La Jolla View Reservoir Project
Environmental Impact Report

SCH No. 2018041020 - Project No. 331101

Appendix D2

Conceptual On-site Upland and Ephemeral Drainage Restoration and Revegetation Plan

February 2020

HELIX
Environmental Planning

La Jolla View Reservoir Replacement Project

Conceptual On-site Upland and Ephemeral Drainage Restoration and Revegetation Plan

October 2019 | SDD-31.08

Prepared for:

City of San Diego
Public Works Department
525 B Street, Suite 750
San Diego, CA 92101

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

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TABLE OF CONTENTS

Section **Page**

1.0 INTRODUCTION 1

2.0 PROJECT BACKGROUND 1

2.1 Project Location 1
2.2 Project Description 2
2.3 Existing Conditions within the Project Site 2
2.3.1 Vegetation Communities/Land Uses 2
2.3.2 Sensitive Species 2
2.3.3 Ephemeral Drainages 3
2.4 Existing Functions and Services 3
2.5 Project Impacts 3
2.5.1 Vegetation Communities/Land Uses 3
2.5.2 Sensitive Species 4
2.5.3 Ephemeral Drainages 4
2.6 Required Mitigation 5
2.6.1 Vegetation Communities/Land Uses 5
2.6.2 Sensitive Species 6
2.6.3 Ephemeral Drainages 6

3.0 RESTORATION OVERVIEW 6

3.1 Restoration Goals/Location 6
3.2 Existing Conditions/Functions and Services 7
3.3 Mitigation Site Suitability 8
3.4 Restoration Design 8
3.5 Target Functions and Services 9
3.6 Multiple Species Conservation Program Land Use Consistency Analysis 9

4.0 MITIGATION ROLES AND RESPONSIBILITIES 10

4.1 Financial Responsiblity 10
4.2 Restoration Team 10
4.2.1 Project Proponent 10
4.2.2 Responsible Agencies 11
4.2.3 Landscape Architect 11
4.2.4 Restoration Specialist 11
4.2.5 Installation/Maintenance Contractor(s) 12
4.2.6 Archeologist/Native American Monitor 12
4.2.7 Nursery (Seed/Plant Procurement) 12

TABLE OF CONTENTS (cont.)

Section **Page**

5.0 INSTALLATION PLAN 13

5.1 Installation Schedule 13
5.2 Construction Access and Staging 13
5.3 Pre-Construction Activities 14
5.3.1 Delineating Limits of Work 14
5.3.2 Plant/Seed Orders 14
5.3.3 Pre-Construction Meeting 14
5.3.4 Pre-Construction Site Documentation 14
5.3.5 Plant Salvage 14
5.3.6 Topsoil/Mulch Salvage 15
5.4 Site Preparation 16
5.4.1 Timing 16
5.4.2 Topsoil Installation 16
5.4.3 Delineating Restoration/Revegetation Areas 16
5.4.4 Clearing/Weeding 16
5.4.5 Irrigation Installation 16
5.4.6 Erosion Control 17
5.5 Plant Installation Specifications 17
5.5.1 Plant/Seed Palettes 17
5.5.2 Planting Method 22
5.5.3 Seeding Method 22
5.5.4 Irrigation Method 22

6.0 MAINTENANCE PROGRAM 23

6.1 Maintenance Schedule 23
6.2 Maintenance Access 23
6.3 Maintenance Activities 23
6.3.1 Non-Native/Invasive Plant Control 24
6.3.2 Horticultural Treatments 24
6.3.3 Erosion Control 24
6.3.4 Trash/Debris Removal 25
6.3.5 Replacement Planting and Seeding 25
6.3.6 Site Protection and Signage; Vandalism 25
6.3.7 Pest Management 25
6.3.8 Irrigation Maintenance 26
6.3.9 Brush Management 26

TABLE OF CONTENTS (cont.)

Section **Page**

7.0 BIOLOGICAL MONITORING PROGRAM 26

7.1 Monitoring Schedule 26
7.2 Monitoring Methods 27
7.2.1 Pre-Installation/Site Preparation Monitoring 27
7.2.2 Installation Monitoring 27
7.2.3 120-Day Plant Establishment Period Monitoring 28
7.2.4 Maintenance Monitoring 28
7.2.5 Annual Monitoring 28

8.0 SUCCESS CRITERIA 29

8.1 Installation 29
8.2 120-Day Plant Establishment Period 29
8.3 Maintenance and monitoring Period 29
8.3.1 Native Vegetation Cover 30
8.3.2 Native Species Richness 31
8.3.3 Non-Native Vegetation Cover 31
8.3.4 Target Invasive Species 31
8.3.5 General Wildlife 31
8.3.6 Irrigation 31

9.0 REPORTING PROGRAM 32

9.1 Installation Period 32
9.2 120-Day Plant Establishment Period 32
9.3 Maintenance and Monitoring Period 32

10.0 SCHEDULE OF ACTIVITIES 32

11.0 REMEDIATION MEASURES 34

11.1 Initiating Procedures 34
11.2 Alternative Locations for Contingency Mitigation 34
11.3 Natural Disaster 35

12.0 COMPLETION OF RESTORATION 35

12.1 Confirmation 35
12.2 Notification of Completion 35

13.0 LIST OF PREPARERS 36

14.0 REFERENCES 37

TABLE OF CONTENTS (cont.)

