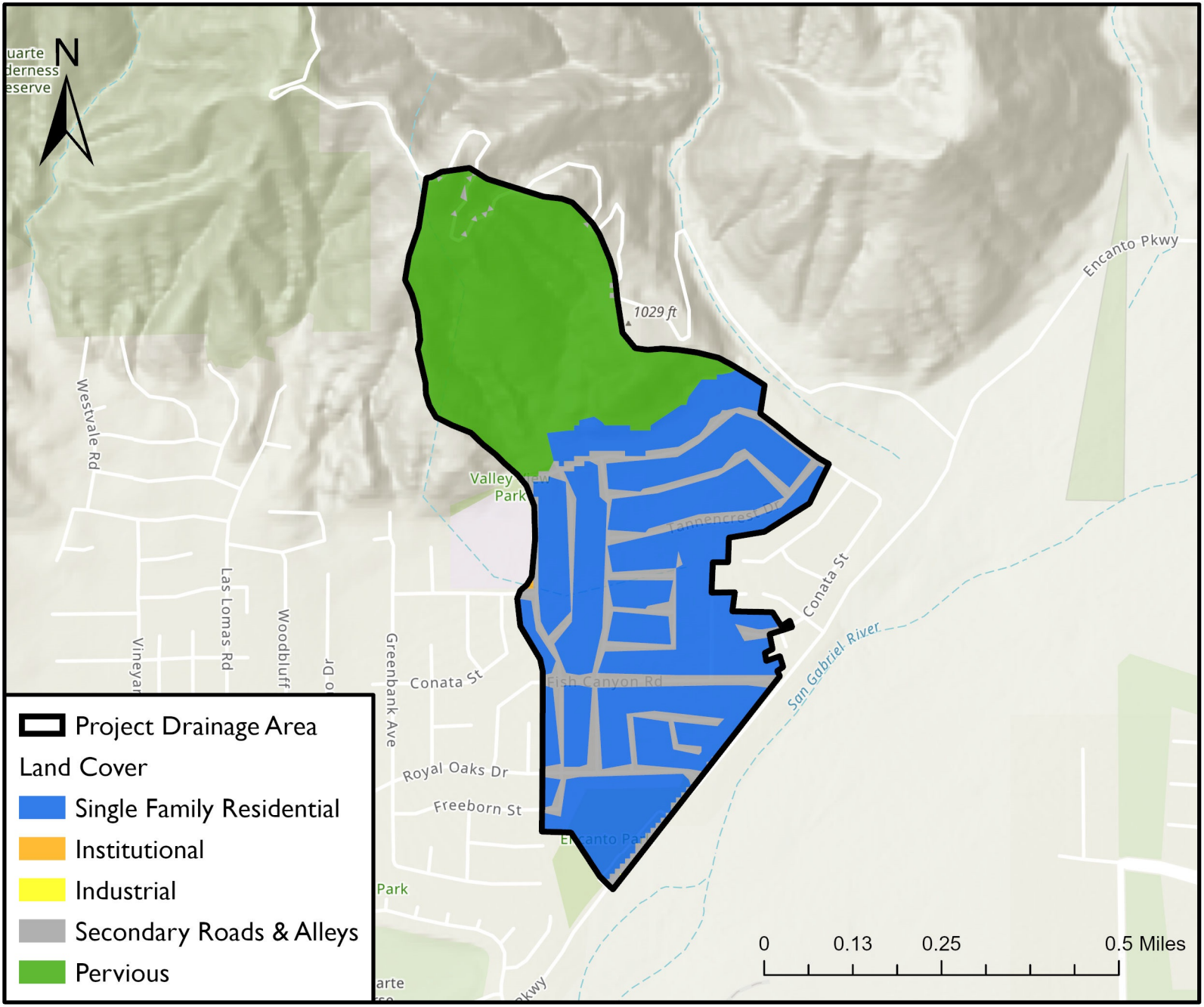
RIO HONDO SAN GABRIEL RIVER

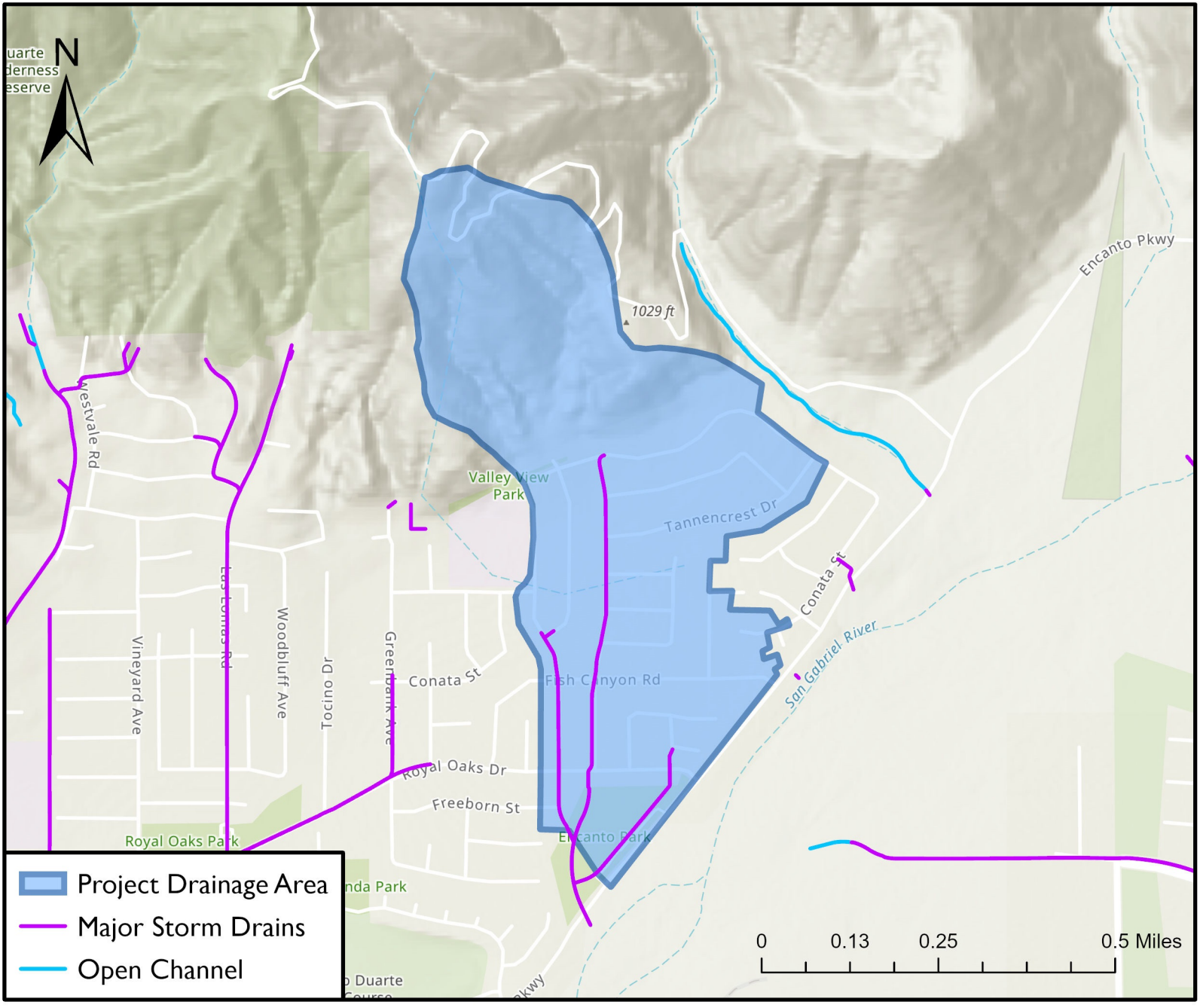
RIO HONDO /SAN GABRIEL RIVER WATERSHED MANAGEMENT PROGRAM

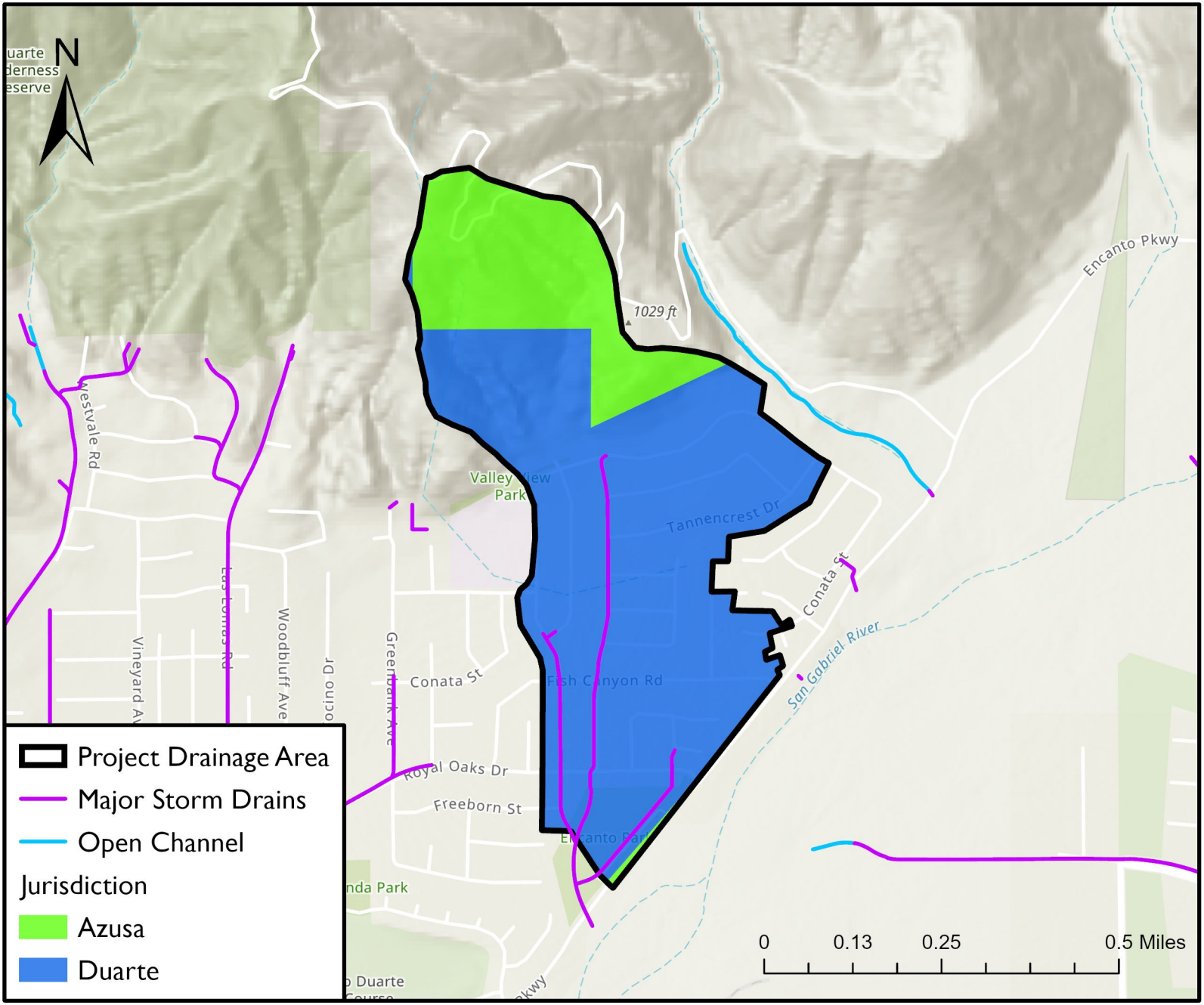
ENCANTO PARK REGIONAL BMP: PRELIMINARY LANDSCAPING PLAN

ATTACHMENTS FOR SECTION 2.2:

CAPTURE AREA


N
Project Drainage Area
Land Cover
Single Family Residential
Institutional
Industrial
Secondary Roads & Alleys
Pervious
1029 ft
Encanto Pkwy
Westvale Rd
Las Lomas Rd
Woodbluff
Greenbank Ave
Conata St
Fish Canyon Rd
San Gabriel River
Royal Oaks Dr
Freeborn St
Park
0
0.13
0.25
0.5 Miles


N
1029 ft
Encanto Pkwy
Valley View Park
Tannencrest Dr
Conata St
Fish Canyon Rd
San Gabriel River
Westvale Rd
Vineyard Ave
Woodbluff Ave
Tocino Dr
Greenbank Ave
Royal Oaks Dr
Freeborn St
Royal Oaks Park
Project Drainage Area
Major Storm Drains
Open Channel
0
0.13
0.25
0.5 Miles


N
Project Drainage Area
Major Storm Drains
Open Channel
Jurisdiction
Azusa
Duarte
0
0.13
0.25
0.5 Miles
1029 ft
Encanto Pkwy
Tannencrest Dr
Conata St
Fish Canyon Rd
San Gabriel River
Royal Oaks Dr
Freeborn St
Valley View Park
Westvale Rd
Woodbluff Ave
Greenbank Ave

ATTACHMENTS FOR SECTION 2.4:

SITE CONDITIONS & CONSTRAINTS

ATTACHMENTS FOR SECTION 2.5:

COST

ATTACHMENTS FOR SECTION 2.7:

MONITORING

ATTACHMENTS FOR SECTION 2.8:

O & M

ATTACHMENTS FOR SECTION 3.1:

24-HOUR STORM CAPACITY

ATTACHMENTS FOR SECTION 3.2:

EVENT-BASED DESIGN DETAILS

ATTACHMENTS FOR SECTION 3.3:

LONG-TERM PERFORMANCE

ATTACHMENTS FOR SECTION 4.1:

NEXUS

ATTACHMENTS FOR SECTION 4.2:

BENEFIT MAGNITUDE

ATTACHMENTS FOR SECTION 4.3:

COST EFFECTIVENESS

ATTACHMENTS FOR SECTION 7.1:

COST SHARE

7.0 LEVERAGING FUNDS AND LOCAL SUPPORT

This section provides an overview of the project's funding and community support, which are used in calculations for the SCW Project Scoring Criteria.

7.1 COST SHARING

The City of Monrovia is committed to providing an in-kind match of local staff time support and will look for opportunities to utilize the local return portion of the Safe, Clean Water Program funds for local compliance projects along with regional projects. The City is currently partnering with several agencies in cost sharing for projects and is willing to pursue other cost sharing opportunities with other agencies and entities. In addition, the City has started to pursue other funding opportunities to increase funds from the municipalities to fund the project.

7.2 LOCAL SUPPORT OUTREACH PLAN

During WMP development, the RH/SGR Group led numerous public engagement and outreach activities, including workshops with non-governmental organizations (specifically Amigos de los Rios, Los Angeles WaterKeeper, the Natural Resources Defense Council, and Nature for All) to discuss the details of this project. The outcomes included an approved WMP recommending this project and new, open lines of communication with environmental and community advocates. Since WMP approval, the RH/SGR Group has continued to engage with their NGO partners to keep them apprised of progress. Once the project is funded, a more detailed outreach plan will be developed during the full design process to ensure that the public is aware of--and understands the value of--their tax dollars being used to promote Safe, Clean Water in their community.

ATTACHMENTS FOR SECTION 7.2:

LOCAL SUPPORT

7.0 LEVERAGING FUNDS AND LOCAL SUPPORT

This section provides an overview of the project's funding and community support, which are used in calculations for the SCW Project Scoring Criteria.

7.1 COST SHARING

The City of Monrovia is committed to providing an in-kind match of local staff time support and will look for opportunities to utilize the local return portion of the Safe, Clean Water Program funds for local compliance projects along with regional projects. The City is currently partnering with several agencies in cost sharing for projects and is willing to pursue other cost sharing opportunities with other agencies and entities. In addition, the City has started to pursue other funding opportunities to increase funds from the municipalities to fund the project.

7.2 LOCAL SUPPORT OUTREACH PLAN

During WMP development, the RH/SGR Group led numerous public engagement and outreach activities, including workshops with non-governmental organizations (specifically Amigos de los Rios, Los Angeles WaterKeeper, the Natural Resources Defense Council, and Nature for All) to discuss the details of this project. The outcomes included an approved WMP recommending this project and new, open lines of communication with environmental and community advocates. Since WMP approval, the RH/SGR Group has continued to engage with their NGO partners to keep them apprised of progress. Once the project is funded, a more detailed outreach plan will be developed during the full design process to ensure that the public is aware of--and understands the value of--their tax dollars being used to promote Safe, Clean Water in their community.

[DATE]

Permittees of the Rio Hondo / San Gabriel River Water Quality Group[1]

CONDITIONAL APPROVAL OF THE RIO HONDO / SAN GABRIEL RIVER WATER QUALITY GROUP WATERSHED MANAGEMENT PROGRAM, PURSUANT TO PART VI.C OF THE LOS ANGELES COUNTY MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT (NPDES PERMIT NO. CAS004001; ORDER NO. R4-2012-0175 AS AMENDED BY STATE WATER BOARD ORDER WQ 2015-0075 AND ORDER NO. R4-2012-0175-A01) (THE "LA COUNTY MS4 PERMIT")

Dear Permittees of the Rio Hondo / San Gabriel River Water Quality Group:

On March 30, 2018, the Rio Hondo / San Gabriel River Water Quality Group (Group) submitted proposed modifications to its EWMP in the form of a Revised Enhanced Watershed Management Program or rEWMP (hereinafter referred to as Proposed Revised EWMP). The Proposed Revised EWMP entails extensive and significant modifications to the Group's existing EWMP, including an updated Reasonable Assurance Analysis, changes to watershed control measures, and changes to compliance schedules. Furthermore, and unlike the EWMP that the Group is currently implementing, this Proposed Revised EWMP does not include the City of Azusa as a participating Permittee.

Public Review and Comment

On May 23, 2018, the California Regional Water Quality Control Board, Los Angeles Region (Los Angeles Water Board) provided public notice and a 30-day period to allow for public review and written comment on the Proposed Revised EWMP. The Los Angeles Water Board received two written comment letters during this review period. These comments letters were from the Natural Resources Defense Council, Heal the Bay, and Los Angeles Waterkeeper (jointly); and the City of Duarte. Los Angeles Water Board staff considered the written comments that were received during its review of the Proposed Revised EWMP.

[1] Permittees of the Rio Hondo/San Gabriel River Watershed Management Group include the Cities of Arcadia, Azusa, Bradbury, Duarte, Monrovia, and Sierra Madre, the County of Los Angeles, and the Los Angeles County Flood Control District (LACFCD). See attached distribution list.

Los Angeles Water Board Review

Concurrent with the public review, Los Angeles Water Board staff reviewed the Proposed Revised EWMP. On October 17, 2018, the Los Angeles Water Board sent a letter to the Group which detailed Board staff's comments on the Proposed Revised EWMP and identified issues that needed to be addressed prior to the Los Angeles Water Board's approval of the EWMP. Where appropriate, the written public comments were incorporated into the Los Angeles Water Board's review letter on the draft EWMP to ensure that the public's comments were addressed appropriately in the revised EWMP.

On November 14, 2018, the Group's representatives and consultants met with Board staff to discuss the Board staff's comments on the Proposed Revised EWMP before their resubmittal.

On December 17, 2018, the Group submitted a revised version of its Proposed Revised EWMP along with responses to Board staff's comments.

Approval of Modifications to the EWMP

The Los Angeles Water Board hereby approves, subject to the following conditions, the modifications to the Group's EWMP proposed in the December 17, 2018 Proposed Revised EWMP:

1. Under Part VI.C.8.b.i of the LA County MS4 Permit, the Group is required to submit an updated EWMP with an updated Reasonable Assurance Analysis (RAA) by **June 30, 2021**. For this submittal, the Group must re-evaluate the critical condition and validation used in its RAA.

    - For metals analyses, the baseline pollutant loading estimated from the critical condition should be expressed on a basis consistent with the averaging periods used in the Los Angeles River Metals TMDL and San Gabriel River Metals TMDL.

    - For metals analyses, the Group should use the definition of "wet day" used in the Los Angeles River Metals TMDL and San Gabriel River Metals TMDL, where appropriate; or a suitable alternative definition.

2. After completing the control measures identified in its WMP, the Group must demonstrate, through monitoring, compliance with all applicable final water quality-based effluent limitations and receiving water limitations.

3. Under Part VI.C of the LA County MS4 Permit, the Group's program, as revised, is considered a Watershed Management Program based on the nature of the control measures (rather than an Enhanced Watershed Management Program). The Group must submit a new version of its Watershed Management Program by DATE that accounts for this change in program designation.

The Los Angeles Water Board may rescind this approval if any of the above conditions are not met to the satisfaction of the Los Angeles Water Board.

Determination of Compliance with Revised Watershed Management Program

Pursuant to Part VI.C.6 of the LA County MS4 Permit, the Permittees of the Rio Hondo/San Gabriel River Watershed Management Group shall begin implementation of the WMP, set forth in the Proposed Revised EWMP and in accordance with the conditions of this letter, immediately. To continue to be afforded the opportunity to implement permit provisions within the framework of the WMP, Permittees must fully and timely implement all actions per associated schedules set forth in the approved WMP regardless of any contingencies indicated in the approved WMP (e.g., funding) unless a modification to the approved WMP, including any extension of deadlines where allowed, is approved by the Los Angeles Water Board pursuant to Part VI.C.6.a or Part VI.C.8.a.ii-iii of the LA County MS4 Permit. The Los Angeles Water Board will determine the Permittees' compliance with the WMP on the basis of the compliance actions and milestones included in the WMP including, but not limited to, the following:

- Section 6 "Compliance Story"
- Table 1 Participating Agencies for Each Multi-Benefit Regional Project and the Proportion within the Drainage Area Contributing to the Project
- Page 27 Rio Hondo Clean Water Strategy
- Page 28 San Gabriel River Clean Water Strategy
- Page 29 Big Dalton Wash Clean Water Strategy
- Attachment C, Table 4-5 Recommended Green Street opportunities in County Islands within the Big Dalton Wash drainage area
- Attachment C, Table 4-7 Recommended Green Street opportunities in County Islands draining downstream from Rio Hondo Compliance Point (via Eaton Wash).
- Attachment A, Section: Attachment P

Pursuant to Part VI.E.2.d of the LA County MS4 Permit, "A permittee shall be considered in compliance with an applicable interim water quality-based effluent limitation and interim receiving water limitation for a pollutant associated with a specific TMDL if…the Permittee has submitted and is fully implementing an approved Watershed Management Program or EWMP pursuant to

Part VI.C. If the Permittees fail to meet any requirement or date for its achievement in the approved WMP, which will be demonstrated through the Group's Annual Reports and program audits (when conducted), the Permittees shall be subject to the baseline requirements of the LA County MS4 Permit, including but not limited to demonstrating compliance with applicable receiving water limitations and TMDL-based WQBELs/WLAs through outfall and receiving water monitoring. See Parts VI.C.2.c and VI.E.2.d.i.(4).(c) of the LA County MS4 Permit.

The Los Angeles Water Board appreciates the participation and cooperation of the Permittees in the Rio Hondo / San Gabriel River Watershed Quality Group in the implementation of the LA County MS4 Permit. If you have any questions, please contact Chris Lopez of the Storm Water Permitting Unit at Chris.Lopez@waterboards.ca.gov or by phone at (213) 576-6674. Alternatively, you may also contact Ivar Ridgeway at Ivar.Ridgeway@waterboards.ca.gov or by phone at (213) 620-2150.

Sincerely,

Deborah J. Smith
Executive Officer

Enclosures: Rio Hondo/San Gabriel River Water Quality Group Distribution List

ATTACHMENTS FOR SECTION 8.1:

ENVIRONMENTAL DOCUMENTS AND PERMITS

ATTACHMENTS FOR SECTION 8.2:

VECTOR MINIMIZATION

ATTACHMENTS FOR SECTION 8.6:

TECHNICAL REPORTS

ATTACHMENTS FOR SECTION 8.7:

OTHER

[Company name]

Attachment B: Evaluation of Multi-Benefit Projects

CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS/ ABBREVIATIONS

Acronyms/Abbreviations	Definition
BMP	Best Management Practice
EWMP	Enhanced Watershed Management Program
LACFCD	Los Angeles County Flood Control District
LID	Low Impact Development
Los Angeles Regional Board	California Regional Water Quality Control Board, Los Angeles Region
LSPC	Loading Simulation Program in C++
MCM	Minimum Control Measure
MS4	Multiple Separate Storm Sewer System
MS4 Permit	Los Angeles Regional Board Order R4-2012-0175, *Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, except those Discharges Originating from the City of Long Beach MS4*
RAA	Reasonable Assurance Analysis
rWMP	Revised Watershed Management Plan
RH	Rio Hondo
RH/SGR WQG	Rio Hondo/San Gabriel River Water Quality Group
SFSG	Santa Fe Spreading Grounds
SGR	San Gabriel River
SUSTAIN	System for Urban Stormwater Treatment and Analysis Integration
SWPPP	Storm Water Pollution Prevention Plan
TMDL	Total Maximum Daily Load
WMMS	LACFCD's Watershed Management Modeling System
WMP	Watershed Management Program
WY	Water Year
USEPA	US Environmental Protection Agency

EXECUTIVE SUMMARY

Project Overview

This report was developed to evaluate the Rio Hondo/San Gabriel River Water Quality Group's (RH/SGR WQG) four (4) multi-benefit regional projects identified in the revised Enhances Watershed Management Plan (rWMP) for the RH/SGR. In order to address the water quality limits as set forth in the rWMP, the objective of this pre-feasibility study was to evaluate the development of the regional projects listed below:

1. Arcadia Arboretum Natural Treatment and Groundwater Recharge Project
2. Rio Hondo Ecosystem Restoration Project and Arcadia Wash Water Conservation Diversion
3. Encanto Park Stormwater Capture Project
4. Basin 3E Enhancements at Santa Fe Spreading Grounds Project

The pre-feasibility study addresses feasibility with respect to each site's implementation and operations. The implementation components include expected design flows, water quality, potential for infiltration, identification of major components and equipment, and basic site layouts. The study will then provide estimates for operations and maintenance needs and cost.

Water Quality Context

The RH/SGR rWMP area, consisting of the County of Los Angeles and the Cities, Arcadia, Bradbury, Duarte, Monrovia, and Sierra Madre, contains mostly residential area as well steep slopes from the San Gabriel Mountains. The rWMP watershed management area (19,416 acres) is comprised of three major drainage systems: Rio Hondo, San Gabriel River, and Big Dalton Wash.

The highest priority pollutant addressed by the rWMP is metals, which based on the TMDL established by the Regional Board as well as an assessment of pollutant loadings at the compliance points selected for the WMP jurisdictions. The rWMP analysis specifically identified zinc as the pollutant driving implementation of new pollutant source control and watershed control measures. This report evaluates the potential to meet the RH/SGR rWMP water quality compliance targets through the cumulative performance of the proposed regional BMP's, in addition to the contribution from enhanced Minimum control measures (MCMs) and non-structural distributed BMPs. The study includes recommendations for the optimal design and configuration of the proposed facilities, with further discussion on the MCMs provided in Attachment C (Revise Reasonable Assurance Analysis).

Project Concept Performance

Through the collaborative effort with the RH/SGR WQG, Tetra Tech developed optimized project concepts focused on maximizing pollutant load reduction based on diversion rates and available project area. This regional project evaluation details the optimal project designs for the four regional projects and distributed green streets, their associated performance, and costs. The combined performance of the final proposed regional BMP configurations meets and exceeds the rWMP's pollutant reduction compliance targets, while minimizing footprint sizes. An appendix for each regional site provides the details of its respective project concept.

1.0 INTRODUCTION

The Rio Hondo/San Gabriel River Water Quality Group (RH/SGR WQG) is comprised of the County of Los Angeles, Los Angeles County Flood Control District (LACFCD) and the Cities of Arcadia, Bradbury, Duarte, Monrovia, and Sierra Madre. While the City of Azusa was a member of this WQG during development of the 2016 EWMP, they are not included as a member agency participating in this Revised Watershed Management Program (rWMP) update, which supersedes the 2016 EWMP. The RH/SGR WQG has developed a rWMP to address concerns with their existing EWMP as well as expand it to include multi-benefit regional best management practice (BMP) projects. The potential stormwater BMPs discussed in this feasibility study will be an opportunity for the WQG to address multi-benefit goals, such as site development, regional water quality improvements, recreational open space, and habitat development. The proposed regional BMP projects are listed below:

1. Arcadia Arboretum Natural Treatment and Groundwater Recharge Project
2. Rio Hondo Ecosystem Restoration Project and Arcadia Wash Water Conservation Diversion
3. Encanto Park Stormwater Capture Project
4. Basin 3E Enhancements at Santa Fe Spreading Grounds Project

These stormwater BMPs will be a critical component to addressing the WQG's water quality treatment objectives as stated in the RH/SGR rWMP. Additional distributed BMPs such as green streets will also be implemented where additional treatment is required to meet the water quality targets.

The analysis performed for each proposed regional structural BMP project demonstrates opportunities for how smart and innovative design can help the RH/SGR WQG comply with its TMDLs and permits by maximizing their water quality benefits, but also identify the potential for multiple additional benefits, such as water supply and community amenities. This feasibility study outlines the analysis performed for each of the proposed regional BMP sites in consideration.

2.0 BACKGROUND AND EXISTING CONDITIONS

The rWMP watershed management area (19,416 acres) is comprised of four major drainage systems: Rio Hondo, San Gabriel River and Big Dalton Wash. A small portion of the western rWMP watershed management area drains west to Eaton Wash. The Big Dalton Wash drainage areas is a hydrologically linked sub watersheds tributary to the San Gabriel River. The Eaton Wash Watershed is tributary to the Rio Hondo Watershed, which are both tributary to the downstream Los Angeles River Watershed. The San Gabriel River drainage area is comprised mainly of the San Gabriel Mountains. The Rio Hondo and Big Dalton Wash drainage areas include a combination of both natural mountainous terrain and urban built out area. See ***Table 1*** for a summary of the tributary areas. Also included in the table is a column for areas considered "sump" area because they do not drain to anywhere within the WMP boundary, meaning that in the watershed model this area does not have a downstream reach. Also, the total drainage area in the table includes area downstream of the rWMP boundary because this area is tributary to the compliance points being analyzed. Compliance points were selected to capture the entire drainage area contributed from the WMP boundary.

Table 1. Regional Drainage Area

	Rio Hondo	San Gabriel River	Big Dalton Wash	Eaton Wash	Sump Area
Total Drainage Area (acres)	31,345	153,282	24,238	n/a	n/a
rWMP Boundary (acres)	15,870	2,198	1,348	829	387
Percent of rWMP Boundary	62%	9%	5%	4%	n/a
Additional Area Downstream (acres)	2,065	2,312	861	n/a	n/a

The RH/SGR WQG is proposing four regional BMP projects to meet the compliance targets set forth in the rWMP. The location of these regional BMPs can be seen in ***Figure 1.*** Regional BMP and Potential Green Street Locations below. The locations of the proposed regional BMPs were chosen due to their potential for providing maximum water quality benefits for the downstream receiving waters. The majority of the tributary area is urbanized, with only a portion still in its natural condition.

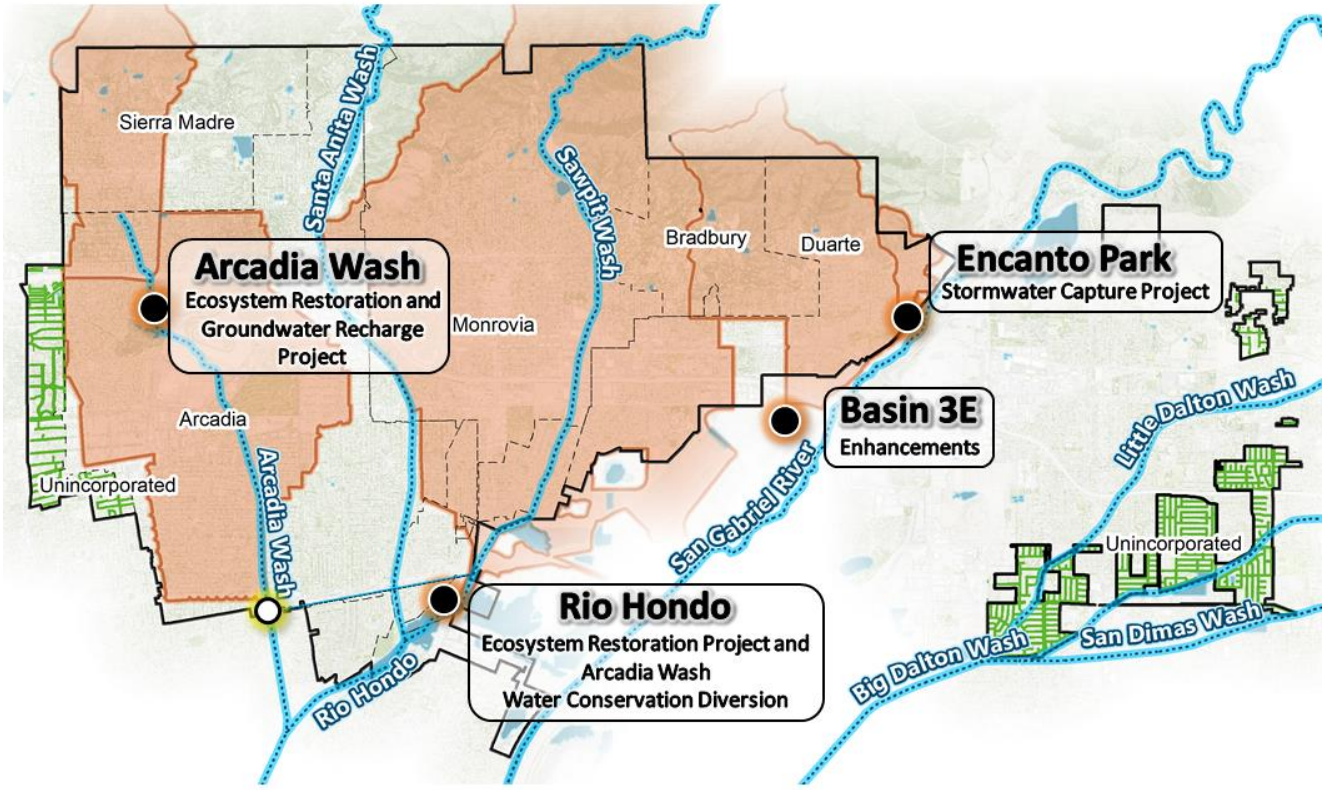


Figure 1. Regional BMP and Potential Green Street Locations

2.1 INDIVIDUAL SITE CONDITIONS

A brief overview of the existing site conditions for each regional BMP location as well as its drainage map can be found in the following sections. A full description and analysis of each individual site is included in its respective appendix section.

2.1.1 Arcadia Arboretum Natural Treatment and Groundwater Recharge Project

The Los Angeles Arboretum and Botanical Garden is located in the City of Arcadia, within a 1,633-acre watershed (***Figure 2***) which drains through the upstream storm drain system to Arcadia Wash then directly into the Rio Hondo Tributary. See ***Figure 3*** for an existing site conditions map.

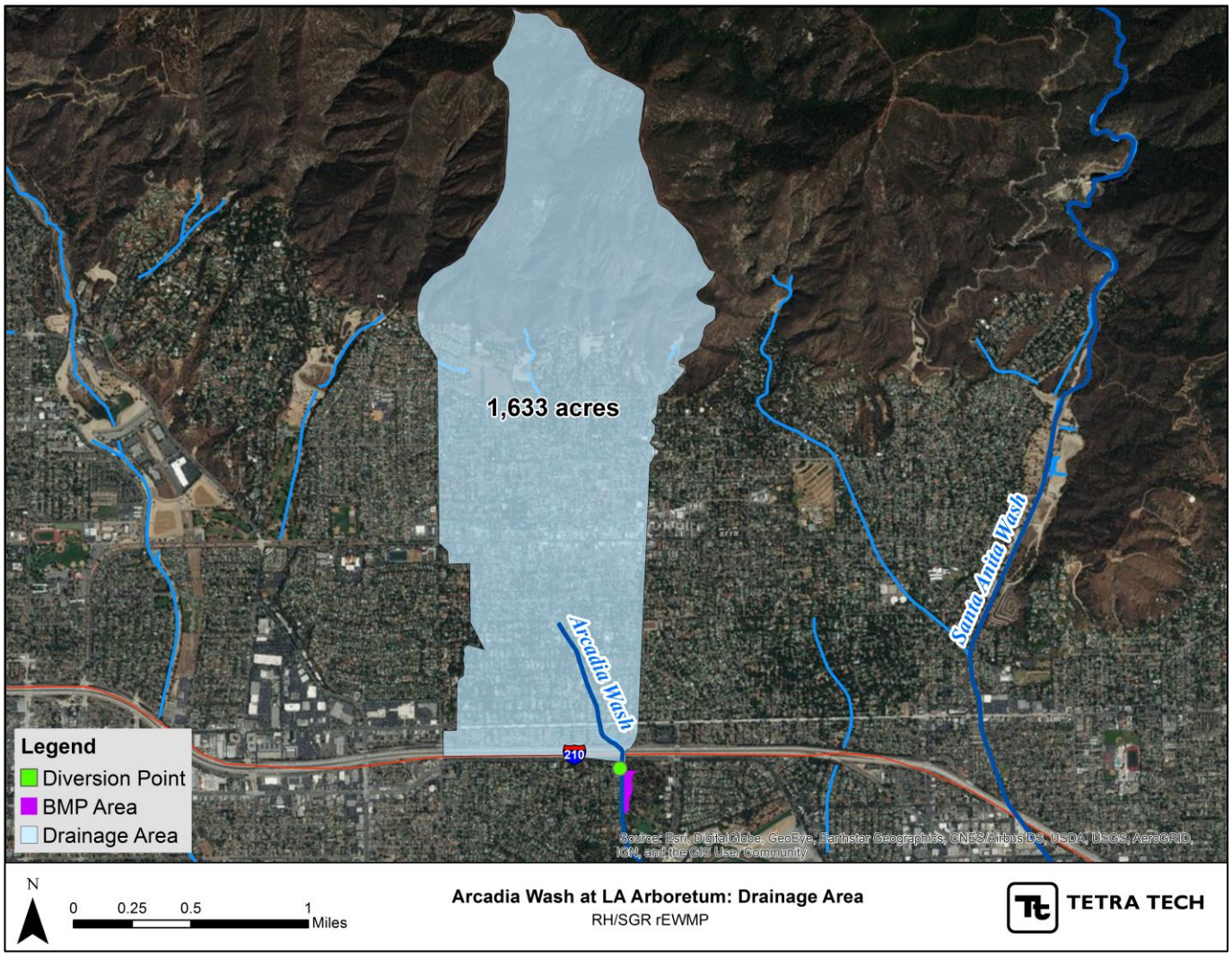


Figure 2. Arcadia Wash Arboretum Natural Treatment and Groundwater Recharge Project Drainage Area and Location Map

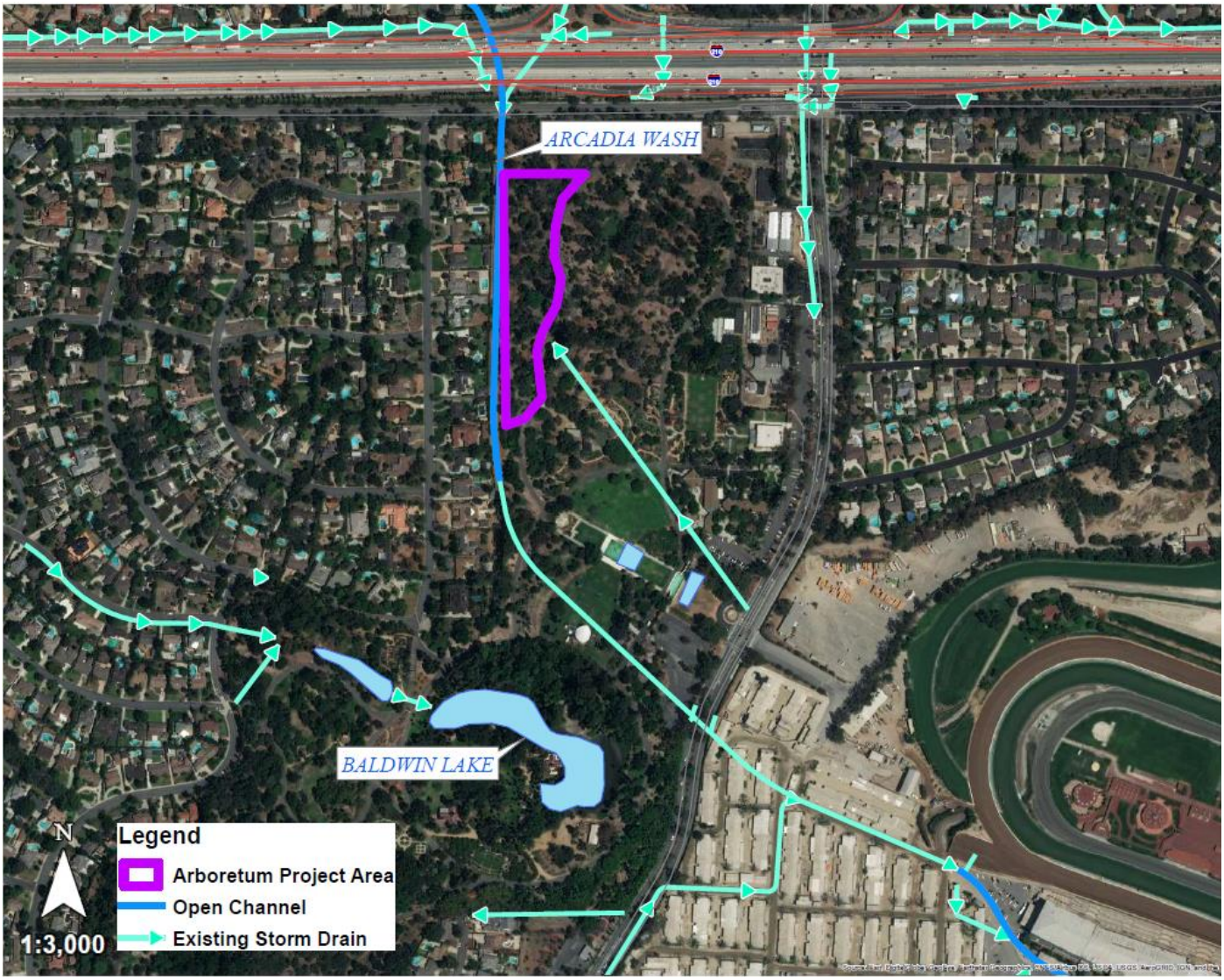


Figure 3. Arcadia Arboretum Natural Treatment and Groundwater Recharge Project Existing Conditions

2.1.2 Rio Hondo Ecosystem Restoration Project and Arcadia Wash Water Conservation Diversion

Phase 1

The Arcadia Wash Water Conservation Diversion Project is located in the City of Arcadia, within a 5,085-acre watershed (***Figure 4***), that drains water through the upstream storm drain system to Arcadia Wash. Arcadia drains directly into the Rio Hondo Tributary south of Peck Lake. See ***Figure 5*** for an existing site conditions map.

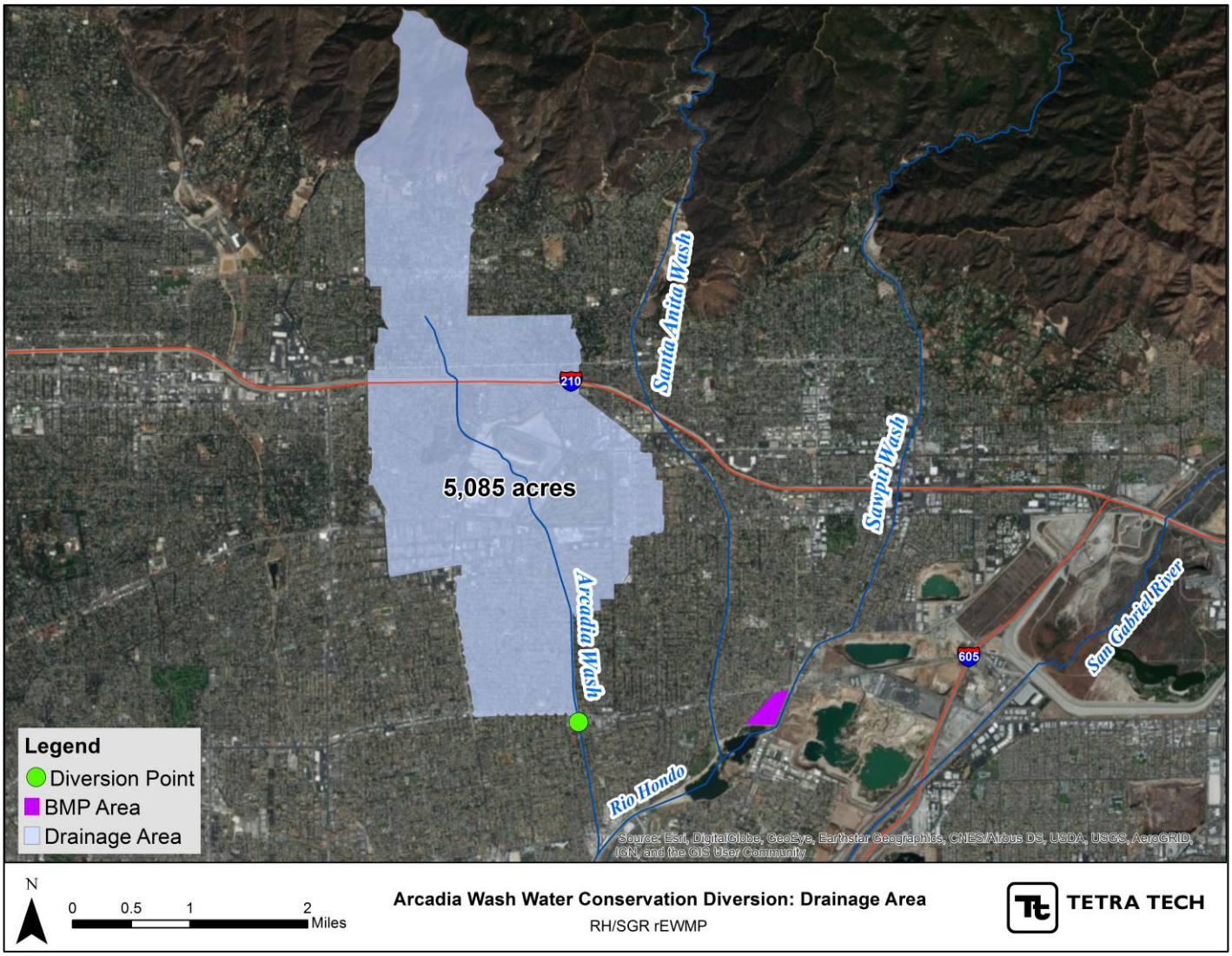


Figure 4. Arcadia Wash Water Conservation Diversion Drainage Area and Location Map

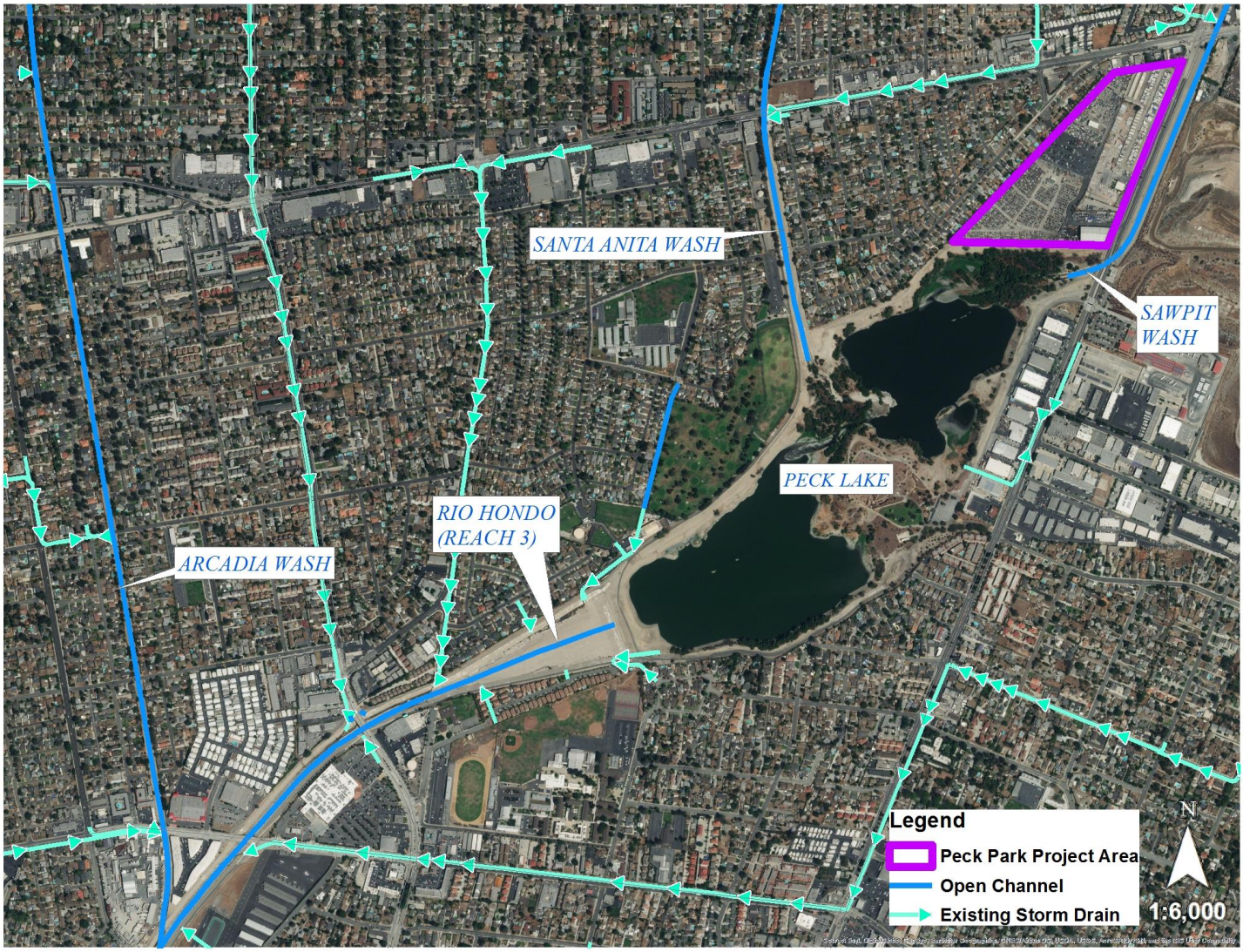


Figure 5. Arcadia Wash Existing Conditions Map

Phase 2

The Rio Hondo Ecosystem Restoration Project is located in the southern portion of the cities of Arcadia and Monrovia, within a 10,692-acre watershed (***Figure 6***), which drains through the upstream storm drain system to Sawpit Wash. Sawpit Wash is a tributary to Peck Lake and the downstream Rio Hondo Tributary. See ***Figure 7*** for an existing site conditions map.