LIST OF FIGURES

No.	Title	Follows Page
1	Regional Location	2
2	USGS Topography	2
3	Aerial Vicinity	2
4	Vegetation and Sensitive Resources	2
5	Potentially Jurisdictional Areas	4
6	Proposed On-site Upland Restoration/Revegetation	6
7	Proposed On-site Wetland Restoration	6

LIST OF TABLES

No.	Title	Page
1	Vegetation Impacts	4
2	Proposed Impacts to Potential U.S. Army Corps of Engineers, Regional Water Quality Control Board, Coastal California Commission, and California Department of Fish and Wildlife Jurisdictional Resources	5
3	Mitigation Requirements for Project Impacts on Sensitive Upland Vegetation Communities	5
4	Proposed Mitigation for Project Impacts to Sensitive Upland Vegetation Communities	7
5	Southern Maritime Chaparral (SMC) Restoration Plant Palette	18
6	SMC Revegetation Plant Palette – For New Utility Easement	20
7	Low Fuel/Erosion Control Revegetation Plant Palette – For Brush Management Zones	21
8	Maintenance Schedule	23
9	Monitoring Schedule	27
10	SMC Restoration Success Criteria	30
11	SMC and Low Fuel/Erosion Control Revegetation Success Criteria	30
12	Restoration Schedule of Activities	33

ACRONYMS AND ABBREVIATIONS

AMSL	above mean sea level
BMP	Best Management Practice
CAGN	coastal California gnatcatcher
Cal-IPC	California Invasive Plant Council
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
City	City of San Diego
DCSS	Diegan Coastal Sage Scrub
DSD	Development Services Department
HELIX	HELIX Environmental Planning, Inc.
lbs.	pounds
LJVR	La Jolla View Reservoir
MHPA	Multi-Habitat Planning Area
MSCP	Multiple Species Conservation Program
P&R	Parks and Recreation
Park	La Jolla Natural Open Space Park
PEP	Plant Establishment Period
Project	La Jolla View Reservoir Replacement Project
RWQCB	Regional Water Quality Control Board
SMC	Southern maritime chaparral
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey

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1.0 INTRODUCTION

This report presents a restoration plan (plan) for upland and ephemeral drainage impacts resulting from the City of San Diego La Jolla View Reservoir Replacement Project (Project). This plan is anticipated to fulfill mitigation requirements of the City's Multiple Species Conservation Program (MSCP) Subarea Plan (City of San Diego [City] 1997) and the City's Land Development Code Biology Guidelines (City 2018a) and fulfill the Project's obligation under the California Environmental Quality Act (CEQA).

The goal of this plan is to provide the framework to restore up to 4.57 acres of self-sustaining Tier I southern maritime chaparral (SMC) habitat, revegetate 3.02 acres of SMC habitat located within utility easements, brush management areas, and the abandoned Exchange Place reservoir site, and restore 0.074 acre (854 linear feet) of ephemeral drainages in temporarily impacted areas within the Project site. Restoration will consist of the installation of irrigation, container plantings, and seed, and maintenance for five years to control non-native vegetation and aid in native plant establishment. Within five years the restored habitat is expected to approach the function and value of undisturbed SMC habitat located on site. Revegetation will similarly consist of the installation of irrigation, container plantings and seed, though at a reduced quantity and containing no large shrubs. After 25 months, revegetated areas are expected to contain sufficient native cover to provide erosion control and limited wildlife habitat. Restored ephemeral drainages are expected to function for post-rain flood conveyance, similar in volume to pre-impact conditions.

This plan has been prepared according to Attachment B of the City's Biology Guidelines, "General Outline for Revegetation/Restoration Plans" (City 2018b). Nomenclature used in this report follow Holland (1986) Oberbauer (2008) for vegetation communities, The Jepson Flora Project (2018) for plants, American Ornithological Society (2018) for birds, and Society for the Study of Amphibians and Reptiles (2018). Habitat sensitivity is based on the City's Biology Guidelines (City 2018a).

2.0 PROJECT BACKGROUND

2.1 PROJECT LOCATION

The Project is generally located in the coastal zone, in central coastal San Diego County, within the La Jolla community of the City of San Diego, California (Figure 1, *Regional Location*). It is situated in unsectioned land within Township 15 South, Range 4 West on the U.S. Geological Survey (USGS) 7.5-minute La Jolla quadrangle (Figure 2, *USGS Topography*). Specifically, most of the Project is located within the 42-acre La Jolla Natural Open Space Park (Park), which is a part of City Parks and Recreation (P&R) Department Open Space, with surrounding land uses consisting of single-family residences to the north, south, and west; open space to the east; and a golf course to the southwest (Figure 3, *Aerial Vicinity*).

The existing La Jolla View Reservoir (LJVR) is located in the Park, approximately 500 feet east of Country Club Drive; the La Jolla Exchange Place Reservoir and Pump Station is located outside of the Park in a residential area between Country Club Drive and Al Bahr Drive, south of Soledad Avenue. The Project site is located within the La Jolla Community Plan area, which designates the Project site for "Parks, Open Space," and within and adjacent to the Multi-Habitat Planning Area (MHPA) of the City's MSCP (Figure 3).

2.2 PROJECT DESCRIPTION

The existing LJVR is a 0.72-million-gallon potable water storage facility that was constructed in 1949. Use of the existing LJVR has become very limited due to the higher-pressure zone and other water system changes. Water quality is also poor and requires supplemental chlorine treatment when in operation. In addition, the existing 16-inch diameter cast iron Muirlands Pipeline that supplies water to the existing LJVR is beyond its useful life and is undersized for current water conveyance requirements. Based upon these factors, and as described in the Public Utility Department's La Jolla View Reservoir Planning Study from November 2010 (City 2010), replacement of the existing facilities is necessary.

The proposed Project would relocate the existing aboveground LJVR to a higher elevation to properly service current water system hydraulics, to increase the volume to provide storage commensurate with current water system needs, and to bury the reservoir to minimize visual impacts within the Park. Both the existing reservoir and pump station would be demolished. The Project would consist of the construction of a new 3.1 MG pre-stressed concrete reservoir, construction of approximately 2,700 linear feet of new pipelines, installation of hydraulic monitoring equipment, re-construction of a paved access road (Encelia Drive), and construction of a temporary access road. The City is the lead agency for the Project.

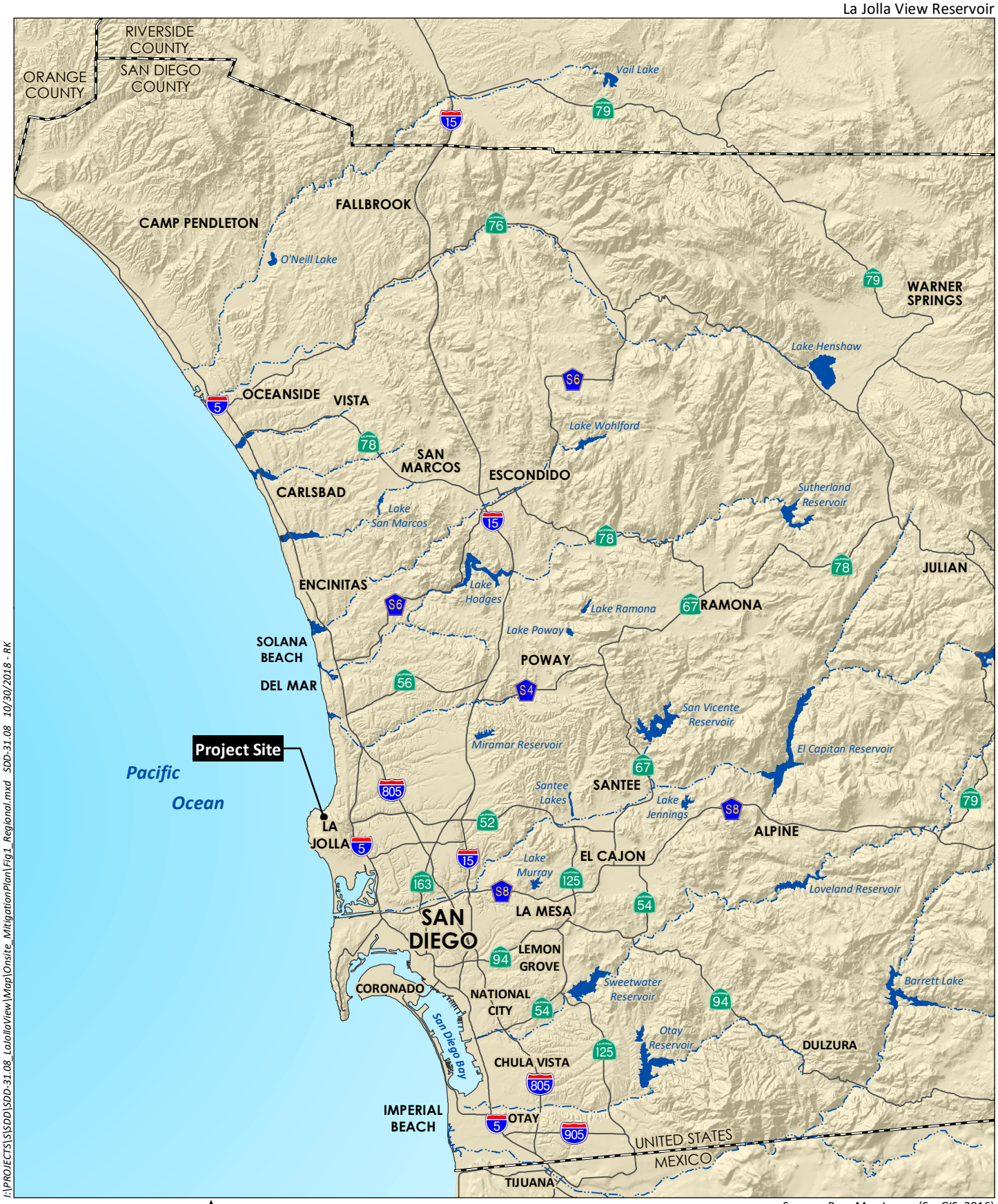
2.3 EXISTING CONDITIONS WITHIN THE PROJECT SITE