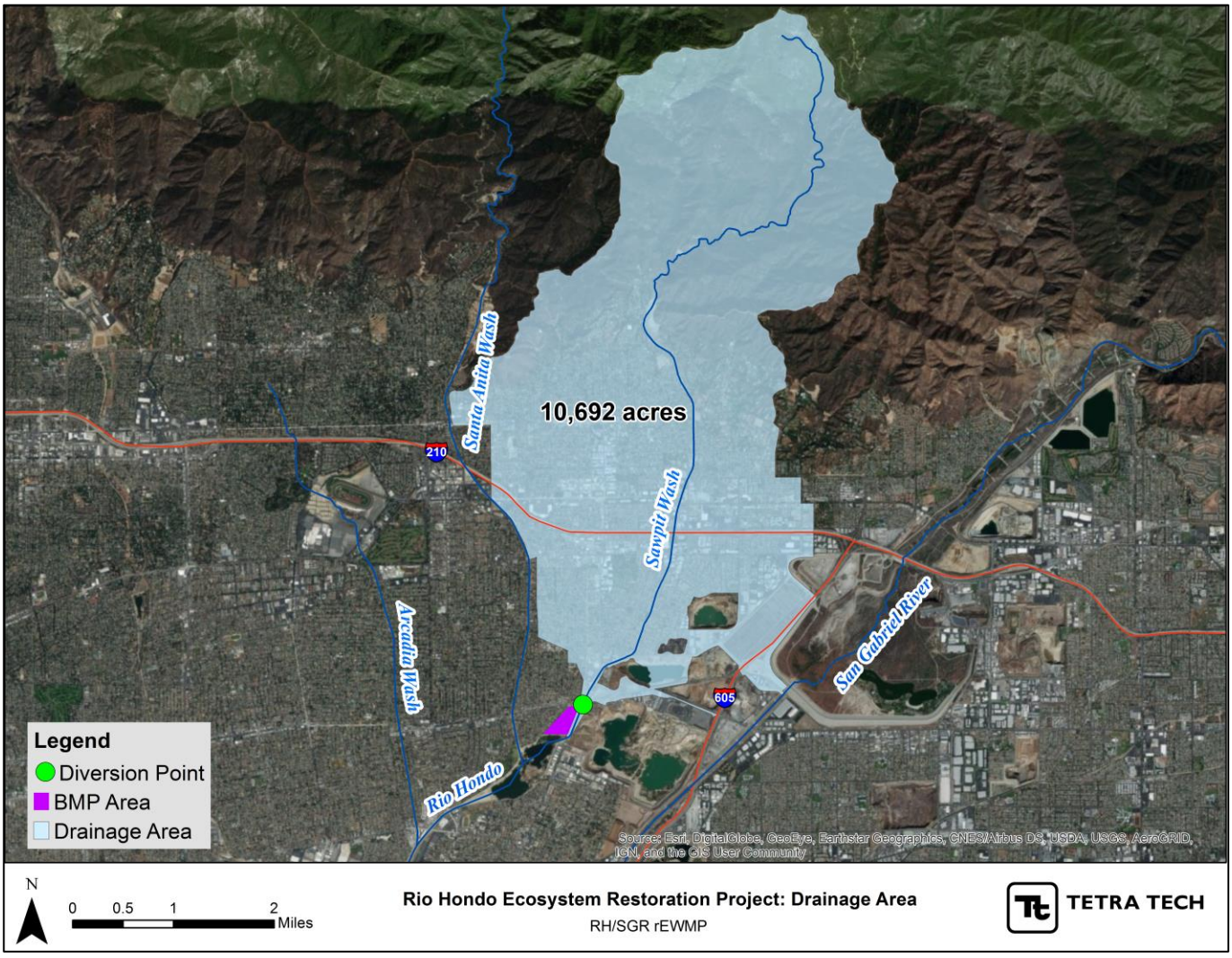


Figure 6. Rio Hondo Ecosystem Restoration Project Drainage Area and Location Map

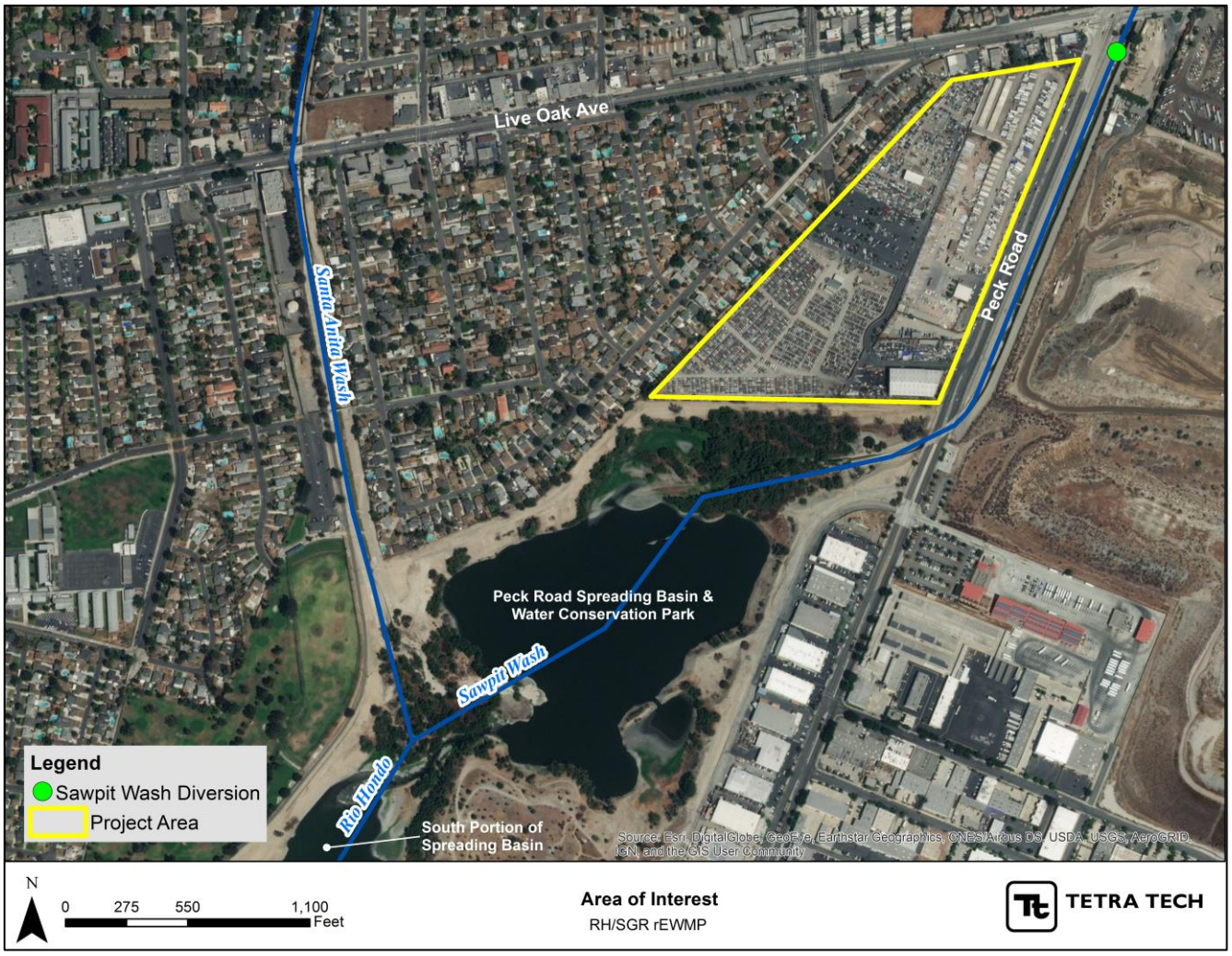


Figure 7. Rio Hondo Ecosystem Restoration Project Existing Site Conditions

2.1.2.2 Improvement Plans by Others

There are current improvement plans for a Clark Street Pump Station and Pipeline at the Peck Road Water Conservation Park by LA County Department of Public Works. These plans include construction of a pressurized pipe to pump water from residential and industrial properties east of Peck Road starting at Durfee Ave. This pipe will discharge flows to the Peck Road Water Conservation Park, therefore part of the construction plan is to dredge the existing basin near the Santa Anita Wash Outfall. Dredging efforts by others could benefit the feasibility of the Rio Hondo Ecosystem Restoration Project by increasing the capacity of the basin. An additional project is being proposed for sediment removal and construction of a pump station, pipeline, and outlet structure. The proposed pump station at Peck Road Spreading Basin would convey stored water to the San Gabriel River between the Santa Fe Dam Outlet and the 10 freeway, because there are higher infiltration rates in the San Gabriel River. The sediment removal efforts are focused on removing build-up at the outlet of Santa Anita Wash, which would allow the pump station to convey water from both basins at Peck Road.

2.1.3 Encanto Park Stormwater Capture Project

Encanto Park is located in the City of Duarte, within a 180-acre watershed (***Figure 8***), that drains through the upstream storm drain system directly into the San Gabriel River. See ***Figure 9*** below for an existing site conditions map.

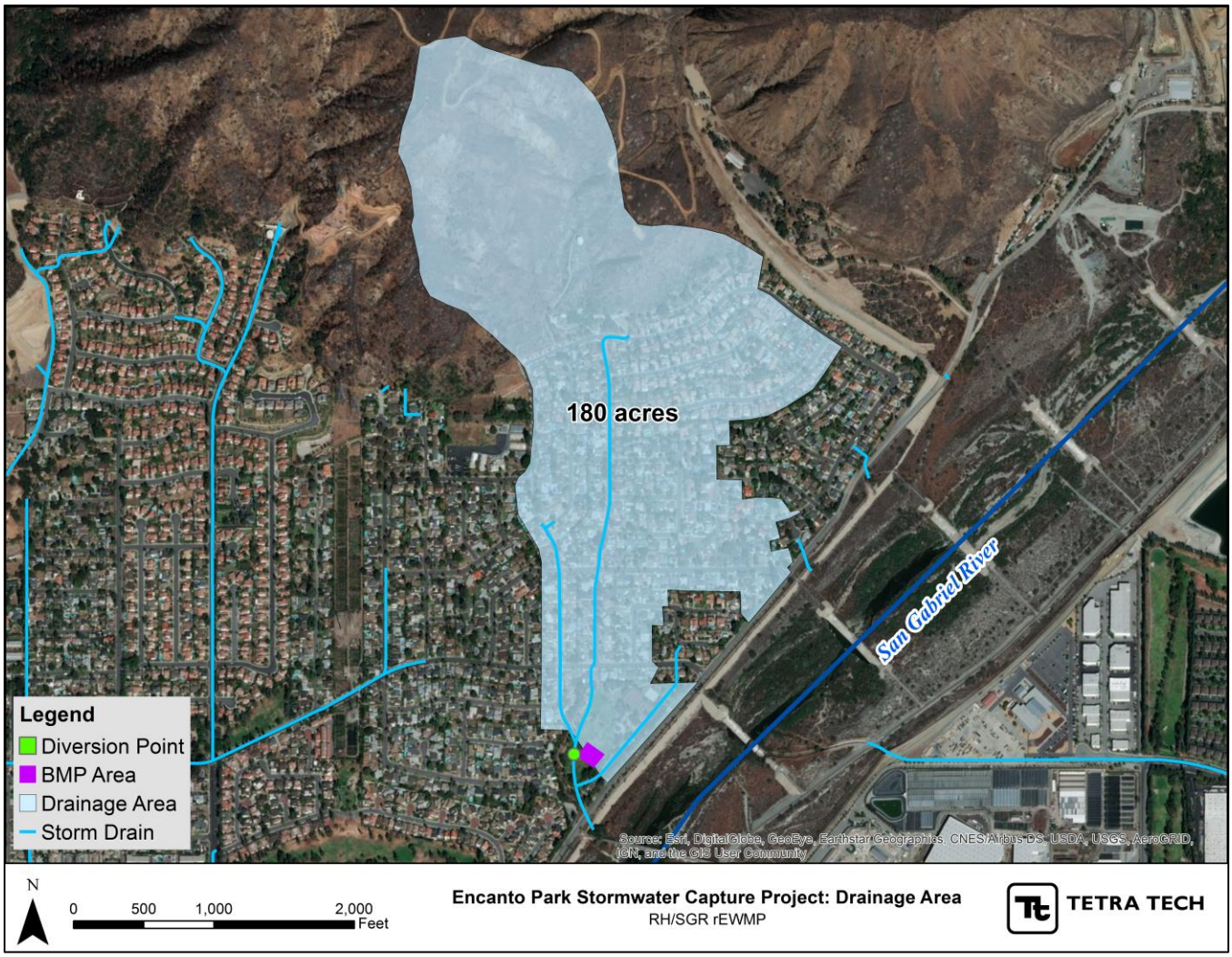


Figure 8. Encanto Park Stormwater Capture Project Existing Site Conditions

Figure 9. Encanto Park Existing Conditions Map

2.1.4 Basin 3E Enhancements at Santa Fe Spreading Grounds Project

Basin 3E is located at the Santa Fe Spreading Grounds, within a 2,137-acre watershed (***Figure 10***), which drains areas of Bradbury and Duarte through the upstream storm drain system to the San Gabriel River. See ***Figure 11*** below for an existing site conditions map.

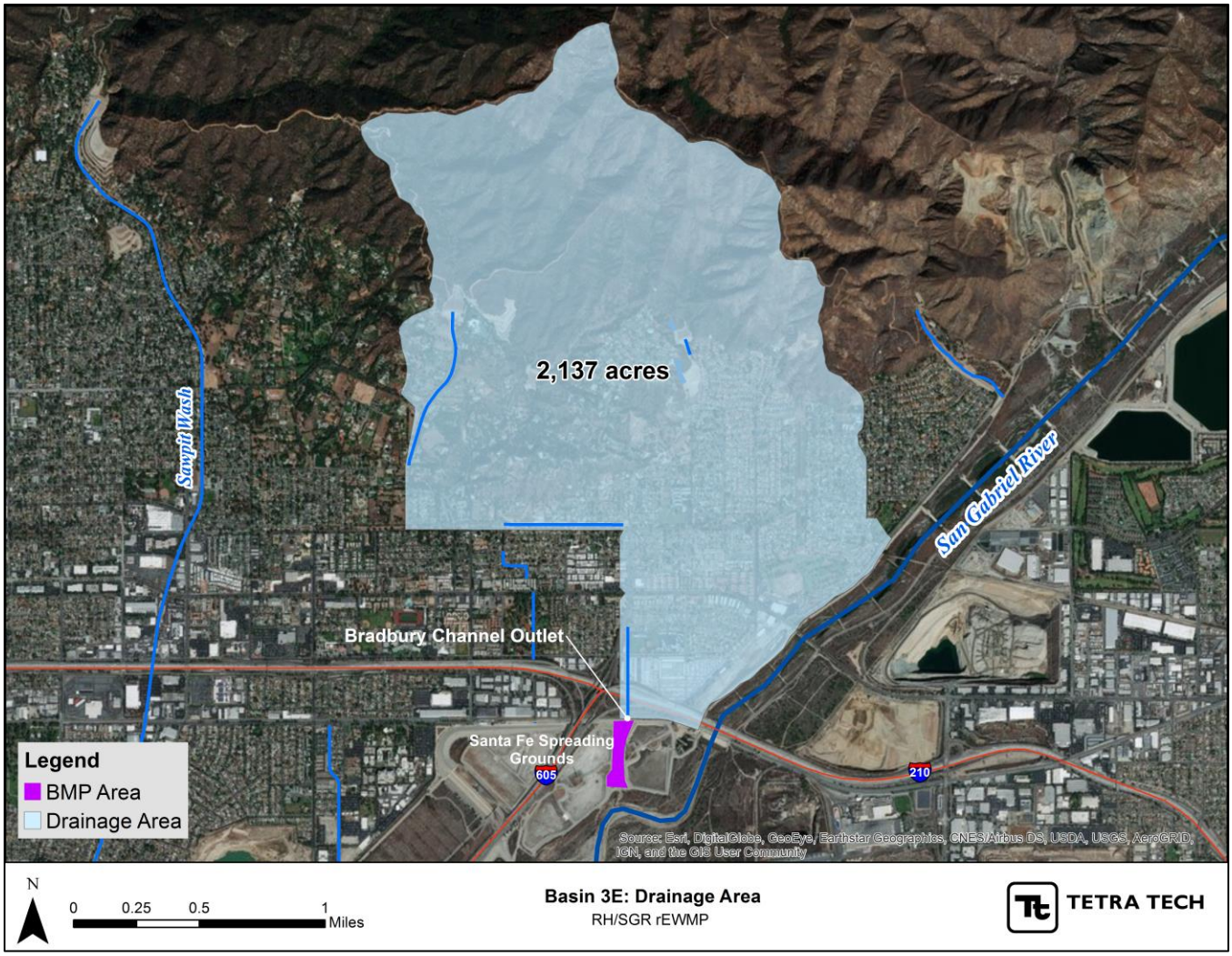


Figure 10. Basin 3E Drainage Area and Location Map

Figure 11. Basin 3E Enhancements at Santa Fe Spreading Grounds Existing Site Conditions

3.0 WATER QUALITY ANALYSIS

The water quality analysis was modeled for three compliance points, one at the downstream end of each of the tributary drainage areas. See ***Figure 12*** below for the compliance locations used in the water quality modeling. The revised analysis added a compliance point along the San Gabriel River, and moved the Big Dalton Wash compliance point downstream to account for the additional Little Dalton and San Dimas Wash tributary area. Loading Simulation Program in C++ (LSPC), which integrates GIS and Access, were utilized for this project. For a more detailed summary on the water quality modeling assumptions please refer to Attachment C. The following sections detail the steps taken to optimize the size of the recommended BMP.

3.1 DRAINAGE AREA DELINEATION

Drainage area delineation for Rio Hondo, the San Gabriel River, and Big Dalton Wash watershed was performed in ArcGIS using shapefiles from the LA County GIS portal. Drainage areas were refined for each regional project by using elevation data and the tributary storm drain pipes conveying flows within the watershed.

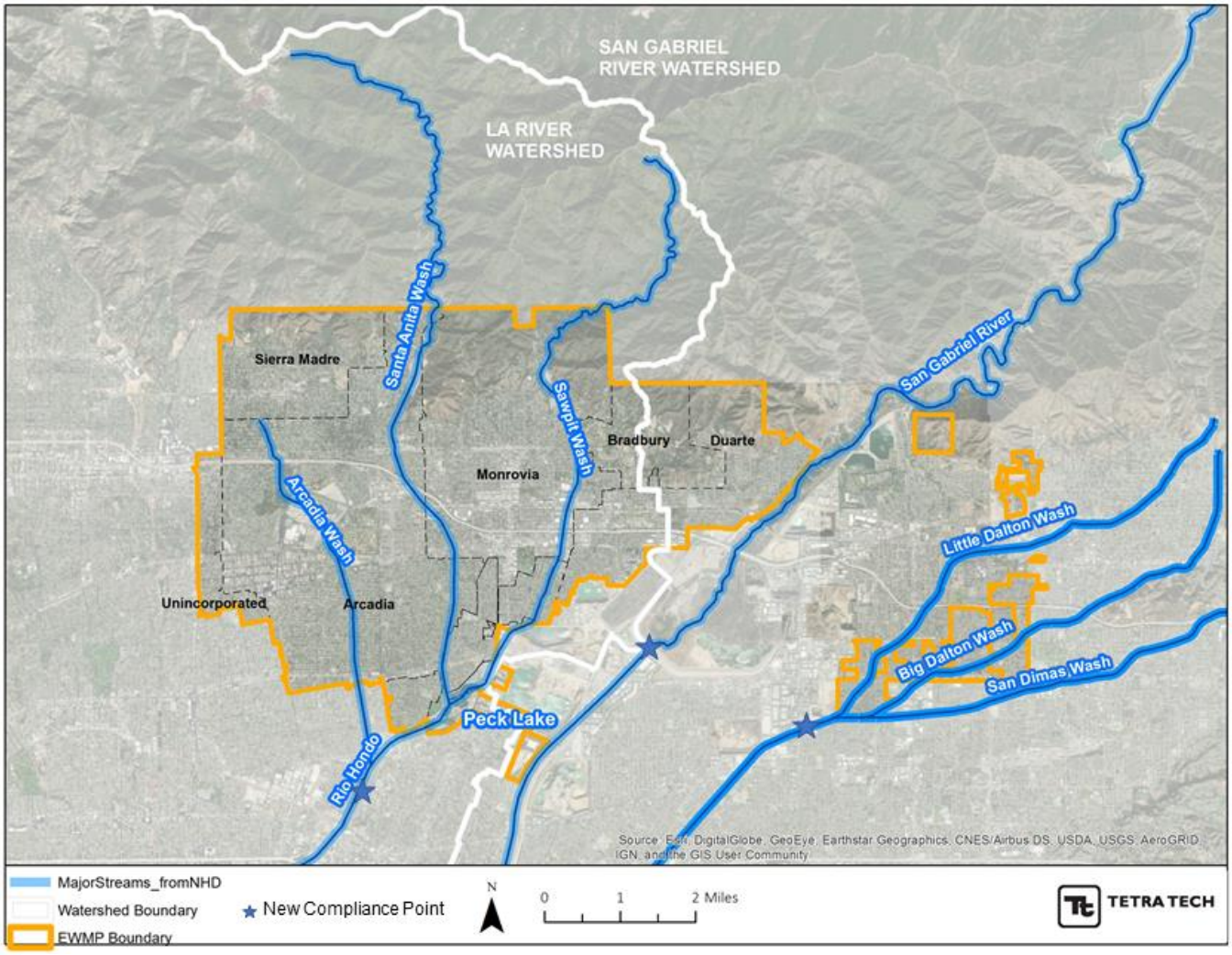


Figure 12. Water Quality Compliance Points

3.1.1 Rio Hondo Drainage

This watershed has a 31,344-acre drainage area. The rWMP drainage area within the Rio Hondo Watershed is 15,870 acres. The Arcadia Arboretum Natural Treatment and Groundwater Recharge Project, the Rio Hondo Ecosystem Restoration Project, and the Arcadia Wash Water Conservation Diversion have drainage areas that tributary to the Rio Hondo.

3.1.2 San Gabriel River Drainage

The San Gabriel River drainage area starts in the hills of the San Gabriel Mountains, traveling downstream through urbanized city. This watershed drainage area delineated to 153,282 acres. The rWMP drainage area within the Rio Hondo Watershed is 2,198 acres. The Encanto Park Stormwater Capture Project and the Basin 3E Enhancements at Santa Fe Spreading Grounds Project have drainage areas that are tributary to the San Gabriel River.

3.1.3 Big Dalton Wash Drainage

Big Dalton Wash drainage area runs through the eastern side of the WMP boundary, and has a watershed area of 24,237 acres. This drainage area is mostly within the City of Azusa jurisdiction, with other areas of unincorporated county. As discussed in the revised RAA, the City of Azusa has opted to remove itself from the WMP group and pursue other compliance measures. As such, there are no proposed regional BMPs diverting water from Big Dalton Wash. The rWMP drainage area within the Big Dalton Wash watershed is 1,348 acres. The pollutant load reduction required by the analysis of this drainage area will be accounted for by other compliance measures such as green streets which have been analyzed herein.