2.3.1 Vegetation Communities/Land Uses

The Project site currently supports six vegetation communities including SMC, Diegan coastal sage scrub (DCSS), DCSS/ornamental, eucalyptus woodland, ornamental vegetation, and disturbed land (Figure 4, *Vegetation and Sensitive Resources*; Rocks Biological Consulting 2019). The City defines Environmentally Sensitive Lands in their Biology Guidelines (City 2018a). According to these guidelines, all wetlands and associated plant communities are protected, and upland vegetation is grouped into tiers based upon the relative scarcity and sensitivity of each habitat (Tier I- Tier IIIB). The Project site supports two sensitive vegetation communities: SMC (Tier I) and DCSS (Tier II). The SMC vegetation within the Project site is dominated by chamise (*Adenostoma fasciculatum*), Nuttall's scrub oak (*Quercus dumosa*), black sage (*Salvia mellifera*), and toyon (*Heteromeles arbutifolia*). The DCSS is composed of small patches of shrubs including broom baccharis (*Baccharis sarothroides*), coastal sagebrush (*Artemisia californica*), and California encelia (*Encelia californica*). On-site elevations range from approximately 650 feet above mean sea level (AMSL) in the southeastern portion of the site to approximately 220 feet AMSL in its northwestern portion (HELIX 2018). Four soil types are mapped within the Project site: Altamont clay (30 to 50 percent slopes), Huerhuero loam (15 to 30 percent slopes, eroded), Huerhuero loam (30 percent slopes, two to nine percent slopes), and Olivenhain cobbly loam (30 to 50 percent slopes) (U.S. Department of Agriculture 2018).

2.3.2 Sensitive Species

Three sensitive plants were observed within the Project site (Figure 4; Rocks 2019): Nuttall's scrub oak, ashy spike moss (*Selaginella cinerascens*), and San Diego barrel cactus (*Ferocactus viridescens*). Nuttall's scrub oak is a CRPR 1B.1 species, which indicates it is considered "seriously threatened in California and elsewhere." Ashy spike moss is a California Rare Plant Rank (CRPR) 4.1 species, which indicates it is on a watch list and has a "limited distribution in California." San Diego barrel cactus is a CRPR 2B.1 species,



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Source: Base Map Layers (SanGIS, 2016)

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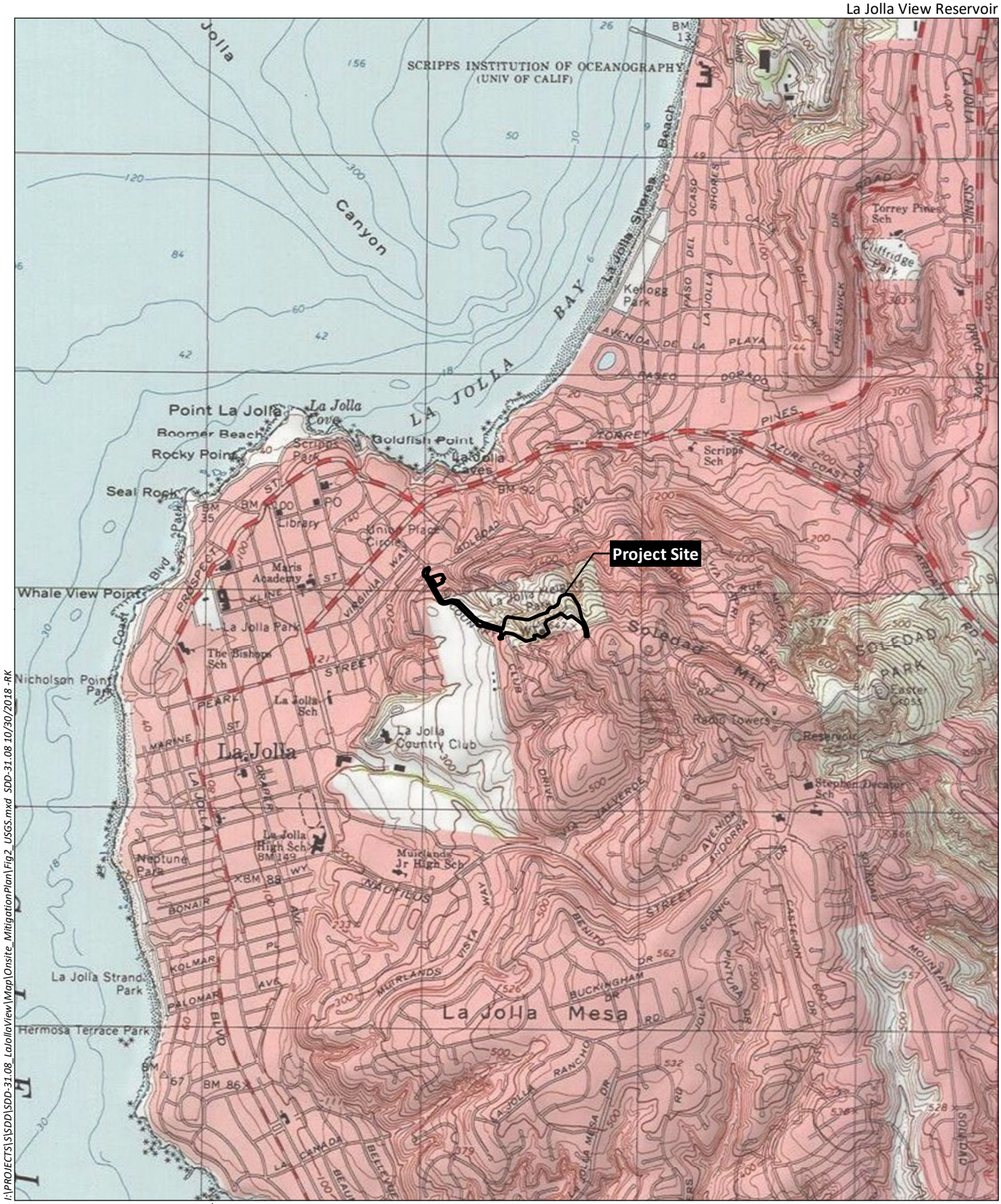
Regional Location

Figure 1



Source: La Jolla 7.5' Quad (USGS)

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USGS Topography

Figure 2



Source: Aerial (SanGIS 2017); MHPA (SanGIS 2018)