3.1.4 Eaton Wash Drainage

A small portion of the western rWMP drainage area drains west to Eaton Wash. The rWMP drainage area tributary to the Eaton Wash watershed is 829 acres. The pollutant load reduction required by the analysis of this drainage area will be accounted for by other compliance measures such as green streets which have been analyzed herein.

3.2 OPTIMIZATION MODELING

For this study, the Los Angeles County Watershed Management Modeling System (WMMS) was used within the LSPC to simulate contaminant loading, runoff volume, and other baseline hydrology parameters. A more detailed description on the watershed modeling methodology and results that informed this feasibility study can be found in the revised Reasonable Assurance Analysis (RAA) in Attachment C of the rWMP. The results from the revised RAA recommended using the critical water year as the critical condition for compliance, which was 2003 for the Rio Hondo. The limiting priority pollutant used in the water quality analysis based on the existing conditions was zinc.

The optimum BMP footprint and diversion rate was determined for each BMP site based on the long-term average annual zinc reduction, simulated using the EPA System for Urban Stormwater Treatment and Analysis Integration (SUSTAIN) model. To optimize the selection and placement of BMPs, SUSTAIN iteratively runs different combinations of BMP properties, varied within a specified range, to generate a cost-effectiveness curve. These curves show the additional load reductions from potential multi-benefit regional project configurations, beyond that already achieved from redevelopment projects and MCMs. The recommended BMP sizes and diversion rates to BMPs are based on the most cost-effective scenario.

The annual critical condition for load reduction requirements was determined by comparing the average rainfall within a ten-year period (2002-2011) that was closest to the 90th percentile average rainfall. The runoff treated by the BMP was then simulated using the critical water year (determined for the Rio Hondo Watershed as 2003 and

the San Gabriel River Watershed as 2004). Configurations of the multi-benefit regional projects are discussed in the optimization results for the Rio Hondo and San Gabriel River. Since the BMP optimization for each watershed is based on all tributary BMPs, the achieved load reduction and cost presented are contingent upon implementing all projects for each watershed (i.e., project performance is interdependent because the BMPs are in a treatment train).

3.2.1 Rio Hondo Optimization Results

As discussed in the RAA, the cost-effectiveness curve allowed for the selection of the optimum configurations which achieve the numeric targets for pollutant load reduction. The curves show the additional load reductions from potential multi-benefit regional project configurations, beyond that already achieved from redevelopment projects and MCMs. The lower the slope of the curve, the less additional load reduction achieved at the same incremental increase to the cost. Configurations of the multi-benefit regional projects which meet the required load reductions and exhibit the maximum performance for the given cost were reviewed and the recommended configuration and associated cost-effectiveness curve are shown in ***Figure 13*** and ***Table 2***.

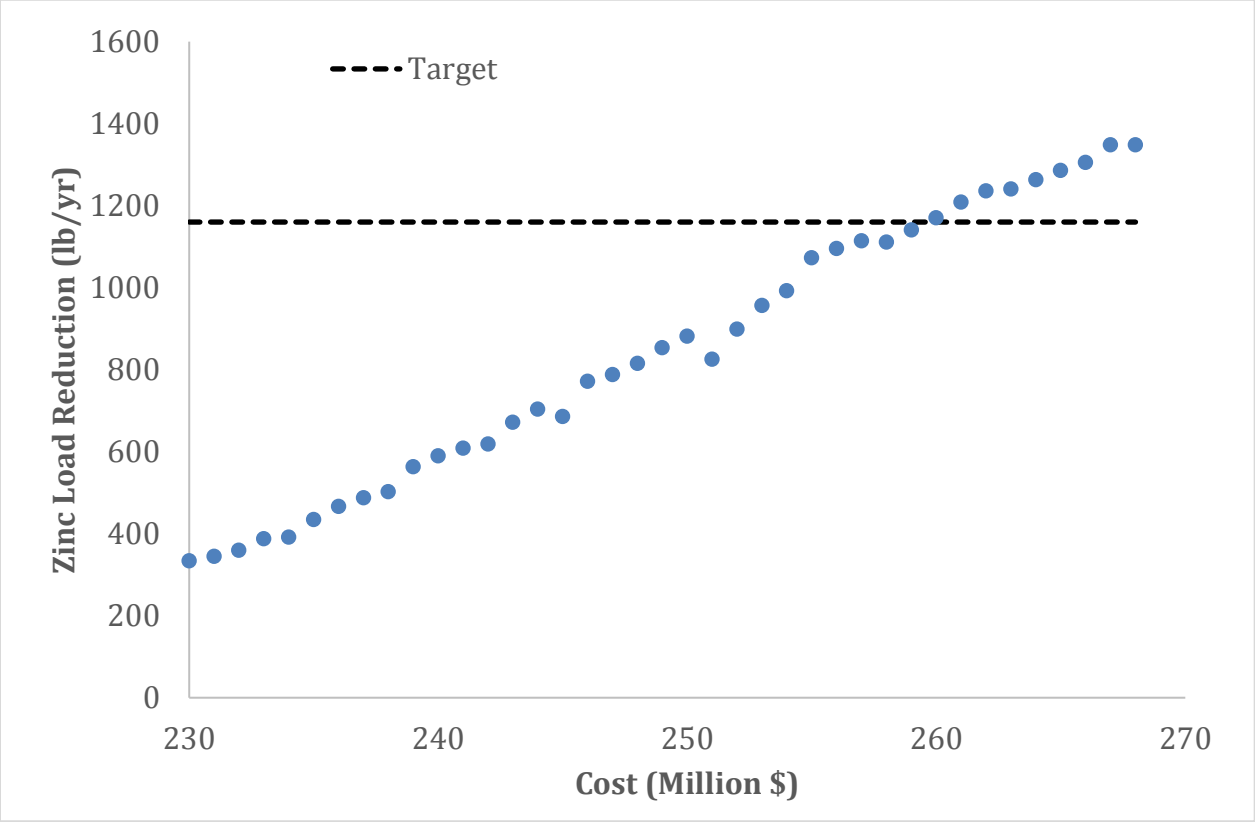


Figure 13. Cost-Effectiveness Curve for Regional Projects within the Rio Hondo Drainage Area (note that modeled costs are relative – see engineering cost estimated in each appendix).

Table 2. Rio Hondo Regional BMP Optimization Results

Parameter	Arboretum Wetland Pond	Arboretum Recharge Pond (each side)[1]	Rio Hondo Wetland
Length (feet)	500	500	2400
Width (feet)	50	30	150
Height (feet)	2.5	3	4
Diversion Rate (cfs)	30	N/A	185 (Sawpit Wash) + 37 (Arcadia Wash)
Load Reduction[2] (lb/yr)	854.0 (22.3%)		

Notes:

1. *The concept layout has a wetland pond in the center, with a recharge pond on both sides of the wetland pond.*

2. *Existing Wet Days Zn Load for the Rio Hondo was 3,822 lbs/yr.*

3.2.2 San Gabriel River Optimization

The same method of analyzing the cost-effectiveness curve and allowing that to guide the optimization parameters was complete for the San Gabriel River. A summary of results from the optimization analysis can be found in ***Figure 14*** and ***Table 3*** below.

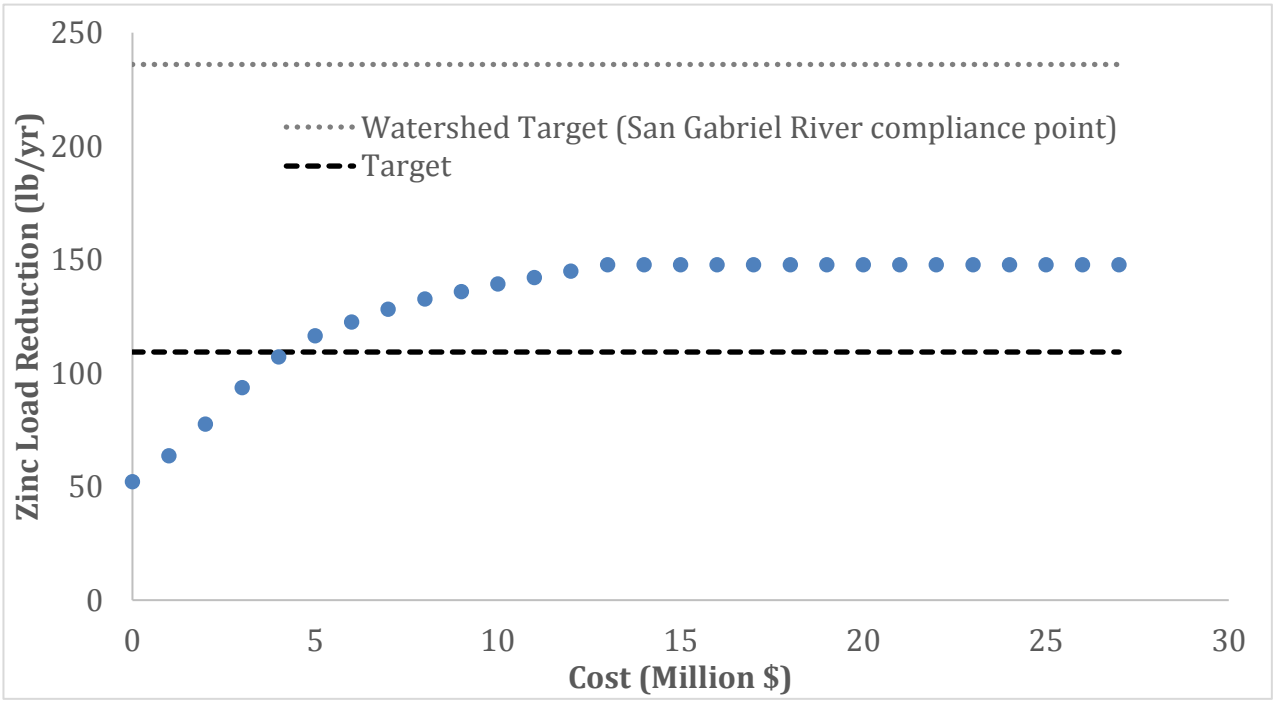


Figure 14. Cost-Effectiveness Curve for Regional Projects within the San Gabriel River Drainage Area (note that modeled costs are relative – see engineering cost estimated in each appendix).

Table 3. San Gabriel River Regional BMP Optimization Results

Parameter	Encanto Underground Storage	Basin 3E Detention Basin
Length (feet)	75	550
Width (feet)	150	180
Height (feet)	5	5
Diversion Rate (cfs)	3	N/A
Load Reduction[1] (lb/yr)	64.3 (7.5%)	

Note:

1. *Existing Wet Days Zn Load for the San Gabriel River was 852 lbs/yr.*

3.2.3 Big Dalton Wash and Eaton Wash

No regional BMPs were evaluated for these areas. Distributed green infrastructure is required to meet the required load reductions for Big Dalton Wash (BDW) and Eaton Wash (EW). An initial screening of potential green street opportunities was completed for the County of Los Angeles area within the BDW and EW drainage areas. Using the same optimization modeling many configurations were identified, varying the length of potential green street opportunities. In ***Table 4*** below is a summary of the green streets parameters required to meet the LA County required load reduction. Because the City of Azusa is no longer pursuing compliance measures with the WMP group, LA County area is the only jurisdiction within WMP boundary tributary to Big Dalton Wash. Please see the Revised RAA in Attachment C for further details. In addition, a Fact Sheet has been created to give general details about potential green infrastructure concepts and locations that might be feasible within the WMP boundary. This Fact Sheet can be found in Appendix B.5.

Table 4. Green Streets Summary

	Total Footprint (acres)	Total Length* (miles)	Cost, Including 20 Year O&M (Million $)	Load Reduction (lb/yr)	Treated Drainage Area (acres)
Big Dalton Wash	3.8	7.8	11.4	54.7 (3.7%)	674.7
Eaton Wash	5.2	10.7	15.8	59.5 (18.4%)	326.6

***Note:** Assumed 4' width.*

4.0 PROPOSED CONCEPTS

The proposed concepts were developed to address the pollutant load reduction required in the most efficient manner. By taking into consideration the tradeoff between cost and pollutant removal within the watershed based on the optimization, the individual sizing for each BMP was then determined. Within the appendix for each regional BMP, the follow parameters are discussed in detail:

1. Site Layout
2. Pretreatment Method
3. BMP Components and Benefits

4.1 ARCADIA ARBORETUM NATURAL TREATMENT AND GROUNDWATER RECHARGE PROJECT

The regional BMP system will divert runoff from Arcadia Wash to a sediment forebay for pretreatment, with flows then entering a wetland surrounded by two groundwater recharge ponds. This system will have a controlled outlet with pump station to convey up to 1 cfs of treated water through a meandering stream to Baldwin Lake. The site layout is provided in ***Figure 15***. A rendering show in ***Figure 16*** has also been created to give a conceptual picture of what the constructed wet and dry ponds could look like when full. The preliminary construction cost estimated for this project is $5,893,433. Additional project details including the site layout, project fact sheet, and detailed cost estimated can be found in Appendix 2.1 of this study.

Figure 15. Site Layout for Arcadia Arboretum Natural Treatment and Groundwater Recharge Project

Figure 16. Rendering of the Arboretum Wet and Dry Ponds in Wet Weather

4.1.1 Potential Constraints

One of the constraints in designing this BMP is the large amount of excavation required. To keep diversion costs lower and to simplify the system, it would be ideal for the diversion to be gravity fed. To accomplish that, the existing land would need 10 feet to 15 feet of excavation. Arcadia Wash is approximately 13 feet below the existing grade at the Arboretum, and even with the amount of ponding generated from the inflatable rubber dam it would require significant excavation. Excavation and hauling dirt can be costly measures.

Another constraint is the dry weather flow that is present in Acadia Wash. There needs to be enough dry weather flow to sustain the wetlands, while also allowing for a 1 cfs steady discharge to Baldwin Lake for sustainability. If dry weather flow is insufficient, then Baldwin Lake may not improve in condition. The use of gates between the sediment basin and the wetland/recharge ponds will aide in this constraint by allowing the flows to be contained first to the wetlands to sustain plant life, and second to the recharge ponds to benefit the groundwater basin.

4.2 RIO HONDO ECOSYSTEM RESTORATION PROJECT AND ARCADIA WASH WATER CONSERVATION DIVERSION

The concept for the Rio Hondo Ecosystem Restoration stormwater BMP and Arcadia Wash Water Conservation Diversion is split into two phases. These phases are discussed below.

4.2.1 Phase 1 – Arcadia Wash Water Conservation Diversion

Phase 1 of this Regional BMP System will focus on water conservation efforts for Arcadia Wash to recharge water into the San Gabriel Groundwater Basin. This phase will not only provide water conservation benefits by recharging flow from Arcadia Wash, but will also provide incidental water quality benefits to help meet the 50% milestone for the LA River Metals TMDL. Phase 1 of this project is primarily a water conservation project, and is considered an update to the baseline watershed model rather than a water quality BMP.

Runoff from Arcadia Wash will be diverted to a pretreatment device at the intersection of Live Oak Avenue and conveyed approximately 10,000 to the east to Sawpit Wash. The flows will be conveyed via gravity until passing Santa Anita Wash, at which point a pump station will be used to lift the flows for continued gravity flow to Sawpit Wash. See ***Figure 17*** for the Phase 1 site layout.

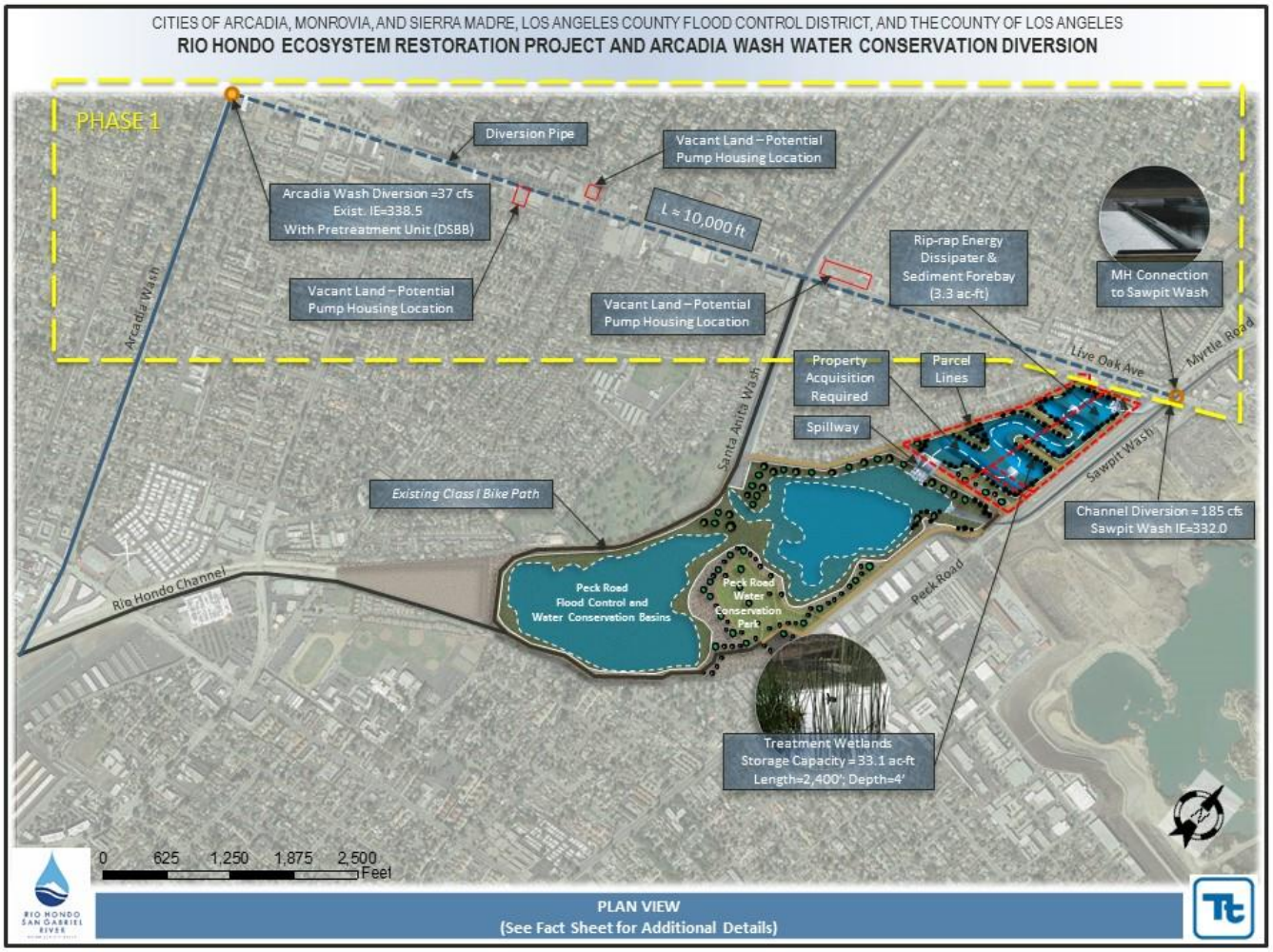


Figure 17. Phase 1 Site Layout – Arcadia Wash Water Conservation Diversion

4.2.2 Phase 2 – Rio Hondo Ecosystem Restoration Project

Phase 2 of this project is where the majority of the regional water quality benefits will be achieved. This phase combines the water conservation benefits from Phase 1 with the additional pollutant load reduction and habitat restoration benefits provided by a constructed wetland. This project will also provide a natural treatment system to the downstream spreading basin at Peck Park. A temporary inundation area adjacent to the wetland will allow for groundwater recharge as well.

Phase 2 of this project will divert runoff from Sawpit Wash (and the Phase 1 Arcadia wash flows) to convey stormwater flows to a sediment basin before entering an 8.3-acre constructed wetlands habitat with adjacent groundwater recharge basins prior to discharge into the Peck Road Water Conservation basins and to the downstream Rio Hondo Channel. See ***Figure 18*** for the Phase 2 site layout.

Figure 18. Phase 2 – Rio Hondo Ecosystem Restoration Project

4.2.4 Potential Constraints

One constraint for this BMP project would be the time and money needed to acquire the 24-acre piece of commercial land that is owned by various private businesses. Acquisition could cause delays in the design and construction process, which leads to an unknown timeline. Additionally, based on the desktop investigation on preliminary infiltration feasibility (Exhibit B.2.3 of Appendix B.2), the soils may be subject to liquefaction, which will not affect the infiltration capabilities, but the appropriate setbacks will need to be met for constructing near the surrounding houses to ensure no potential damage to their foundations. This constraint will not hinder the overall feasibility of the project, but a consideration for the design and construction phases.

4.3 ENCANTO PARK STORMWATER CAPTURE PROJECT

The regional BMP system will divert runoff from the existing 72-inch RCP LACFCD storm drain within a concrete diversion structure, into an 18-inch diameter pipe, from the storm drain to a pretreatment device. Flows from the pretreatment device will enter and underground infiltration gallery via gravity. The site layout is provided in ***Figure 19***. A rendering show in ***Figure 20*** has also been created to give a conceptual picture of what the subsurface structure will look like beneath Encanto Park.

Figure 19. Encanto Park Stormwater Capture Project Site Layout

Figure 20. Rendering of Proposed Subsurface Structure at Encanto Park

4.3.1 Potential Constraints

The Encanto Park project does not initially pose any major constraints. Due to its close proximity to the San Gabriel River, infiltration rates should be high. As is the case with the construction of any stormwater device planned underneath a park, there will be a season of construction which will leave the field of the park unusable. This will place a temporary hold on any sports leagues, planned community events, etc. that would typically take place there. A contingency plan would need to be put in place to temporarily relocate any activities until construction were complete.

4.4 BASIN 3E ENHANCEMENTS AT SANTA FE SPREADING GROUNDS PROJECT

The regional BMP system will enhance the existing flood control detention basin at the Santa Fe Spreading Grounds (SFSG) by constructing a sediment forebay with an energy dissipating mechanism for pretreatment. Flows from the sediment basin will spill over a concrete weir to a secondary basin where water will be filtered through a sand filter media with a geotextile bottom and perforated underdrains to convey treated flows to the San Gabriel River. There will be a second concrete weir with overflow that will drain into a smaller basin that will provide additional treatment as well as utilize the downstream portion of the basin that is not needed for the water quality sizing. The site layout is provided in ***Figure 21***. A rendering show in ***Figure 22*** has also been created to give a conceptual picture of what the Basin 3E enhancements would look like.

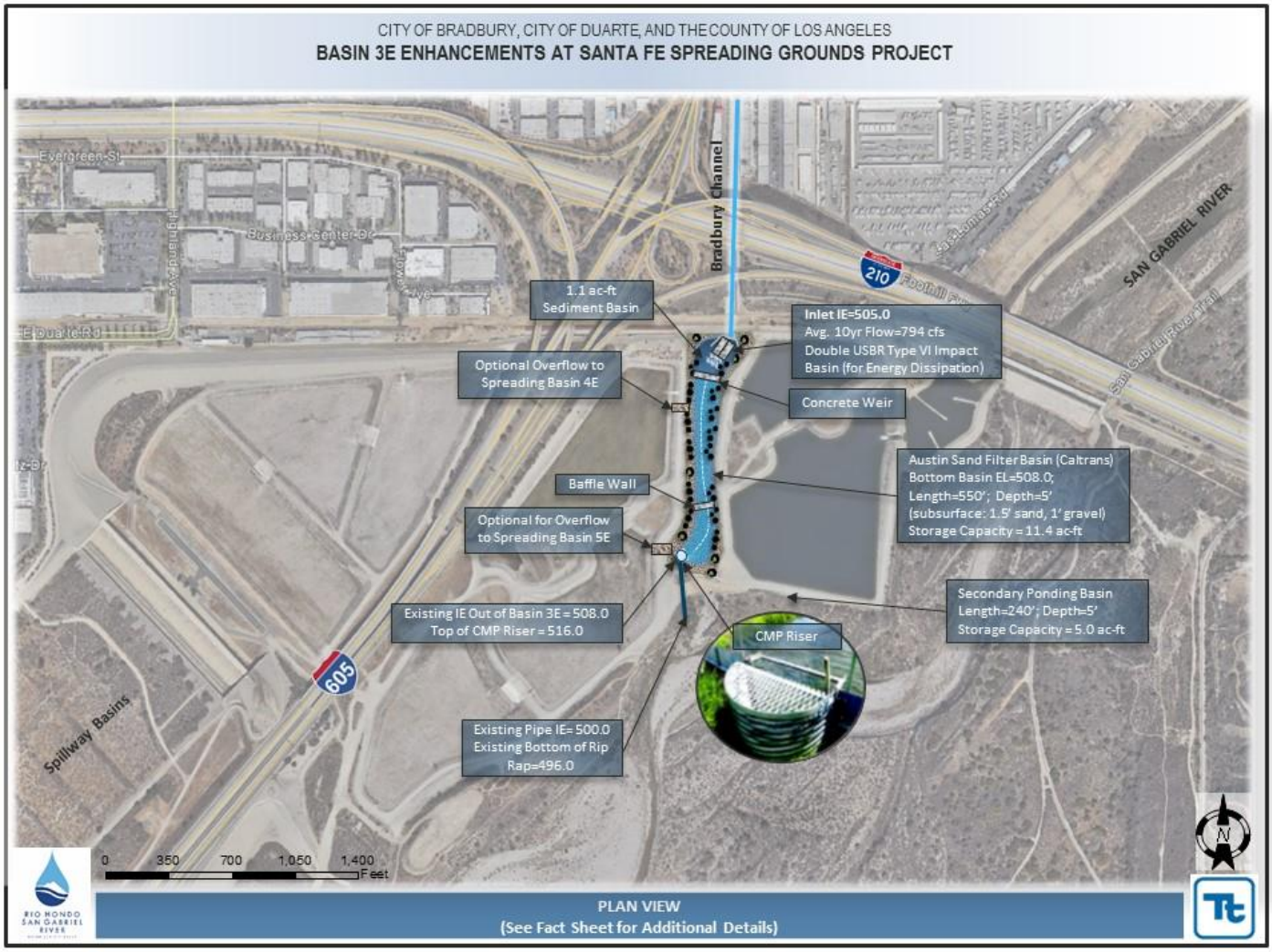


Figure 21. Basin 3E Enhancements at Santa Fe Spreading Grounds Site Layout

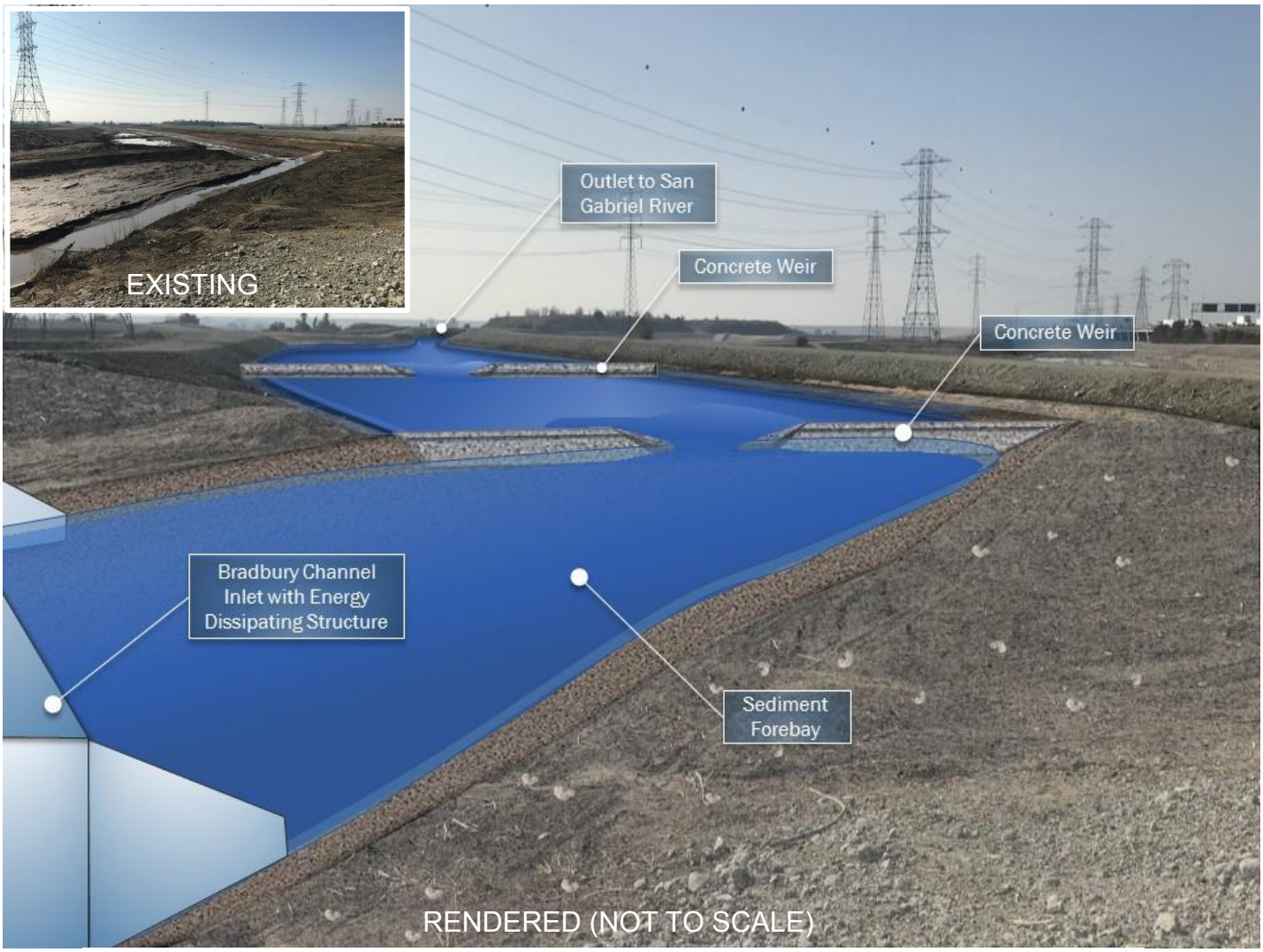


Figure 22. Rendering of Proposed Basin 3E Enhancements

4.4.2 Potential Constraints

Basin 3E is constrained by its size. It is currently surrounded by the Santa Fe Spreading Grounds as shown in ***Figure 23***. Keeping the side slopes within the allowable 3:1 maximum will constrain the amount of additional depth that can be gained in the basin. An additional constraint for this project would be funding. The spreading grounds are located on property owned by the US Army Corps of Engineers and operated by the Los Angeles County Flood Control District. Due to this, no recreational use can be pursued, which may limit the funding that would be available for this type of retrofit of an existing facility.

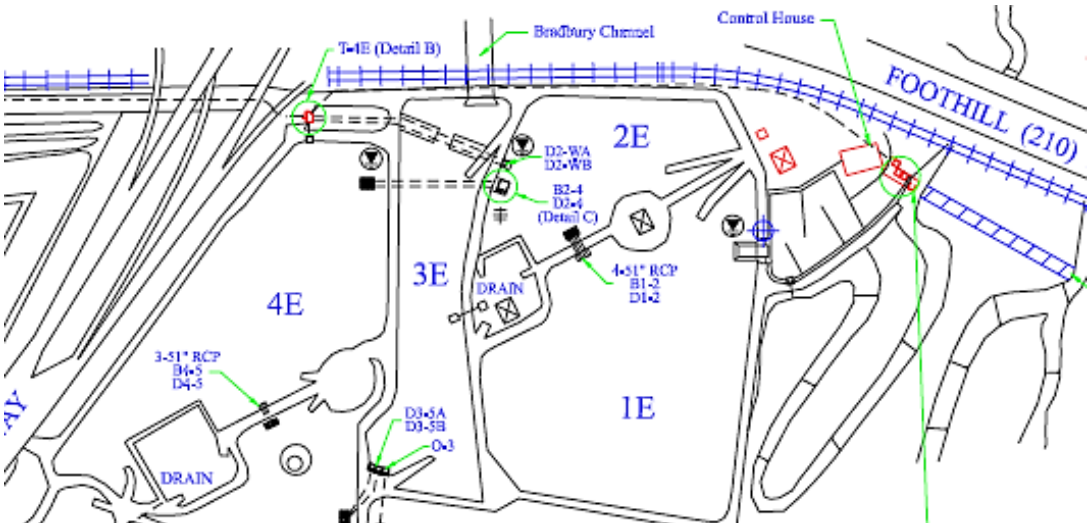


Figure 23. Santa Fe Spreading Grounds Adjacent to Basin 3E Schematic

5.0 LONG TERM MONITORING

The installation of a permanent monitoring system at each project site will include equipment that measures flow and water quality in both dry and wet seasons. The monitoring system will afford the RH/SGR WQG the ability to measure the effectiveness of the regional structural BMPs to infiltrate diverted flows and remove pollutants. Additionally, a permanent monitoring system will provide project performance data useful for adaptive management and sustained achievement of project performance goals. The monitoring plan includes collecting water quality samples at the inlet and outlet of each BMP to measure water quality improvement and ensure compliance. Additional monitoring equipment, including water level meters and soil moisture sensors are recommended to monitor and track the long-term performance of the regional structural BMPs. A continuous monitoring system can provide significant insight into the current and long-term performance of the BMPs. A water level logger at the surface of the soil media can collect data on the ponding depth and ultimately determine the infiltration rate at the surface. This data can be used to determine the performance throughout a rain event and demonstrate any decreases in performance from the start of the rain event to the end; an overall reduction in infiltration could indicate an impending maintenance need allowing staff to predict when maintenance will be required rather than reacting to a visual indicator. A soil moisture sensor strategically placed in the BMP could also indicate if the system is performing as designed and identify any potential performance limitations.

6.0 SCHEDULE AND COST ESTIMATES

The cost estimates and project schedule have been created to validate that the preliminary designs for each proposed BMP site may be built within the specified budget and within the time allocated to use the funds.

6.1 PROJECT SCHEDULE

A timeline for implementation of each regional structural BMP site has been estimated based on all the projects being implemented at the same time. Depending on the RH/SGR WQG's available funds and project preference, this timeline can be shifted for each project by changing the dates and keeping the working days the same and meeting the WMP milestone deadlines. A detailed schedule estimate is provided in each appendix, and a summary is provided in ***Table 5***.

Table 5. Project Schedule Summary

Regional BMP Site	Phase 1		Phase 2	
	Start	Finish	Start	Finish
Arcadia Arboretum Natural Treatment and Groundwater Recharge Project	1/11/2018	1/11/2028	-	-
Rio Hondo Ecosystem Restoration Project and Arcadia Wash Water Conservation Diversion	1/11/2021	1/11/2024	7/11/2023	1/11/2028
Encanto Park Stormwater Capture Project	9/30/2022	9/30/2026	-	-
Basin 3E Enhancements at Santa Fe Spreading Grounds Project	3/30/2019	9/30/2023	3/30/2019	9/30/2026

6.2 CONSTRUCTION COST

The construction costs associated with each concept entail various components of the projects that a Contractor would construct for the City. Construction costs do not include items of work not directly performed by the Contractor, such as a City's construction management during construction. The construction costs were developed using various source of cost information. Unit costs were based on Caltrans historical data and RSMeans cost data. All costs were approximately adjusted to 2018 dollars based respectively on the Caltrans Construction Cost Index and RSMeans Historical Cost Index. The estimated capital construction costs for the proposed BMPs are listed in ***Table 6***. Detailed cost estimates are included in each Appendix.

Table 6. Estimated Capital Construction Costs for Proposed BMP Sites

Regional BMP Site	Estimated Capital Construction Cost
Acadia Arboretum Natural Treatment and Groundwater Recharge Project	$5,893,433
Rio Hondo Ecosystem Restoration Project and Arcadia Wash Water Conservation Diversion	Phase 1 - $9,382,125; Phase 2 - $48,562,020 Total - $57,944,145
Encanto Park Stormwater Capture Project	$1,779,388
Basin 3E Enhancements at Santa Fe Spreading Grounds Project	$2,078,718
Total	**$67,695,684**

6.3 PROJECT IMPLEMENTATION COSTS

Project implementation costs include all the necessary items to provide a finished product. Costs include predesign, design, construction, construction management, and post construction work. The estimated project delivery costs for predesign, design, and construction management are based on a percentage of the construction costs. They typical breakdown is provided below in ***Table 7***. The full project costs of each project are included in their respective Appendix. A summary table is provided in ***Table 8*** for total project costs.

Table 7. Project Delivery Costs

Item Description	Percentage of Construction Costs
Feasibility Study	15%
Design	1.5%
Environmental Documentation and Permitting	1%
Construction Administration	10%

Table 8. Total Project Implementation Costs Summarized

Regional BMP Site	Construction Costs	Project Delivery Costs	Total Implementation Costs
Acadia Arboretum Natural Treatment and Groundwater Recharge Project	$5,893,433	$2,445,772	$8,339,205
Rio Hondo Ecosystem Restoration Project and Arcadia Wash Water Conservation Diversion	$57,944,145	$22,888,496	$80,832,641
Encanto Park Stormwater Capture Project	$1,779,388	$702,864	$2,482,252
Basin 3E Enhancements at Santa Fe Spreading Grounds Project	$2,078,718	$821,107	$2,899,825
		TOTAL	**$94,553,923**

6.4 OPERATIONS AND MAINTENACE COSTS

The operations and maintenance cost estimates were developed on the basis that a service contractor would maintain the various components of the system. Operation of the system during wet weather and dry weather events will be managed by the City/County. Operations of the diversion structure will incorporate coordination and notifications to the LACFCD to ensure that there will be no effect to the flood control conveyance system operation. The operation and maintenance costs for each site vary depending on the design components involved. A detailed table with annual estimated operation and maintenance activities and associates costs are provided in each appendix.

7.0 REGULATORY AND PERMITTING EVALUATION

Consultation with regulatory agencies and acquisition of permits is required before the project components can be constructed. The following sections summarize regulatory permits and approvals relevant to the RH/SGR rWMP projects.

7.1 REGIONAL WATER QUALITY CONTROL BOARD, LOS ANGELES REGION (NPDES PERMIT NO. CAS004001)

On November 8, 2012, the Los Angeles Regional Water Quality Control Board adopted the Los Angeles County National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit (Order No. R4-2012-0175, NPDES No. CAS00904001) for municipal stormwater and urban runoff discharges within the County of Los Angeles. The permit was issued to the LACFCD, the County of Los Angeles, and 84 incorporated cities within the coastal watersheds of Los Angeles County (with the exception of the City of Long Beach).

In compliance with the Los Angeles County NPDES MS4 Permit (Order No. R4-2012-0175), the RH/SGR WQG developed an EWMP to address water quality priorities by completing a comprehensive stormwater management plan that optimizes pollutant reduction and financial resources. In response to an error found in the EWMP RAA, a rWMP was developed to accurately assess and address the priority pollutants and determine a plan for implementation of enhanced MCMs, redevelopment LIDs, green streets, and multi-benefit regional projects.

7.2 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Construction activities in the South Coast Air Basin are subject to South Coast Air Quality Management District's (SCAQMD) Rule 403. Rule 403 sets requirements to regulate operations, which periodically may cause fugitive dust emissions into the atmosphere by requiring actions to prevent, reduce, or mitigate fugitive dust emissions.

All construction in the South Coast Air Basin must incorporate best available control measures (BACT) included in Table 1 of Rule 403. Additionally, large operations (defined as active operations on 50 acres or more), or projects with daily earth-moving or throughput volume of 3,850 cubic meters or more, three times during the most recent 365-day period, are further required to submit a large operation notification, identify a certified dust control supervisor, implement measures from Tables 2 and 3 of Rule 403, and maintain daily records.

7.3 LOS ANGELES COUNTY FLOOD CONTROL DISTRICT

The LACFCD is responsible for managing flood risk and conserving stormwater for groundwater recharge. The LACFCD system also provides control of debris, collection of surface stormwater from streets, and replenishes groundwater with stormwater and imported and recycled waters. The LACFCD covers the 2,753 square-mile portion of Los Angeles County south of the east-west projection of Avenue S, excluding Catalina Island. It is a special district governed by the County of Los Angeles Board of Supervisors, and its functions are carried out by the Los Angeles County Department of Public Works.

In order to continue to fulfill these responsibilities and maintain the existing level of service, any proposed construction within the LACFCD right-of-way requires approval from the LACFCD. Coordination with the Los Angeles County Department of Public Works staff, who act also on behalf of the LACFCD, will be critical in the development of this project.

The following describes the potential approval requirements from the LACFCD.

Flood Control Permit - A Flood Control Permit is required to ensure that a proposed use does not interfere with the LACFCD's operation and maintenance responsibilities. The following activities would require a Flood Control Permit:

- New Flood Control or Water Conservation Facility Construction
- Modifications to Existing Facilities
- BMP Installation for Water Quality Improvements

Use or Maintenance Agreement - However, depending on the scope, timeframe, and/or perpetual maintenance requirements of the proposed activity, the LACFCD may also require the project proponent to enter into a use or

maintenance agreement. If the LACFCD has fee ownership, then the LACFCD is the sole owner of the land. If LACFCD only has easement rights, the project proponent will be conditioned to obtain permission from the underlying fee owner before start of work.

7.4 US ARMY CORPS OF ENGINEERS (USACE) SECTION 408 PERMIT

The Civil Works program by the USACE serves to provide the nation with quality and responsive management of the Nation's water resources. For other agencies/jurisdictions that may need to alter a Civil Works Program project and their associated lands, a Section 408 Permit is required. The USACE Section 408 Permit was created to ensure that these projects continue to provide their intended benefits to the public. Improvements or alterations to these projects are subject to the approval of USACE.

7.5 CEQA/NEPA

Compliance with the California Environmental Quality Act (CEQA) would be required. A governmental agency is required to comply with CEQA procedures when the agency proposes to carry out or approve the activity/project. CEQA considers a "project" to be the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment. The preparation of an Initial Study (IS) is typically the first step for projects determined not to be exempt from CEQA requirements. Initial Studies allow decision-makers the opportunity to review a proposed project and to make an environmental determination recommending the follow-on CEQA document. Initial Studies consider all phases of project planning, implementation, and operation and utilize the CEQA Guidelines IS Checklist form that covers 17 environmental resources topics. If the IS identifies that there is no substantial evidence that the project may have a significant impact on the environment (without or with mitigation) then a Negative Declaration or Mitigated Negative Declaration may be prepared. In the unlikely event that the IS identifies that the project may have a significant impact on the environment, then an Environmental Impact Report (EIR) is prepared. A description of investigations that may be required are included below.

Compliance with the National Environmental Policy Act (NEPA) would be required if there is a federal nexus (such as federal funding) and would need to comply with the implementing procedures of the applicable federal agency.

7.5.1 Historical Resources

The Historical Resources assessment will investigate the occurrence of historically significant areas within the vicinity of a proposed project site, namely sites listed on or eligible for designation by the California Register of Historical Resources (CRHR). A resource should be considered a historical resource if it has previously been identified as significant in a historical resources survey.

If a Lead Agency is unsure about a resource, they should consider hiring a professional historian or archeologist who meets the Secretary of the Interior Standards Professional Qualifications for History, Architectural History, or Archeology. However, CEQA ultimately delegates final authority to the Lead Agency to determine if a resource is historically significant or not (CEQA Case Studies).

Similar projects within recent years to the submission of this report have identified historical wheat farms from the 1870s and shipper centers from the 1920s, which had no official historical designations.

7.5.2 Archaeological Resources

Investigations by institutions such as The Native American Heritage Commission's search of the Sacred Lands Inventory will likely be required for full compliance. Further assessments for isolated artifacts or stream or topographical formations may also indicate the presence of subsurface prehistoric archaeological resources during excavation.

7.5.3 Paleontological Resources

Paleontological records may be assessed for records of known vertebrate fossils within the proposed project areas, as well as within older, sedimentary deposits.

7.5.4 Burial Sites

An investigation of known burial sites will occur prior to construction. In the event that an unknown burial site or human remains are found during excavation, mitigation should be implemented so that potential impacts remain at a less than significant level.

7.6 LOCAL PERMITS

Each city where the project is constructed may require building and grading permits. Traffic control will play an integral role during the trenching activities for the storm drains and discharge lines as well as the hauling of export from the project during the excavation phase of the project.

8.0 CONCLUSION AND RECOMMENDATIONS

The proposed stormwater BMPs have been developed to address the water quality objectives of the revised RAA for the RH/SGR WMP, while taking into consideration the most cost-effective way to achieve regional benefit. While regional projects provide a more efficient way to achieve water quality goals, not all targets can be met by the proposed regional BMPs. As such, green streets are also recommended as a compliance measure to meet the pollutant reduction required for Big Dalton Wash and Eaton Wash.

A summary of the recommended green streets required as well as each proposed regional BMP to meet the pollutant reduction requirements are included in ***Table 9*** and ***Table 10***. See the exhibits at the end of Appendix B.1 through B.4 for regional project Preliminary Capital Construction Cost Estimates, Project Concept Layouts, and the Project Fact Sheets. The Green Street Fact Sheets can be found in Appendix B.5.

Table 9. Regional BMP Project Summary Table

Parameter	RH Regional BMP			SGR Regional BMP	
	Arboretum Wetland Pond	Arboretum Recharge Pond (each side)	Rio Hondo Wetland	Encanto Underground Storage	Basin 3E Detention Basin
Length (feet)	500	500	2400	75	550
Width (feet)	50	30	150	150	180
Height (feet)	2.5	3	4	5	5
Diversion Rate (cfs)	30	N/A	185 (Sawpit Wash) + 37 (Arcadia Wash)	3	N/A
Cost ($)	$89,171,846			$5,382,077	
Load Reduction (lb/yr)	854.0 (22.3%)			64.3 (7.5%)	

Table 10. Green Street Recommendation Summary Table

	Total Footprint (acres)	Total Length* (miles)	Cost, Including 20 Year O&M (Million $)	Load Reduction (lb/yr)	Treated Drainage Area (acres)
Big Dalton Wash	3.8	7.8	11.4	54.7 (3.7%)	674.7
Eaton Wash	5.2	10.7	15.8	59.5 (18.4%)	326.6

***Note:** Assumed 4' width.*

These project concepts are preliminary in nature based on available as-builts and water quality analysis; therefore, additional investigations are required to further develop the proposed project concepts. The following are the recommended studies that are required prior to moving forward towards the design phase of the projects.

- Geotechnical investigations, consisting of soil borings and infiltration testing, are required to determine the subsurface soil profile, depth to groundwater, and infiltration rates.
- Hydrology and hydraulic analyses for all applicable storm drain and channel diversions to appropriately design the sizing required for each diversion structure and pipes.