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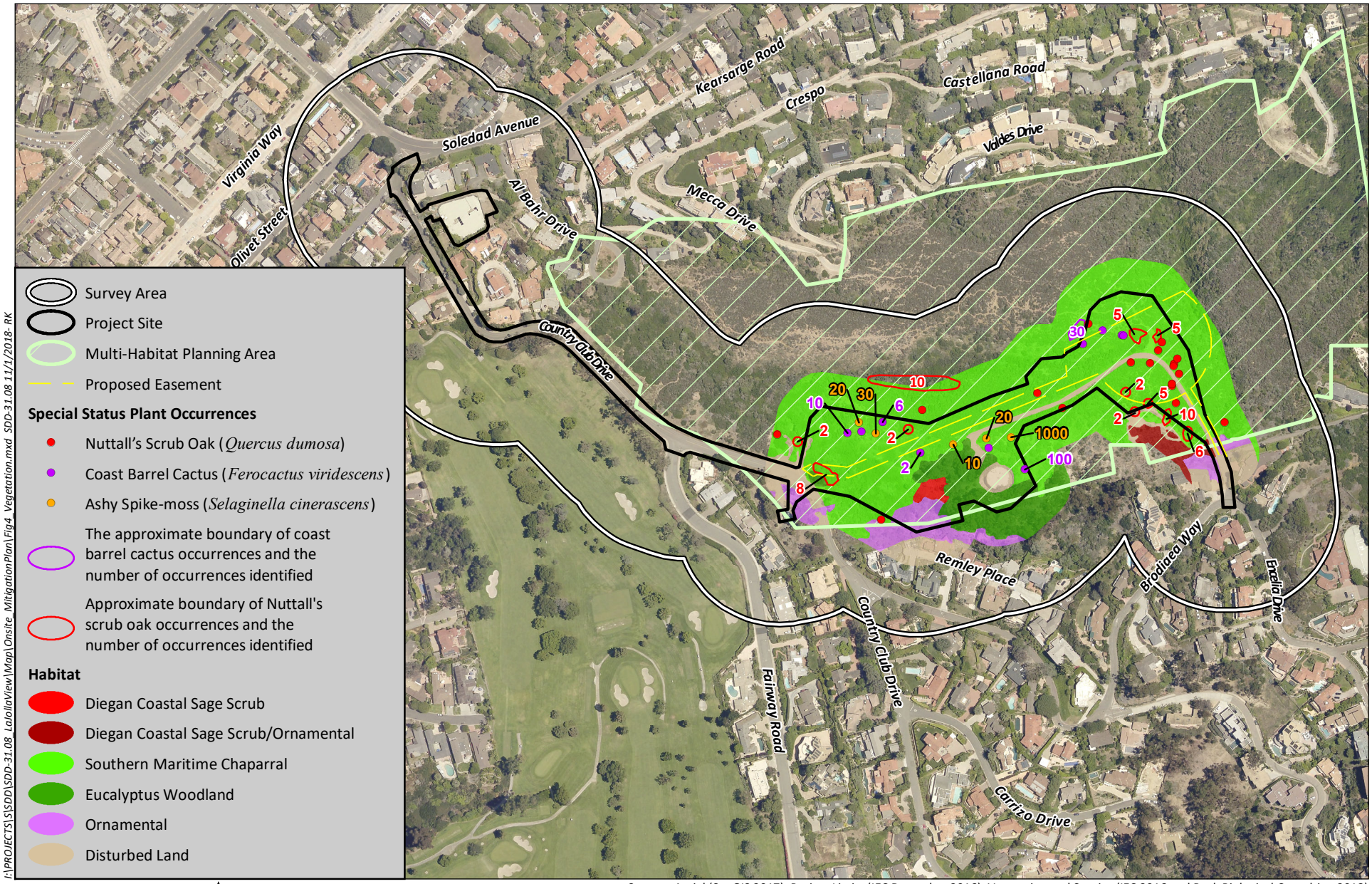
Aerial Vicinity

Figure 3



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Source: Aerial (SanGIS 2017); Project Limits (IEC December 2016); Vegetation and Species (IEC 2016 and Rock Biological Consulting 2018)

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Vegetation and Sensitive Resources

Figure 4

which indicates it is considered "seriously threatened in California but more common elsewhere" and is an MSCP covered species.

A single individual of one sensitive animal, the federally and state listed as endangered least Bell's vireo (*Vireo belli pusillus*), was observed on the Project site in early spring 2014 in SMC habitat (Rocks 2019). This species typically inhabits riparian habitat, and, given a lack of appropriate breeding habitat in the park and timing of the observation, it was considered an isolated sighting of a migratory individual.

Given the presence of DCSS habitat, focused (protocol-level) surveys of the full Project area and a 300-foot buffer were performed for the federally-listed threatened and MSCP-covered coastal California gnatcatcher (*Polioptila californica californica*; CAGN) in 2015 with negative results (Rocks 2019). Previous, limited surveys were conducted in spring 2014 as part of the Project geological survey effort; results of that survey were also negative.

Coast horned lizard (*Phrynosoma blainvilli*) has a moderate potential for occurrence on site based on the presence of suitable habitat on site and the site's location within this species' range.

Orange-throated whiptail (*Aspidoscelis hyperythyra*) has a moderate potential for occurrence on site based on the presence of suitable habitat on site and the site's location within this species' range.

2.3.3 Ephemeral Drainages

No federal wetlands occur on site, but the site does support drainages that could be considered U.S. Army Corps of Engineers (USACE)/Regional Water Quality Control Board (RWQCB) jurisdictional non-wetland, ephemeral waters of the U.S./State and/or California Department of Fish and Wildlife (CDFW) jurisdictional ephemeral streambed (Figure 5, *Potentially Jurisdictional Areas*). The on-site drainages do not support a dominance of hydrophytic vegetation; therefore, the drainages do not qualify as a City jurisdictional wetland.