9.0 REFERENCES

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APPENDIX B.1 ARCADIA ARBORETUM NATURAL TREATMENT AND GROUNDWATER RECHARGE PROJECT EVALUATION

APPENDIX B.2 RIO HONDO ECOSYSTEM RESTORATION PROJECT AND ARCADIA WASH WATER CONSERVATION DIVERSION EVALUATION

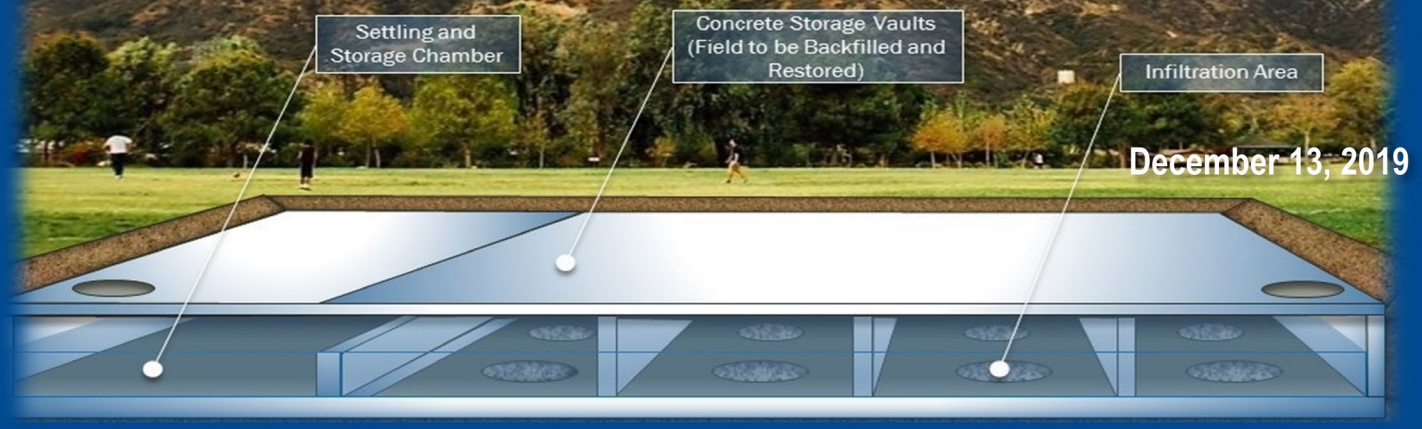
APPENDIX B.3 ENCANTO PARK STORMWATER CAPTURE PROJECT EVALUATION

APPENDIX B.4 BASIN 3E ENHANCEMENTS AT SANTA FE SPREADING GROUNDS PROJECT EVALUATION

APPENDIX B.5 POTENTIAL GREEN STREET PROJECTS AND EXAMPLE CONFIGURATIONS AND DETAILS

Encanto Park

Encanto Park Stormwater Capture Project– Safe, Clean Water Program Assessment



December 13, 2019

City of Duarte – Encanto Park

City of Monrovia Public Works
415 South Ivy Avenue
Monrovia, CA 91016

ENCANTO PARK STORMWATER CAPTURE PROJECT

SAFE, CLEAN WATER PROGRAM ASSESSMENT

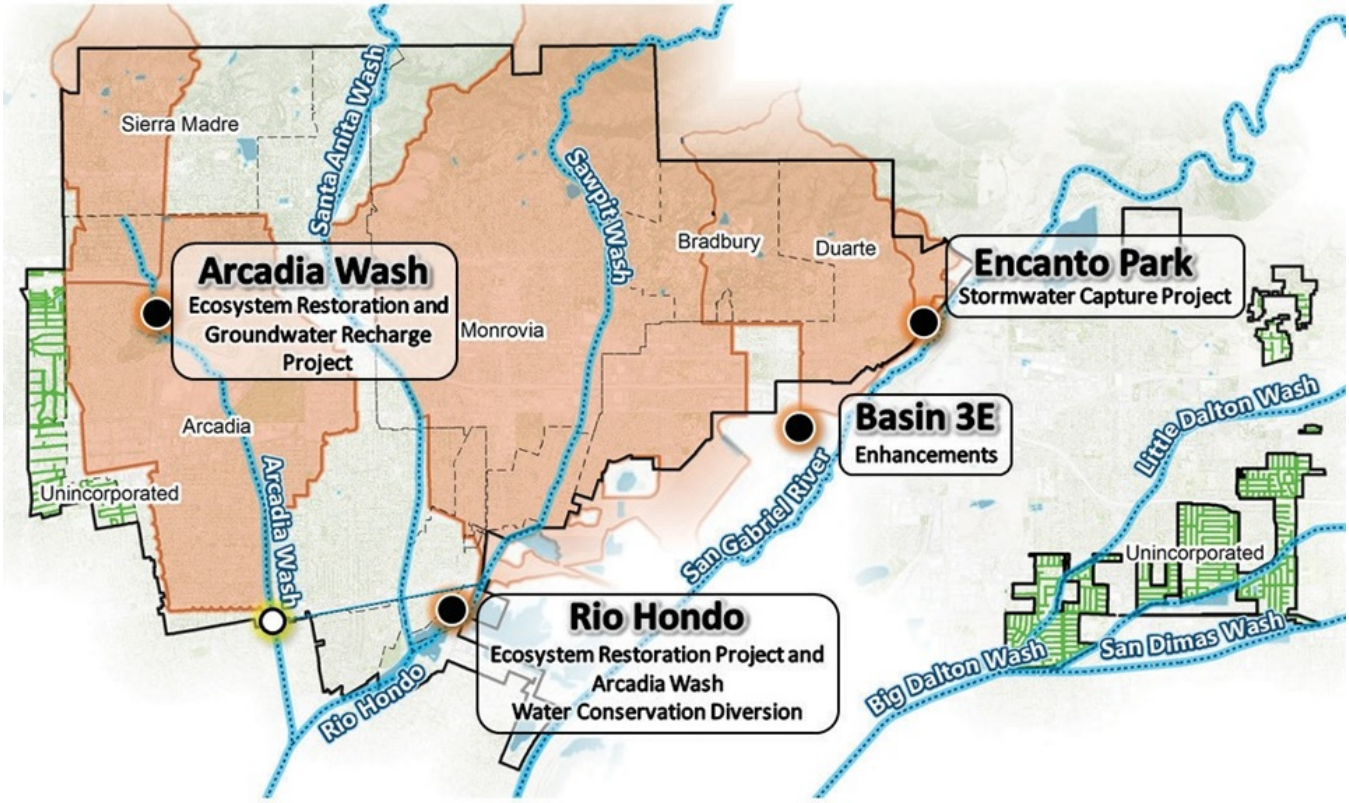
December 13, 2019
Revised February 5, 2020

PRESENTED BY

City of Monrovia Public Works on behalf of the Rio Hondo/San Gabriel River Water Quality Group
415 South Ivy Avenue
Monrovia, CA 91016

Overview

The following document provides technical support services to assist the Rio Hondo/San Gabriel River Water Quality Group and the City of Monrovia with the submitting the Encanto Park Stormwater Capture Project for funding under the Regional Infrastructure Program component under the Safe, Clean Water Program. This document summarizes statistics, justifications, and materials for input for the Encanto Park Project as needed for submittal to the Safe, Clean Water Program (SCWP) project scoring and funding consideration project portal. Specific inputs are presented in tabular form for direct submission to the SCWP portal with accompanying text where justification is necessary for submission. Where the contents of the Rio Hondo/San Gabriel River Watershed Management Program (2019) suffice as explanatory evidence, specific passages will be cited. This document represents the complete evidence that is needed for submission of this project to the SCWP internet portal for consideration for funding.



1.0 GENERAL INFORMATION

This section provides general information on the project including location and background.

1.1 OVERVIEW

Table 1-1 provides an overview of the project and the Project Developer(s):

Table 1-1: Project Overview

Project Name:	Encanto Park Stormwater Capture Project
Project Description:	This project proposes a storm drain diversion to intercept stormwater and convey it to a subsurface infiltration gallery underneath the existing park.
Call for Projects Year	FY20-21
SCW Watershed Area:	Upper San Gabriel River
Total Funding Requested:	$2,732,248
Project Weather Type:	Wet
Project Lead(s):	City of Monrovia
Additional Project Collaborators:	Rio Hondo /San Gabriel River Watershed Group
Is this a non-municipal project?	No

1.2 PROJECT LOCATION

Table 1-2 summarizes the project location. A site map and project location map can be found in Attachment A.

Table 1-2: Project Location

Latitude:	34.14409
Longitude:	-117.93771
Street Address:	751 Encanto Parkway
City:	Duarte
State:	CA
Zip Code:	91010
Disadvantage Community (DAC)	No

1.2.1 Disadvantaged Community Benefits

This project is not located in a Disadvantaged Community.

Figure 1. Map of site and ROW areas.

1.3 BACKGROUND

The following describes the historical background of the project from conceptualization to feasibility study.

1.3.1 Regulatory Context

The Rio Hondo /San Gabriel River watershed management area, consisting of the County of Los Angeles and the Cities, Arcadia, Bradbury, Duarte, Monrovia, and Sierra Madre, contains mostly residential area as well steep slopes from the San Gabriel Mountains. This watershed management area (19,416 acres) is comprised of three major drainage systems: Rio Hondo, San Gabriel River, and Big Dalton Wash. In 2018, the existing Enhanced Watershed Management Plan (EWMP) underwent revision and was subsequently accepted and approved unanimously in 2019 by the Los Angeles Regional Water Quality Control Board as the Watershed Management Plan (WMP). The Rio Hondo/San Gabriel River Water Quality Group (Water Quality Group) voluntarily developed the WMP in response to meaningful progress pursuing activities to improve water quality in the Rio Hondo and San Gabriel River watersheds.

The highest priority pollutant addressed by the WMP is metals, which based on the TMDL established by the Regional Board as well as an assessment of pollutant loadings at the compliance points selected for the WMP jurisdictions. The WMP analysis specifically identified zinc as the pollutant driving implementation of new pollutant source control and watershed control measures. The WMP evaluated the potential to meet the Rio Hondo /San Gabriel River WMP water quality compliance targets through the cumulative performance of several proposed regional BMPs, in addition to the contribution from enhanced Minimum control measures (MCMs) and non-structural distributed BMPs. This report focuses on one of these proposed regional BMPs, the Encanto Park Stormwater Capture Project.

This stormwater capture project is located at Encanto Park in the City of Duarte directly west of the San Gabriel River. Active use parks provide unique opportunities for multi-benefit regional projects because of the large available public space where a subsurface infiltration gallery can be constructed beneath an existing parking lot and/or recreational field and then restored back to the same, or better condition. Encanto Park has two large storm drainpipes that converge on the west side of the property before discharging to the San Gabriel River. This project proposes a storm drain diversion to intercept stormwater and convey it to a subsurface infiltration gallery beneath the parking lot that will reduce pollutant loading to the San Gabriel River. This project complements the green stormwater infrastructure already installed at Encanto Park. There is also a potential for onsite treatment and reuse of captured stormwater to offset the irrigation demand of the park if onsite monitoring reveals a sufficient supply of dry weather runoff.

1.3.2 Project Objectives

The Encanto Park Stormwater Capture Project objectives include:

- Primary
    - Improve the water quality of the San Gabriel River
    - Divert stormwater runoff to local groundwater aquifers via infiltration
    - Update/improve existing park surfaces and amenities
- Secondary
    - Educate the public on the local water supply and demands

The primary mechanisms by which the Project will achieve the primary objectives are through runoff/pollutant capture, treatment, infiltration, filtration, and release to the San Gabriel River.

1.3.3 Watershed Characterization

Encanto Park sits at the bottom of a 189-acre drainage area consisting of residential, institutional, industrial, and transportation land uses. Stormwater runoff is conveyed through the storm drain network to the storm drains at the project site. The drainage area encompasses City of Duarte and City of Azusa lands, providing benefit to multiple watershed partners. Table 1-3 provides a summary of the jurisdictional areas draining to the project site. The land use breakdown and impervious coverage information is contained in Section 2.2 of this report.

Table 1-3: Jurisdiction Summary

Jurisdiction	Area (acres)	% Watershed
Duarte	145	76.7
Azusa	44	23.3
TOTAL	189	100.0

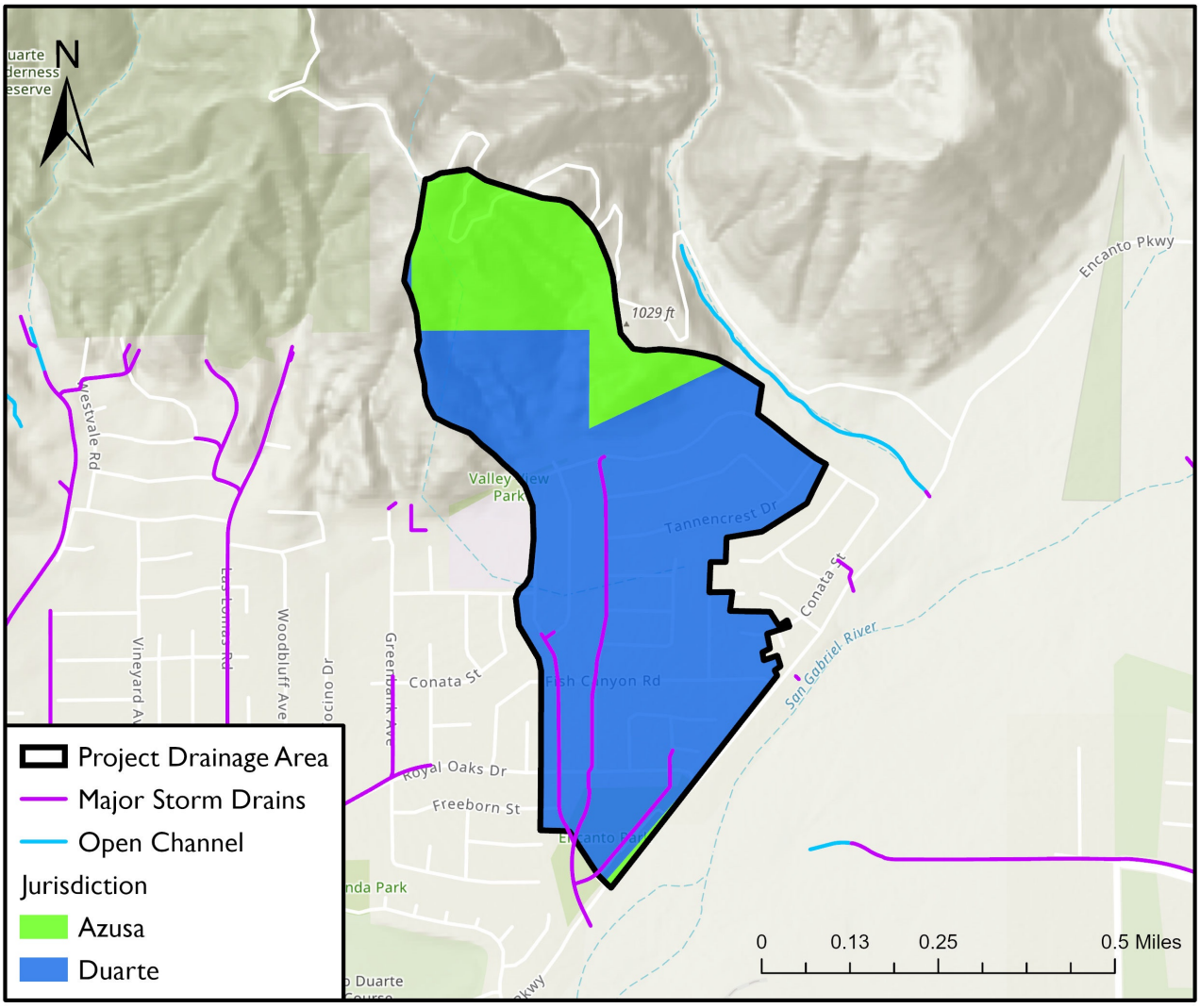


Figure 2. Drainage area jurisdiction boundaries for Encanto Park project.

2.0 DESIGN ELEMENTS

This section provides an overview of the project design details.

2.1 CONFIGURATION

Table 2-1 is a summary of the project configuration. Attachment B and C contains the plan view and preliminary profile views of the project configuration.

Table 2-1: Project Configuration Summary

BMP Type:		Treatment Facility
Ponding Depth:	Ft	5.0
Footprint Area	Ac	0.26

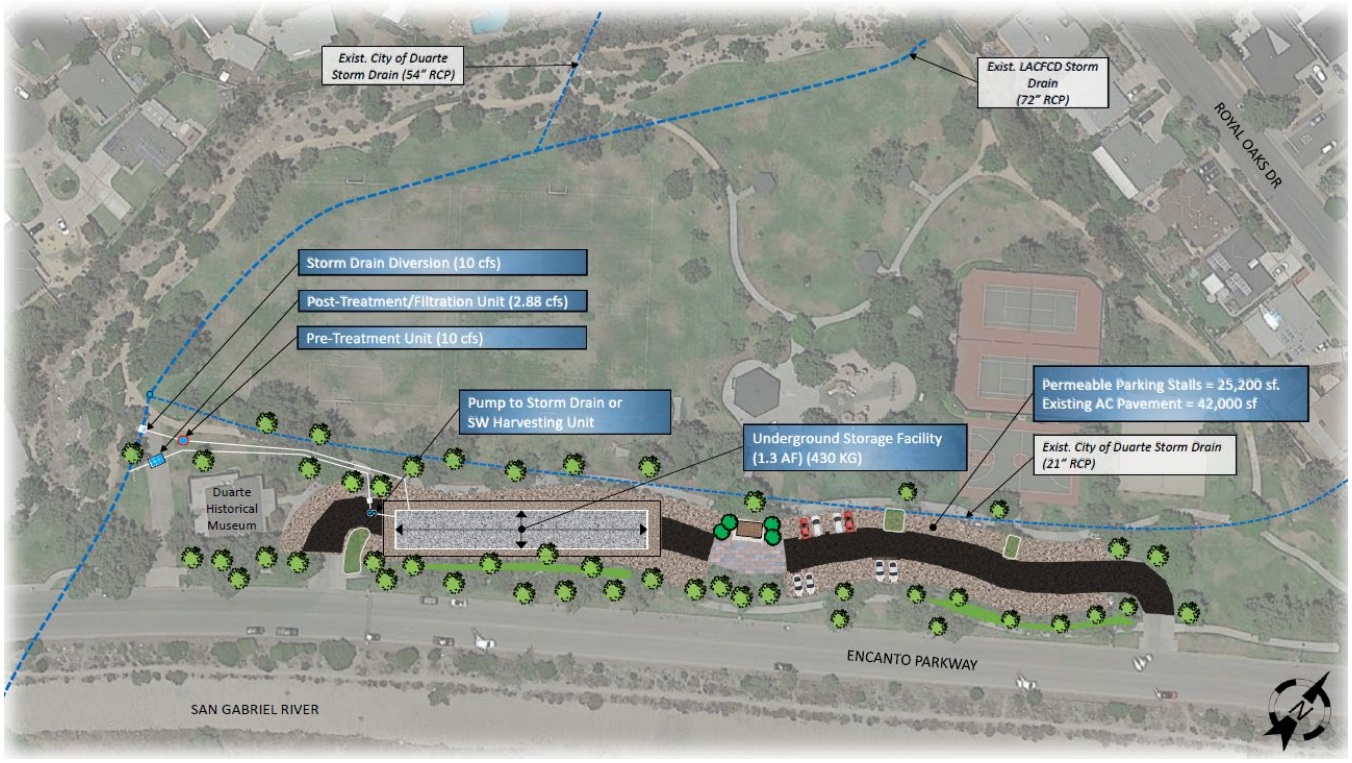


Figure 3. Conceptual layout configuration for Encanto Park project.

2.1.1 Diversion and Pretreatment

Information regarding the diversion and pretreatment system are discussed in Section 2.3 of this report.

2.1.2 Storage Component

Underground storage reservoirs provide stormwater detention and allow for implementation where surface space is limited or requires alternate uses. A 1.3 ac-ft storage reservoir is proposed for the Encanto Park with a storage depth of 5.0-feet, a freeboard depth of 1-foot, and a footprint of 0.26 acres.

The storage structure is proposed to be a precast concrete storage system made from durable, reinforced high-strength concrete. They are designed to withstand H-20 loading, allow for various depths of cover, and overcome any possible buoyant forces should groundwater be present.

2.1.3 Treatment and Discharge

The infiltration of water into the subsurface and eventual water table provide final pollutant removal. Additionally, a 2.88 cfs filtration system will be installed and operate during wet-weather events to provide additional treatment capacity within the proposed system. An emergency overflow connection serves as a redundant backup if the storage unit ever should require evacuation. A pump will lift the water from the storage tank and back to an elevation that matches the existing storm drain in the southwest area of the park. The estimated treatment rate for the Encanto Park is 3.08 cfs (based on recommended footprint and infiltration/filtration rate of 11.85 in/hr).

The filter system proposed is a cartridge system. Flow enters the filter where it is then provided sufficient contact time with the filter cartridges. The cartridges contain an opening size of 10 microns and can treat between 0.05 gallons per minute (gpm) to 1 gpm per square foot of cartridge surface area. Multiple cartridges are installed in a large concrete reservoir that can treat up to 2.88 cfs. Pollutants build up on the cartridge preventing migration back to the channel. The cartridges are cleaned and re-used provided an easy maintenance process.

In conjunction with the infiltration gallery, the project proposed to install an on-site irrigation treatment unit that will allow for the use of captured stormwater for park irrigation. Typical treatment involves a four-step filtration and sanitation process: (1) a mechanical filter that removes sediment and particulates greater than 50 microns, (2) a bag filter that removes any remaining particulates down to 5 microns, (3) an activated carbon filter to remove undesirable odors, colors, and dissolved solids, and (4) an ultraviolet (UV) treatment to remove bacteria. The treated water is then distributed to the irrigation system via pumps. A pump and irrigation system containment structure is proposed to be installed on-site. Discussion on the water demand and use is found in Section 4.0 of this report. A 1-cfs pump will also serve as the emergency outlet pump that can drain the system if needed.

2.1.4 Nature-Based Components

The parking lot will be reconfigured and rebuilt, and the parking stalls will be replaced with permeable pavement materials. This promotes infiltration of runoff into the subgrade and eventually to the groundwater table. The permeable pavement is sized to convey flow from the parking lot and roadways within the park.

2.1.5 Above Ground Improvements

The installation of the underground structure will require the removal and replacement of the existing parking lot. The project proposes to create a new parking lot that includes permeable parking stalls. Additional native trees, shrubs, and grasses will be installed at select spots impacted by the construction throughout the park.

2.2 CAPTURE AREA

Table 2-2 is a summary of the area that drains to the project.

Table 2-2: Capture Area Summary

Capture Area:	Ac	189
Impervious Area:	Ac	52
Pervious Area:	Ac	137

2.2.1 Land Use

Table 2-3 is a summary of the land use breakdown for the area that drains to the project. A map showing the distribution of the land uses can be found in Attachment A.

Table 2-3: Land Use Summary

Land Use Type	Percent of Impervious	Acres
Single Family Residential	74.30	38.64
Multi-Family Residential	0.0	0.0
Commercial	0.0	0.0
Institutional	0.06	0.03
Industrial	0.06	0.03
Highways & Freeways	0.0	0.0
Secondary Roads & Alleys	25.58	13.30

2.3 DIVERSION

This section provides details on the project's diversion structures and pretreatment system. Table 2-4 provides a summary of details on the diversion type and maximum diversion rate. Further descriptions of the diversion structures and pretreatment systems are included below.

Table 2-4: Diversion Details

Diverted Pipe ID	Type of Diversion	Typical Max Diversion Rate (cfs)
MTD 1267	Gravity	10

The diversion structure is estimated to have an average inflow captured of 0.052 cfs.

2.3.1 Diversion Structure Description & Conditions

A new diversion manhole is proposed along the MTD 1267 reinforced concrete pipe to divert stormwater during low-flow and storm events to the pretreatment device and eventually the subsurface storage.

2.3.1.1 MTD 1267 Pipe Diversion

At the proposed flow rate of 10 cfs, the structure on the 72-inch reinforced concrete pipe will require a 1.0-foot drop below the existing invert and a 24-inch diameter diversion pipe at a 0.5% slope. The drop inlet structure will have dimensions of approximately 8.5-feet wide and 10-feet long. A schematic of the structure is shown in Attachment B.

2.3.2 Pretreatment System

Stormwater runoff transports sediment, metals, nutrients, trash, and debris that can compromise the performance of the stormwater facility and pollute downstream receiving waters. Pretreatment will be an integral

component of the treatment train strategy to extend the life of the system. It is prescribed to reduce the maintenance frequency of the Encanto Park facilities, focus maintenance efforts to a concentration and accessible area, and bolster watershed compliance.

For this project, a hydrodynamic separator is proposed to be installed after the diversion point near the park. One hundred percent of floatables and neutrally buoyant debris larger than the screen aperture (2400 microns or 2.4 mm) is collected and settle in the isolated sump of the system, eliminating scour potential. In addition to the screen aperture filtration, at least 80% of particles that are 130 microns or larger in size are removed for flows up to 10 cfs. With the chambered system, hydrocarbons float to the top of the water surface and are prevented from being transported downstream. A target flow rate for each of the devices will be based on the final design of the diversion structure. Currently a total of 10 cfs from the pipe is anticipated to be diverted to a single pretreatment device. It will be designed to have the capacity to treat the maximum flow diverted to the unit. The size of the unit will also be based on the estimated sediment that will be collected in the sump to maximize sediment removal while balancing the routine maintenance required.

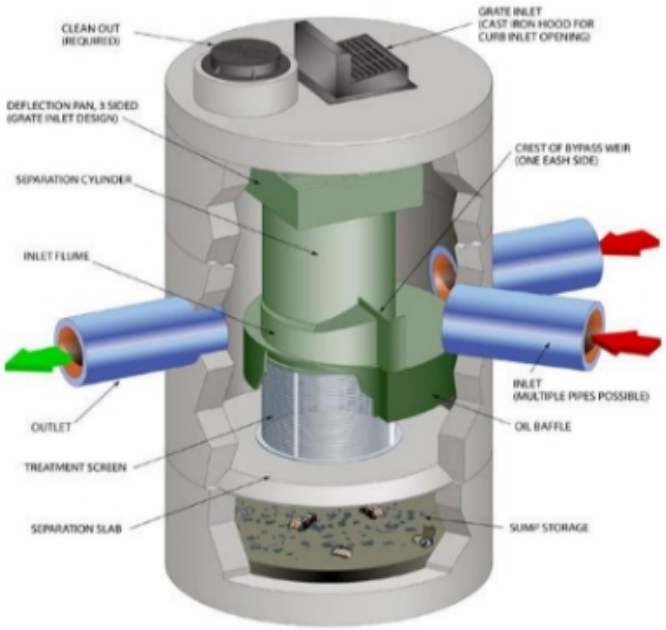


Figure 4. Typical Hydrodynamic Separator (Source: Contech Engineered Solutions)

2.4 SITE CONDITIONS & CONSTRAINTS

The following is a summary of the engineering analysis or estimates of existing site conditions, including existing and/or potential constraints or limitations due to existing conditions.

2.4.1 Site History

The site originally was a part of the agriculture and ranching common to the Duarte area. The site was designed and constructed as a park in the 1970s. The site has continued to operate as a park and currently contains a multipurpose field, basketball courts, tennis courts, a playground area, sand volleyball courts, nature trail, picnic tables, and the Duarte Historical Museum.

2.4.2 Geotechnical Investigation

Based upon findings from a web soil survey provided by National Resource Conservation Service (NRCS), the typical soil profile at the site below the invert of the proposed BMP facility is very cobbly to extremely cobbly sand, with good drainage characteristics. NCRS's interpretation of these soils correspond to Hydrologic Soil Group A. The capacity of the most limiting layer to transmit water is approximately 5.95 to 19.98 in/hr. The minimum required infiltration rate established by the Los Angeles County Department of Public Works (LACDPW) guidelines for in-site infiltration systems is 0.3 in/hr. The preliminary findings suggest that the project area has the potential to meet the minimum infiltration rate, but this cannot be determined until a subsurface investigation is performed and the applicable factors of safety are applied.

A review of the well data from the LACDPW database (http://dpw.lacounty.gov/general/wells/) and the Geotracker database (http://geotracker.waterboards.ca.gov/gama/) for nearby wells was conducted and indicate groundwater depths ranging from 26.0 feet to 282.5 feet. As shown, the shallowest groundwater depth was recorded at 26 feet in 1970. Based on this database search, preliminary results show that the groundwater has been deeper than 25 feet within the last 50 years. This research suggests that groundwater is not expected to impact the design and construction of the proposed BMP as the height of the proposed facility is only 5 feet.

2.4.3 Hydrology, Hydraulics, and Water Quality

For this project, the Los Angeles County Watershed Management Modeling System (WMMS) was used within the Loading Simulation Program C++ (LSPC) to simulate the contaminant loading, runoff volume, and flow rates associated with the critical year as determined in the RH/SGR WMP study. WMMS was also used to estimate runoff volume and peak flow for the 85th percentile storm to the diversion point. Table 2-5 summarizes the existing baseline hydrology and water quality for the primary pollutant of concern.

Table 2-5: Summary of Hydrologic Conditions

Diverted Pipe ID	Critical Year Runoff (ac-ft)	Critical Year Zinc Loading (lbs)	85th Percentile Surface Runoff (ac-ft)	85th Percentile Peak Flow (cfs)
MTD 1267	11.1	2.6	6.2	9.7

2.4.4 Utility Data Review

To locate the existing utilities in the Encanto Park area, various sources were utilized. The following utilities were identified to be near the project area.

2.4.4.1 Utilities Near MTD 1267 Diversion and Encanto Park

Existing utilities running near the pipe, the park area, and overflow connection include street and park lighting owned by the City of Duarte and irrigation lines owned by the City of Duarte.

2.4.5 Site Access & Right-of-Way

The project requires access to the park and the existing 72-inch storm drain. Access to the park will be done through the driveways on Encanto Parkway and will travel directly to the parking lot area. Access to 72-inch storm drain will be acquired through the park area where existing access roads lead to the pipe location. Entry into the existing 72-inch storm drain will be done through surface manhole entry. Entry will require close coordination with the LA County Flood Control District. Confined space requirements will apply and must be adhered to.

The LACFCD will be consulted following the completion of this feasibility report to request for conceptual review of the proposed modifications to the LACFCD storm drain system. A more rigorous hydraulic study and structural analysis will be performed during the design phase to secure all necessary LACFCD permits.

2.5 COST

Table 2-6 and Table 2-7 provide details on the Project's capital and annualized costs. A detailed cost breakdown can be found in Attachment D.

Table 2-6: Capital Costs

Construction Cost:	$2,029,388
Planning and Design Cost*:	$702,860

*Includes pre-project monitoring, feasibility study development, site investigations, formal project design, intermediate and project completion audits, CEQA and other environmental impact studies and permitting.

Table 2-7: Annual Costs

Maintenance Cost:	$50,000
Operation Cost:	$5,520
Monitoring Cost:	$15,000
Project Life Span:	50

Table 2-8: Life-Cycle Costs

Life-Cycle Cost for Project:	$ 4,424,298
Annualized Cost for Project:	$ 184,393

2.6 SCHEDULE

Table 2-9 is a schedule to design, permit, construct, operate, and maintain the project. Key milestones and their estimated completion dates are contained herein.

Table 2-9: Project Schedule

Milestone Name	Completion Date
Assumed Notice-to-Proceed	September 1, 2020
30% Draft Design & Review	December 4, 2020
60% Draft Design & Review	March 12, 2021
90% Draft Design & Review	June 18, 2021
100% Final Design	September 24, 2021
LACFCD Permit	September 24, 2021
Environmental Documentation	September 24, 2021
Construction	September 30, 2023

Start of Operation & Maintenance	October 1, 2023

2.7 MONITORING

This section provides an overview of monitoring data related to the project.

2.7.1 Historic Monitoring

Historic monitoring of the 72-inch pipe has not been performed to date. It is recommended that the dry-weather flows be continuously measured during the design phase of the project.

2.7.2 Project Monitoring Plan

A full monitoring plan will be developed as a part of the 100% final design documentation. The preliminary identified constituents of concern are metals (cadmium, copper, lead, and zinc), bacteria, nitrogen compounds, and trash. Flow, pH, and temperature should also be monitored. ***Figure 5*** shows the possible monitoring locations that can establish the system performance. The plan will demonstrate how the estimated benefits outlined in Section 3 and 4 of this report will be evaluated.

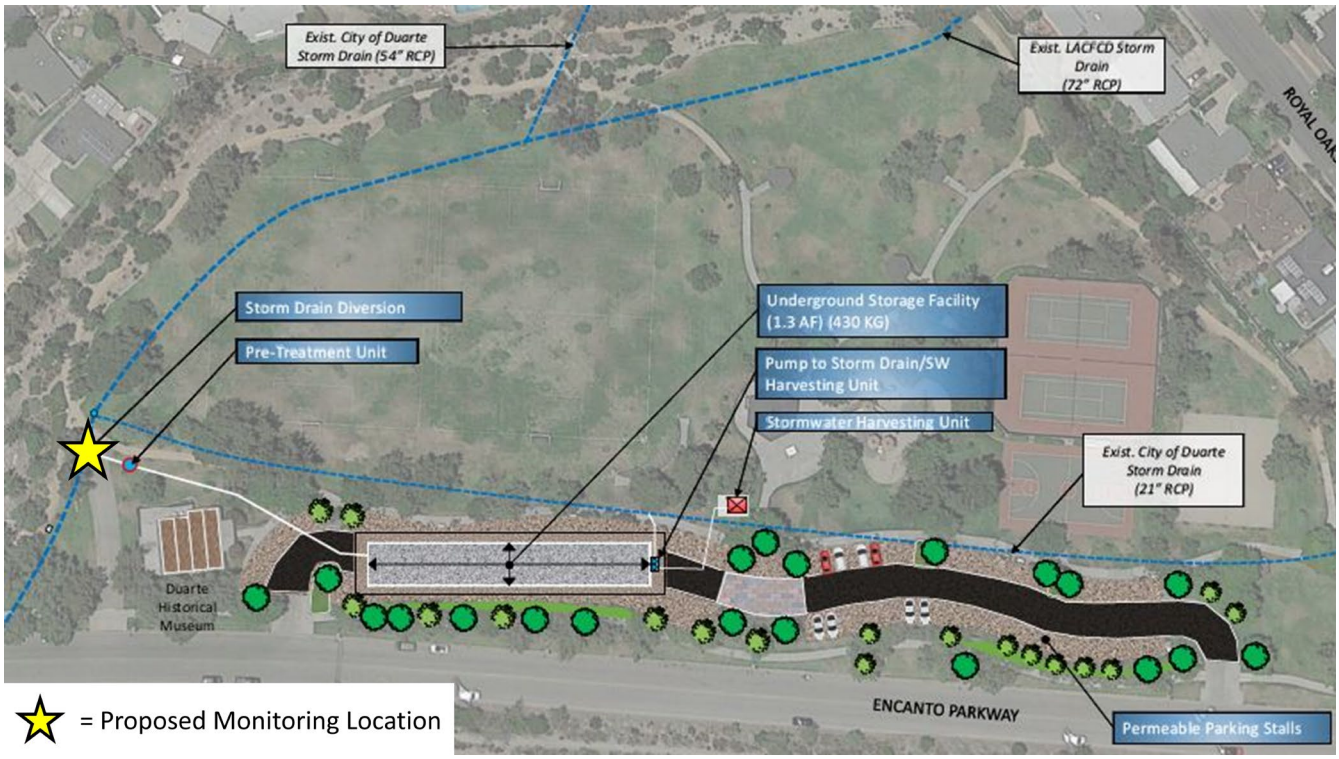


Figure 5. Proposed monitoring locations for the Encanto Park project.

2.8 OPERATIONS & MAINTENANCE PLAN

Long-term maintenance of the system is vital to its continued operation. The responsible party for the operation and maintenance of the completed project will be the RH/SGR Water Quality Group.

A full draft maintenance plan will be developed as a part of the 100% final design. The maintenance plan will include details on equipment needed and standard practices and procedures. The final maintenance plan will be completed at the end of construction when actual brands and part information is made available.

Table 2-10: Operations & Maintenance Requirements and Costs

Description	No. of Times per Year	No. of Personnel & Hours per Visit	Personnel Expertise Level	Unit Price	Annual Total
Diversion Structure – Inspection & Cleaning	6	2 @ 2 hr	Trash Removal crew	$500	$3,000
Pretreatment Device – Vacuum	1	2 @ 2 hrs	Vactor Truck Operator	$1,000	$1,000
Wet Well – Dry Season Inspection & Cleaning	2	2 @ 2 hrs	Vactor Truck Operator	$1,000	$2,000
Wet Well – Wet Season Inspection & Cleaning	6	2 @ 2 hrs	Vactor Truck Operator	$1,000	$6,000
Valve Maintenance	1	1 @ 4 hrs	Mechanical Labor	$1,000	$1,000
Control Panel Maintenance	1	1 @ 2 hrs	Electrician	$1,000	$1,000
Storage – Dry Season Inspection & Cleaning	3	4 @ 5 hrs	Vactor Truck Operator	$5,000	$15,000
Storage – Wet Season Inspection & Cleaning	3	4 @ 5 hrs	Vactor Truck Operator	$5,000	$15,000
Filter – Inspection & Cleaning	1	4 @ 8 hrs	Cartridge Cleaning	$6,000	$6,000

3.0 WATER QUALITY BENEFITS

This section provides an overview of project elements related to water quality benefits, including calculations used for Section A (Water Quality Benefits) of the SCW Project Scoring Criteria.

3.1 24-HOUR CAPACITY

The below tables contain information regarding key parameters of the project's capacity:

Table 3-1: 24-hour Storm Capacity Breakdown

24-hour Storm Capacity Breakdown	
Effective Draw Down Rate:	11.85 in/hr
Stormwater Use During 24-hr Design Event:	0 gal
SCW Module-Generated 24-hr Capacity:	7.46 ac-ft

3.2 EVENT BASED PERFORMANCE

This section details the event-based analysis for the capture system and how it performs:

Estimated Total Inflow Volume during Design Event: ***6.2 ac-ft***

Project design event:

A 1.18 inch 85th percentile LA County hyetograph was modeled to determine flows to the site through the WMMS model. Flows were developed for this rain event to the points of diversion for the project. As currently designed, gravity-fed diversions would catch as much of the event as possible given maximum diversion rates and the capacity and throughflow of the regional project. Real-time controls could be added for better peak management given the limited size of diversions and large drainage area producing an event that is impractical to capture by a single practice. Inflows could be delayed until flows were high enough to target the peak of the storm event to accomplish this.

85th percentile Storm Capture:

The full 85th percentile storm is captured and treated by the unit as the diversion is large enough to capture the peak flowrate and the storage and throughflow are large enough to capture the full storm event volume.

Project inlet flows are based on a water budget calculation over 24 hours for the unit considering hourly flows to the diversion point on an hourly basis and subject to storage capacity.

Table 3-2: Project Inlets 85th Percentile Flow Rates

Project Inlets		
Diversion Pipe ID	**Estimated Max Inflow rate (cfs)**	**Total Inflow (ac-ft)**
MTD 1267	10	6.20 ac-ft

Table 3-3: Project Outlets 85th Percentile Outflow Volume

Project Outlets		
Event Outflow Volume	**Treated?**	**Treatment Description**
0.85	100%	Infiltration
5.71	100%	A pump station and filtration will treat stormwater prior to discharge to the storm drain.

Method Used for Estimates:

The WMMS modeled 85th percentile storm was routed through the proposed diversion and subject to proposed storage and outlet infiltration capacities.

3.3 LONG TERM PERFORMANCE

This section presents the results of modeling for the proposed facility and configuration as related to the primary and secondary pollutants. These annual average pollutant reduction estimates were developed using WMMS for the critical year as established by the RH/SGR WMP.

Table 3-4: Critical Year BMP Performance Summary (WY 2004)

Pollutant	Baseline Load	Load Diverted To BMP	Load Discharged From BMP
Zinc (lbs)	2.62	2.58	0.0
Bacteria (MPN)	5.7×10^{11}	5.0×10^{11}	0.0

The performance of this BMP is assessed based on the capacity to reduce pollutant load that is diverted to the BMP, subject to diversion rate limitations and BMP capacity over the critical year timeseries. Because diverted stormwater is pretreated then infiltrated, this results in a full reduction of all pollutant load diverted to the BMP and an associated load reduction of 100%.

Table 3-5: Critical Year BMP Performance Reduction Summary (WY 2004)

Pollutant	**Reduction Method Used**	**Justification for Use**	**Reduction (%)**
Primary – Zinc	Percent Load Reduction	Limiting pollutant – RH/SGR WMP	100%
Secondary - Bacteria	Percent Load Reduction	Secondary limiting pollutant – RH/SGR WMP	100%

4.0 WATER SUPPLY

This section provides an overview of project elements related to water supply benefits, including calculations used for Section B (Significant Water Supply Benefits) of SCW Project Scoring Criteria.

4.1 NEXUS

There is some potential for this project to provide multiple benefits at the nexus of water supply and stormwater. The following describes how this has been considered in development of this project.

Onsite Irrigation Use

This project will possibly utilize captured flows to offset onsite irrigation needs. Dry weather flows are low compared to irrigation demand and do not appear to represent a consistent enough source for water that would justify the cost of filtration equipment and accompanying irrigation system components. Further analysis will be performed during design.

Water Recycling

This project does not currently involve any water recycling by a wastewater treatment facility. There are sanitary sewer lines in the vicinity of the project, but further capacity study would be required to determine if discharges to these would be possible.

Aquifer Recharge

This project is connected to a managed water supply aquifer (Main San Gabriel Basin). Infiltration rates are appreciable and will augment groundwater supply by approximately ***9.8 ac-ft*** for the critical year. ***Confirmation that the Water Replenishment District and the San Gabriel Water Master concurs with this added benefit is still needed***.

4.2 BENEFIT MAGNITUDE

Project Scoring Criteria Section B is based upon estimates of annual average water supply benefit. Water supply benefit can include, but is not limited to, water diverted to a separate groundwater recharge facility, into a water treatment plant, to a sanitary sewer to be converted into recycled water, etc. This section provides documentation of estimates of annual average water supply benefit.

Average dry weather inflow to the project: ***0.052 cfs***

Methods used to estimate average dry weather inflow to the project:

Flows from the WMMS model were average during dry weather. Wet weather was defined as any time period where rainfall was at least 0.1 in/hr and 24-hours after such timesteps.

Annual inflows (total) to the project for potential water supply: ***79.205 ac-ft***

Methods used to estimate annual inflows for potential water supply:

This is the module calculated runoff to the project from WMMS.

Annual average capture for water supply: ***73.175 ac-ft***

Methods used to calculate water supply benefits:

This is the calculated annual stormwater capture from WMMS that will contribute to groundwater recharge via infiltration.

4.3 COST EFFECTIVENESS

Project Scoring Criteria Section B2 incorporates life-cycle costs. The cost-effectiveness for water supply benefit is calculated from other sections in the Module. The calculation for B2 scoring is based on a numerator of life-cycle cost (from Design Elements > Cost) and a denominator of annual average benefit magnitude (from Water Supply > Benefit Magnitude).

Cost Effectiveness: ***$2,520/ac-ft***

5.0 COMMUNITY INVESTMENT

This section provides an overview of project elements related to community investment benefits, which are used in calculations for the SCW Project Scoring Criteria.

Table 5-1: Community Investment Benefits

Investment Type	Applicable?
Does this project improve flood management, flood conveyance, or flood risk mitigation?	Yes
Does this project create, enhance, or restore park space, habitat, or wetland space?	Yes
Does this project improve public access to waterways?	No
Does this project create or enhance new recreational opportunities?	No
Does this project create or enhance green spaces at school?	No
Does this project reduce heat local island effect and increase shade?	Yes
Does this project increase shade or the number of trees or other vegetation at the site location?	Yes

Flood Management, Flood Conveyance, and Flood Risk Mitigation

The system has detention capabilities that can contribute towards enhanced flood retention capabilities of the whole storm drain system. The project provides storage and infiltration of a portion of the excess volume providing a small relief during rain events.

Parks, Habitat, or Wetland Creation

The installation of the underground structure will require the removal and replacement of the parking lot and parts of the multipurpose field. The project proposes to create a new parking lot including permeable pavement parking stalls. The field area will be replanted and restored to the original condition.

Reducing Heat Island Effect

Landscape plans post construction include additional native trees, shrubs, and grasses to be installed at select spots impacted by the construction throughout the park and parking lot. This vegetation, the removal of the impervious parking surfaces and replacing with permeable surfaces, and the addition of zero impervious surfaces for this project will contribute to reductions in the heat island effect.

Tree Count/Shade Increase

Native trees that are part of the post-construction landscape plane will contribute to increased tree count and shade for the park.

6.0 NATURE BASED SOLUTIONS

This section provides an overview of project elements that leverage nature-based solutions, which are used in the SCW Project Scoring Criteria.

Table 6-1: Nature Based Solutions

Nature Based Evaluation	Applicable?	Description
Does this project implement natural processes?	Yes	Permeable pavement and vegetation will be installed within the parking lot on the east end of the park to promote on-site infiltration. The pavements are sized to convey all flows from the parking lot within Encanto Park.
Does this project utilize natural materials?	Yes	Landscape plans post construction include additional native trees, shrubs, and grasses to be installed at select spots impacted by the construction throughout the park.

6.1 NATURE-BASED APPROACH

The City desires to continue use of the property as an active park with a suitable parking lot for the whole facility. To accommodate playing fields and a parking lot, the project is proposed beneath the current parking area limiting the impacts to the play surfaces. Because the project is installed within an impervious area and desires to continue operation as a parking lot, the nature-based solutions available are permeable paving materials with trees scattered around the perimeter. The permeable pavements and vegetation will promote infiltration into the groundwater. The permeable pavement parking stalls will treat flows from the parking lot.

6.2 REMOVED IMPERMEABLE AREA

Table 6-2 details the impermeable area removed by the project.

Table 6-2: Removed Impermeable Area by Project

Project Impervious	Units	Value
Prior Impervious Area	Ac	0.85
Post Impervious Area	Ac	0.42

7.0 LEVERAGING FUNDS AND LOCAL SUPPORT

This section provides an overview of the project's funding and community support, which are used in calculations for the SCW Project Scoring Criteria.

7.1 COST SHARING

The City of Monrovia is committed to providing an in-kind match of local staff time support and will look for opportunities to utilize the local return portion of the Safe, Clean Water Program funds for local compliance projects along with regional projects. The City is currently partnering with several agencies in cost sharing for projects and is willing to pursue other cost sharing opportunities with other agencies and entities. The City anticipates utilizing Safe, Clean Water local return funds for environmental feasibility studies. These studies will be essential to the planning and design efforts of this project prior to construction. The Rio Hondo San Gabriel River Water Quality Group has invited public bids for such work and anticipating awarding a contract in Spring 2020. Based on the preliminary bids received, the Group anticipates dedicating $246,079 of funds to offset regional funds once a contract has been awarded for the initial feasibility studies and planning efforts. Once the contract is fully awarded, the applicant will report the actual local match. In addition, the City has started to pursue other funding opportunities to increase funds from the municipalities to fund the project.

7.2 LOCAL SUPPORT OUTREACH PLAN

During WMP development, the RH/SGR Group led numerous public engagement and outreach activities, including workshops with non-governmental organizations (specifically Amigos de los Rios, Los Angeles WaterKeeper, the Natural Resources Defense Council, and Nature for All) to discuss the details of this project. The outcomes included a unanimously approved WMP recommending this project and new, open lines of communication with environmental and community advocates that the Regional Water Quality Control Board applauded as a program "to be emulated by other groups." Since WMP approval, the RH/SGR Group has continued to engage with their NGO partners to keep them apprised of progress. Once the project is funded, a more detailed outreach plan will be developed during the full design process to ensure that the public is aware of--and understands the value of--their tax dollars being used to promote Safe, Clean Water in their community. Please see the attached approval letter from the Regional Board as evidence of multi-stakeholder support.

8.0 ADDITIONAL FEASIBILITY INFORMATION

This section presents additional information regarding project feasibility and technical details gathered during project design and feasibility assessment.

8.1 ENVIRONMENTAL DOCUMENTS AND PERMITS

Consultation with regulatory agencies and acquisition of permits is required before the project components can be constructed. The following table summarizes the plan checks, regulatory permits and approvals relevant to the project.

Table 8-1: Listing of Anticipated Required Permits

Agency	Permit/Notification Name	Rationale	Initial Steps
City of Duarte Parks & Recreation	--	City of Duarte Parks & Recreation is the property manager.	Contact Parks & Recreation Department
LA County Flood Control District	Discharge Permit	Non-storm water (treated water) will be discharged directly into an existing District facility.	Complete and submit application for review via EpicLA.
State Water Resources Control Board	Construction General Permit	One or more acres of soil will be disturbed during construction.	Develop a Storm Water Pollution Prevention Plan (SWPPP).
State Water Resources Control Board	Section 401 Water Quality Certification	General discharge permit	Complete and submit application for review. Dependent on USACE direction/interpretation.
LA County Department of Public Health	Cross Connection and Water Pollution Control Program	Ensure that there is no hazard to the potable water system.	Undergo review and approval.
Greater LA County Vector Control District	Mosquito Abatement District	Potential mosquito concerns.	Provide Vector Control District conceptual project plans for review.
South Coast Air Quality Management District	Rule 403	Prevent, reduce, or mitigate fugitive dust emissions from construction activities.	Construction in the South Coast Air Basin must incorporate best available control measures included in Table 1 of Rule 403
Southern California Edison	Design Permit	Installation of a new electrical service plan	Contact SCE's Local Planning Department and complete Customer Project Information Sheet and Design Option Letter.
CA Natural Resources Agency	CEQA Initial Study	State mandated environmental review	Prepare the Initial Study and associated anticipated Mitigated Negative Declaration

Past project experience has shown that the Initial Study most often identifies a Mitigated Negative Declaration for projects that are constructed within the existing park areas. The most significant impacts are temporary during the construction period and once construction is complete, will be gone entirely. Upon project completion, the project will ultimately provide a net benefit to the water quality and keep the park facilities unchanged.

The CEQA Initial Study and associated Mitigated Negative Declaration are anticipated to take up to one year and will occur simultaneously with the design phase. It is expected to cost between $50,000 and $100,000 and is reflected in the life-cycle cost information.

The acquisition and securing of all the required permits and environmental documentation are anticipated to be around 1% of the total project costs for a grand total of $17,795. All permits are anticipated to be filed and acquired by the end of the 100% final design phase.

8.2 VECTOR MINIMIZATION

As a part of final design, the City will review the design documents with the Greater LA County Vector Control District to ensure that the system meets all requirements and minimizes the potential for vector increases.

8.3 ALTERNATIVES STUDIED

Alternatives evaluated included combinations of diversion routes and rates, alternative footprints and orientations, and various outflow rates. The full discussion on alternatives studied can be found in Attachment F.

8.4 SIMILAR PROJECT EFFECTIVENESS

Projects similar to the Encanto Park Stormwater Capture project are being designed and constructed throughout Los Angeles County. A couple (including Bolivar Park Stormwater Capture Project and Santa Monica Clean Beaches Project at the Pier) have recently been completed and are now beginning the monitoring phase. Numerous others are currently under construction (Caruthers Park in Bellflower, Mayfair Park in Lakewood, Carriage Crest Park in Carson, and Culver Boulevard in Culver City). In the future, it is anticipated that the project effectiveness will be obtained through monitoring efforts but at this time, there is no comparable completed and monitored project.

8.5 LEGAL REQUIREMENTS AND OBLIGATIONS

There are two primary legal issues that require addressing through the course of the Encanto Park project; access and regulatory compliance.

The main project site is owned and maintained by the City of Duarte. However, construction requires accessing the LACFCD storm drain as a key component of this project. The LACFCD requires that the hydraulics of the existing infrastructure not be negatively impacted, and that access is maintained. The RH/SGR Water Quality Group will require an operation and maintenance memorandum of understanding (MOU) with the LACFCD for continued access. All required permits and agreements will be in place through the construction of the project.

As stated in the project background, one of the key drivers for this project is the compliance with the water quality targets identified in the RH/SGR EWMP. Design and construction of the project brings the EWMP Group closer to watershed-wide compliance through water quality improvement. The Group is required to demonstrate project performance to the Water Resource Control Board for acceptance towards the water quality objectives. The project will be monitored and reported on as required.