2.4 EXISTING FUNCTIONS AND SERVICES

The functions and services of the existing Tier I SMC, Tier II DCSS, and ephemeral drainages are to provide suitable habitat for sensitive species such as San Diego barrel cactus, San Diego horned lizard and orange-throated whiptail as well as nesting and foraging habitat for a variety of other invertebrates, mammals, reptiles, and birds. Drainage features function to convey runoff during and shortly following rain events down slope and off site.

2.5 PROJECT IMPACTS

2.5.1 Vegetation Communities/Land Uses

LJVR replacement, including the construction of a temporary stockpile and construction access road, would result in direct impacts to approximately 5.67 acres of sensitive upland habitat, consisting of 5.53 acres of Tier I SMC and 0.13 acre of Tier II DCSS located within the MHPA, and 0.01 acre of DCSS located outside of the MHPA (Figure 4; Table 1, *Vegetation Impacts*). The associated Exchange Place reservoir demolition would result in additional impacts to 0.51 acre of disturbed land (Tier IV) located outside of the MHPA. Impacts to Tier I and Tier II habitat are considered significant and require

mitigation pursuant to the City's Biology Guidelines (City 2018a). Impacts to Tier IV habitats are not considered significant and do not require mitigation.

Table 1
VEGETATION IMPACTS

Habitat Type (Tier)	Tier[1]	Impacts (acres)				
		Reservoir and Pipeline Easement		Temporary Stockpile and Construction Access Road		Total
		Inside MHPA	Outside MHPA	Inside MHPA	Outside MHPA	
Southern Maritime Chaparral	I	2.13	-	3.40	-	5.53
Diegan coastal sage scrub	II	-	-	0.13	0.01	0.14
Eucalyptus Woodland	IV	0.01	-	0.73	0.05	-0.79
Ornamental	IV	0.01	0.01	0.23	0.06	0.31
Disturbed Land	IV	0.10	0.01	0.80	1.50	2.41
TOTAL		**2.25**	**0.02**	**5.29**	**1.62**	**9.18**

[1] Tiers refer to City of San Diego (City) Multiple Species Conservation Program (MSCP) Subarea Plan (City 1997) habitat classification system. Impacts within the Country Club Road portion of the impact area are included within the Reservoir and Pipeline Easement acreages. Impacts to 0.51 acre of disturbed land at the Exchange Place Reservoir site are in addition to those included in this table.