8.6 TECHNICAL REPORTS

The stormwater capture strategy including the basis, assumptions, and procedure of identifying the diversion location, rates, storage size, and outflow rates are contained within the attached Stormwater Capture Strategy Memorandum. The memo serves are the supporting modeling analysis for the basis of preliminary design. The memo is found in Attachment F.

9.0 SCORING

Section	Score Range	Scoring Standards	Scoring
A.1 Wet Weather Water Quality Benefits -OR-	**50 points max**	**The project provides water quality benefits**	**50 points**
	20 points max	A.1.1: For Wet Weather BMPs Only: Water Quality Cost Effectiveness Cost Effectiveness) = (24-hour BMP Capacity) / (Life-Cycle Cost in $Millions) - <0.4 (AF / $-Million) = 0 points - 0.4 - 0.6 (AF / $-Million) = 7 points - 0.6 - 0.8 (AF/ $-Million) = 11 points - 0.8 - 1.0 (AF / $-Million) = 14 points - >1.0 (AF/ $-Million) = 20 points	20
	30 points max	A.1.2: For Wet Weather BMPs Only: Water Quality Benefit Magnitude. Quantify the pollutant reduction (i.e. concentration, load, exceedance day, etc.) for a class of pollutants using the similar analysis as the E/WMP which use the Districts/Watershed Management Modeling System (WMMS). The analysis should be an average percent reduction comparing influent and effluent for the class of pollutant over a ten-year period showing the impact of the Project. Modeling should include the latest performance data to reflect the efficiency of the multi-pollutant BMP Type. **Primary Class of Pollutants** - >50% = 15 points - > 80% = 20 points *(20 points max)* **Second or More Classes of Pollutants** - >50% =5 points - > 80% = 10 points *(10 points max)*	30
A.2 Dry Weather Water Quality Benefits	20 points	A.2.1: For dry weather BMPs only, projects must be designed to capture, infiltrate, or divert 100% of all tributary dry weather flows.	NA
	20 points max	A.2.2: For Dry Weather BMPs only. Tributary size of the dry weather BMP - < 200 Acres = 10 points - > 200 Acres = 20 points	NA
B. Significant Water Supply Benefits	**25 points max**	**The project provides water supply benefits**	**2 points**
	13 points max	B1. Water Supply Cost Effectiveness. The total life-cycle cost per unit of acre foot of stormwater and/or urban runoff volume captured for water supply is: - > $2,500 / ac-ft = 0 points - $2,000 - $2,500 / ac-ft = 3 points - $1,500 - $2,000 / ac-ft = 6 points - $1,000 - $1,500 / ac-ft = 10 points - < $1,000 / ac-ft = 13 points	0
	12 points max	B2. Water Supply Benefit Magnitude. The yearly additional water supply volume resulting from the project is: - < 25 ac-ft / year = 0 points - 25 - 100 ac-ft / year = 2 points - 100 - 200 ac-ft / year = 5 points - 200 - 300 ac-ft / year = 9 points - > 300 ac-ft / year = 12 points	2

C. Community Investment Benefits	**10 points max**	**The project provides Community Investment Benefits**	**5 point**
	10 points	C1. Project includes: - One of the Community Investment Benefits defined below = 2 points - Three distinct Community Investment Benefits = 5 points - Six distinct Community Investment Benefit = 10 points Community Investment Benefits include: - Improved flood management, flood conveyance, or flood risk mitigation - Creation, enhancement, or restoration of parks, habitat, or wetlands - Improved public access to waterways - Enhanced or new recreational opportunities - Greening of schools - Reducing local heat island effect and increasing shade - Increasing the number of trees increase and/or other vegetation at the site location that will increase carbon reduction/sequestration and improve air quality	5
D. Nature-Based Solutions	**15 points max**	**The project implements Nature-Based Solutions**	**12 points**
	15 points	D.1. Project: - Implements natural processes or mimics natural processes to slow, detain, capture, and absorb/infiltrate water in a manner that protects, enhances and/or restores habitat, green space, and/or usable open space = 5 points - Utilizes natural materials such as soils and vegetation with a preference for native vegetation = 5 points - Removes Impermeable Area from Project (1 point per 20% paved area removed) = 5 points	12
D. Leveraging Funds and Community Support	**10 points max**	**The project achieves one or more of the following:**	**7 points**
	6 points max	E1. Cost-Share. Additional Funding has been awarded for the project. - > 25% Funding Matched = 3 points - > 50% Funding Matched = 6 points	3
	4 points	E2. The project demonstrates strong local, community-based support and/or has been developed as part of a partnership with local NGOs/CBOs.	4
Total	Total Points All Sections: 110		**76**

10.0 ATTACHMENTS

ATTACHMENT A: LOCATION MAP & LAND USE MAP

Figure 6. Map of parcels and ROW boundaries for Encanto Park project.

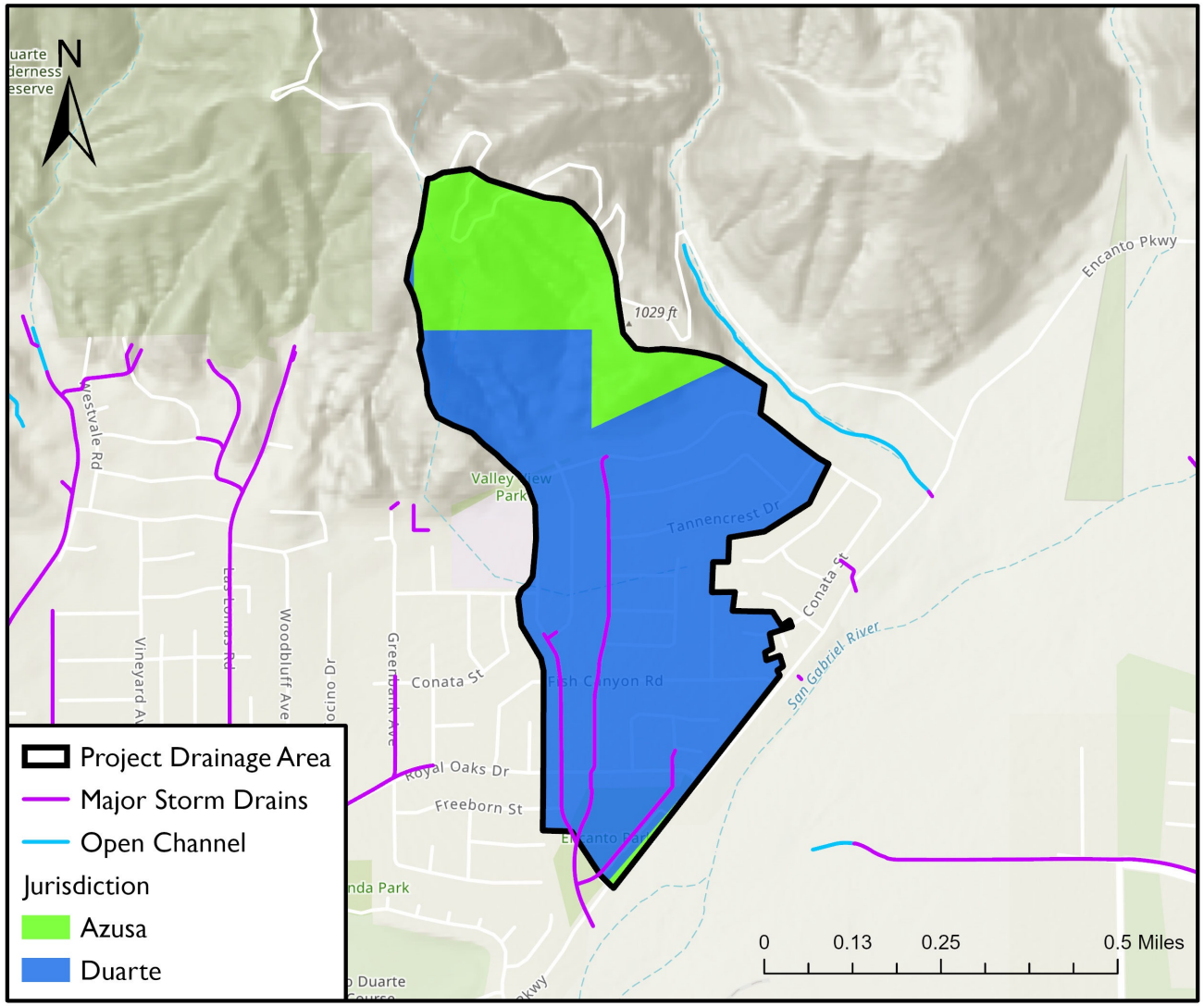


Figure 7. Drainage area jurisdiction boundaries for the Encanto Park project.

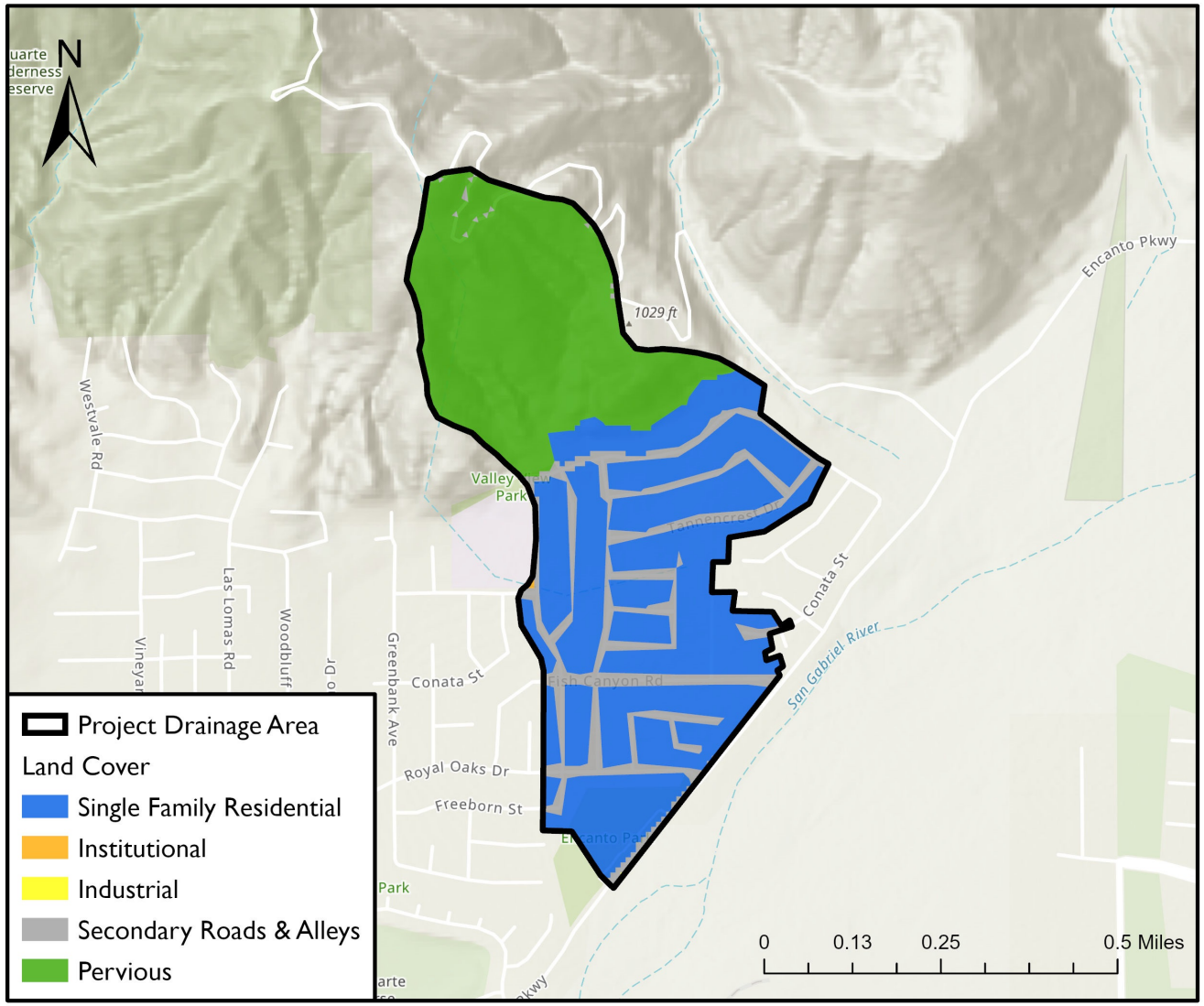
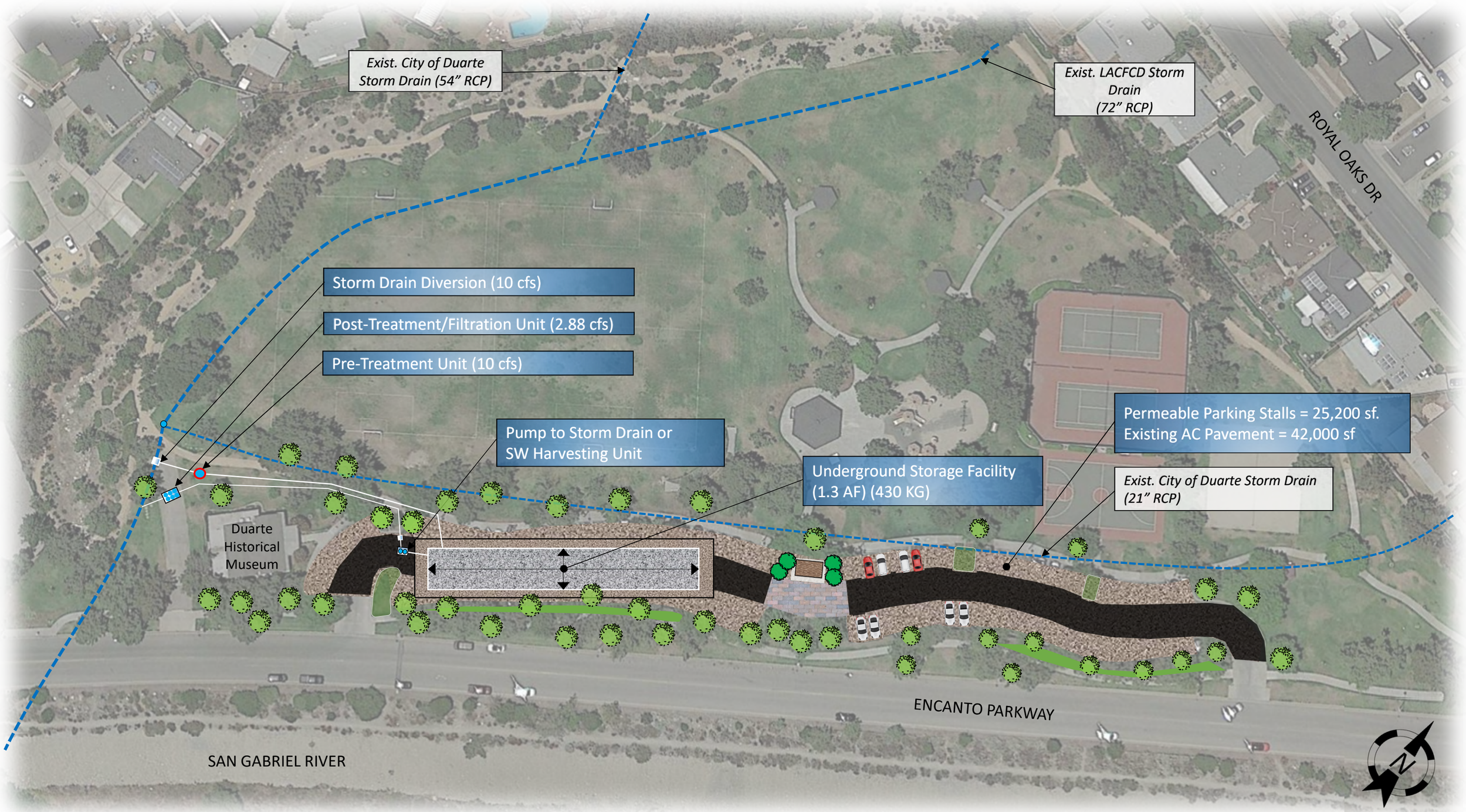


Figure 8. Drainage area land use for the Encanto Park project.

ATTACHMENT B: DETAILED DRAWINGS, SITE LAYOUTS, AND EXISTING UTILITY PLANS

Note: The site configuration may be modified during final design.

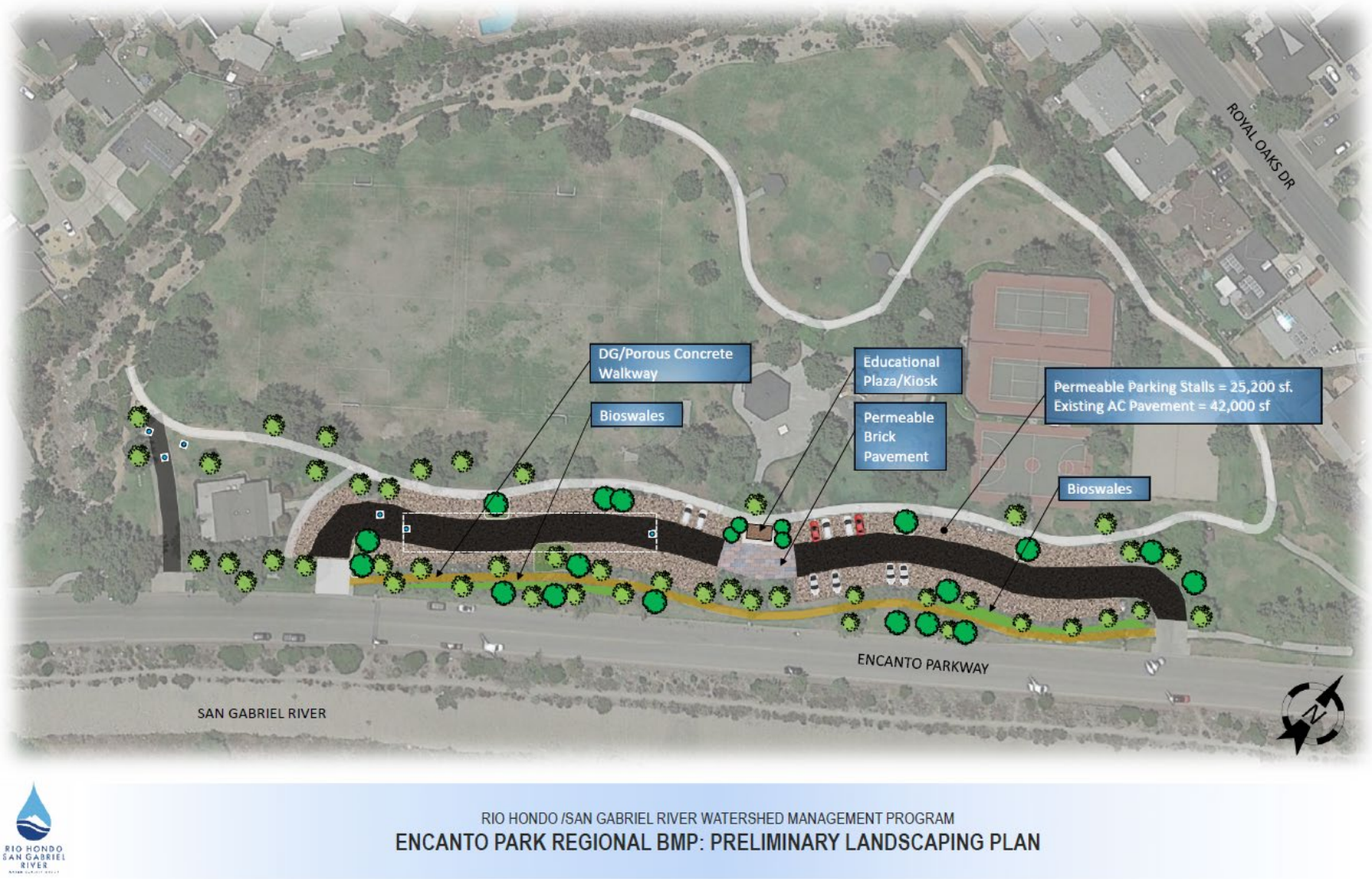


RIO HONDO SAN GABRIEL RIVER

RIO HONDO /SAN GABRIEL RIVER WATERSHED MANAGEMENT PROGRAM

ENCANTO PARK REGIONAL BMP: SITE PLAN

ATTACHMENT C: LANDSCAPE PLAN



ATTACHMENT D: ENGINEER'S 10% COST ESTIMATE

ATTACHMENT E: GEOTECHNICAL INVESTIGATION REPORT

ATTACHMENT F: STORMWATER CAPTURE ANALYSIS

ATTACHMENT G: MONITORING PLAN

ATTACHMENT H: OPERATIONS & MAINTENANCE PLAN

ATTACHMENT I: LOCAL PROJECT SUPPORT DOCUMENTATION

ATTACHMENT J: VECTOR MINIMIZATION PLAN

MEMO

TO: Safe, Clean Water Program Scoring Committee

FROM: City of Monrovia

SUBJECT: SCWP Scoring Comments Draft Response – Encanto Park Water Capture Project

1.1 General Comment

The City requests the opportunity to present this project to the SCW Scoring Committee to give further explanation of the project intent and benefits. Below are initial responses to the questions posed.

1.2 Water Quality Part 1

Comments:

- *Not Treating the 85th Percentile flow*

Response:

The 85th Percentile storm event consists of a flowrate of 9.7 cfs and a volume of 6.2 acre-feet. The diversion flowrate and pre-treatment rate for this facility will be designed for 10 cfs. The proposed discharge pump will flow through a post-treatment unit at a rate of 2.88 cfs. As a result, this system will incorporate a treat and release component to increase the 24-hour treatment volume to 7.58 acre-feet, treating the 85th percentile flow and volume.

1.3 Water Quality Part 2

Comments:

- *Applicant claiming 100% pollutant reduction. Should include downstream bypass in modeling.*
- *Applicant may be able to reclassify this as a dry-weather project.*
- *SC notes the project is between 0.25 & 0.75 inch storm, so it's a challenge to max out on this scoring category.*

Response:

Project components have been modified to capture and treat the 85th percentile storm event and thus enhance the pollutant load reduction performance for the primary and secondary pollutants for this drainage area, and the module modeling analysis will be utilized for project scoring in this re-submission. Please note that this project is included as both a wet and dry weather project in the Rio Hondo/San Gabriel Watershed Management Program, which was approved by the Regional Board. In light of the design modifications and status as an approved wet weather WMP project, the project Scoring Committee is encouraged to consider the wet weather benefits of the project and accommodate wet-weather water quality scoring. Should the

Scoring Committee prefer to reclassify the project as a dry-weather project, it is still expected to achieve the threshold score for Infrastructure Program consideration.

1.4 Community Investment

Comments:

- *Helpful to see details of plantings*
- *Are the recreational enhancements new or replaced? Unclear in the documentation*

Response:

A preliminary landscape plan for the parking lot modification has been included. This includes bioswales and a walking trail made of permeable materials. In addition, an education kiosk has been included at the center of the parking lot to inform park users of the existing (dry-creek) and proposed stormwater features.

1.5 Leveraging Funds Part 1

Comments:

- *SC agrees that matched staff time can be considered as leveraged funding.*
- *Does not specifically state there is a cost share, just that the City will explore opportunities for cost share*
- *Applicant should provide additional detail on this cost share.*

Response:

The City anticipates utilizing Safe, Clean Water local return funds for environmental feasibility studies. These studies will be essential to the planning and design efforts of this project prior to construction. The Rio Hondo San Gabriel River Water Quality Group has invited public bids for such work and anticipating awarding a contract in Spring 2020. Based on the preliminary bids received, the Group anticipates dedicating $246,079 of funds to offset regional funds once a contract has been awarded for the initial feasibility studies and planning efforts. Once the contract is fully awarded, the applicant will report the actual local match. In addition, the City plans on utilizing staff time to bolster the leveraged funds through community outreach and overall project management.

1.6 Leveraging Funds Part 2

Comments:

- *There is a community engagement strategy, but no existing letters of support. Only letters are from a group of cities.*

Response: Los Angeles Regional Water Quality Control Board Approval Letter and support letters from Cities of Sierra Madre, Arcadia and Bradbury.

The proposed project was conceptualized through an engagement process with several non-governmental organizations (NRDC, LA Waterkeeper, Amigos de los Rios, and Nature for All) and Regional Board staff during development of the revised Rio Hondo/San Gabriel River Watershed Management Program, which was

unanimously approved and applauded by the Regional Water Quality Control Board as a program "to be emulated by other groups." Through the revision of the Rio Hondo/San Gabriel WMP, this project went through a much higher level of outreach and vetting than typical WMP projects. See additional discussion in the attachments to the application. Please see the attached approval letter from the Regional Board as evidence of multi-stakeholder support.