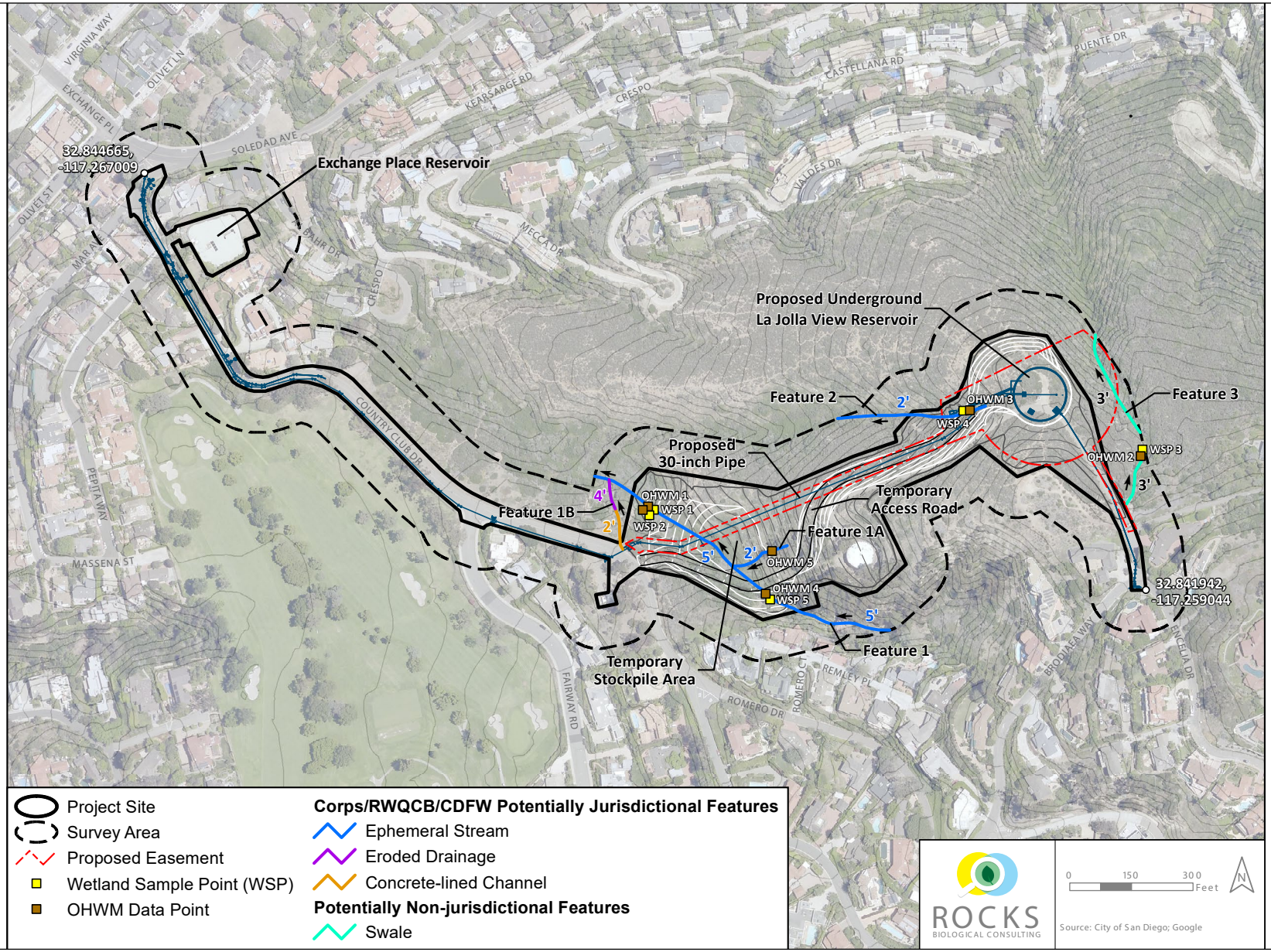
2.5.2 Sensitive Species

The Project would impact sensitive plants including ashy spike moss, several San Diego barrel cactus, and approximately 45 Nuttall's scrub oak. The Project would also impact habitat for potentially occurring sensitive wildlife such as the CAGN, coast horned lizard, and orange-throated whiptail.

2.5.3 Ephemeral Drainages

The Project would result in impacts to 0.074 acre (854 linear feet) of on site drainages that could be considered USACE/RWQCB jurisdictional non-wetland, ephemeral waters of the U.S./State and/or CDFW jurisdictional ephemeral streambed. Since the drainages lack hydrophytic vegetation, they do not qualify as a City jurisdictional wetland, and no wetland buffers are present; therefore, no significant adverse impact to City jurisdictional wetlands or buffers would occur with implementation of the Project.

Total potential jurisdictional impacts associated with the Project are provided in Table 2, *Proposed Impacts to Potential U.S. Army Corps of Engineers, Regional Water Quality Control Board, Coastal California Commission, and California Department of Fish and Wildlife Jurisdictional Resources*, and additional information is provided in the most current Project jurisdictional delineation report (Appendix D of the Biological Technical Report for the Project [Rocks 2019]). Final jurisdictional determinations will be made in consultation with federal and state wetland permitting agencies prior to Project implementation.



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Potentially Jurisdictional Areas

Figure 5

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Table 2
PROPOSED IMPACTS TO POTENTIAL U.S. ARMY CORPS OF ENGINEERS, REGIONAL WATER QUALITY CONTROL BOARD, COASTAL CALIFORNIA COMMISSION, AND CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE JURISDICTIONAL RESOURCES

Feature Name	Total Impacts[1] (acres)	Total Impacts (linear feet)
Feature 1	0.057	499
Feature 1A	0.007	147
Feature 1B	0.001	20
Feature 2	0.009	188
TOTAL	**0.074**	**854**

[1] Acreages have been rounded to the thousandth due to the small size of the features.

2.6 REQUIRED MITIGATION

2.6.1 Vegetation Communities/Land Uses

In accordance with City's Biology Guidelines (2018a), impacts to Tiers I and II habitats must be mitigated. Mitigation for impacts to Tier I habitat located inside the MHPA requires a 2:1 ratio for mitigation occurring within the MHPA, and 3:1 ratio outside of the MHPA (Table 3, *Mitigation Requirements for Project Impacts on Sensitive Upland Vegetation Communities*). Tier I mitigation must occur as Tier I habitat, though it may be out-of-kind. Mitigation for impacts to Tier II habitat inside the MHPA requires a 1:1 ratio for mitigation occurring within the MHPA and 2:1 ratio outside of the MHPA; however, if Tier II impacts are located outside of the MHPA, then the ratio is reduced to 1.5:1 for mitigation occurring outside the MHPA. Impacts to Tier II habitat can be mitigated as Tier II or higher tier habitat.

If all mitigation were to occur wholly inside the MHPA a total of 11.20 acres of mitigation would be required for habitat impacts (including at least 11.06 acres of Tier I habitat, and the remainder as Tier I or Tier II habitat) and if mitigation were wholly occurring outside of the MHPA a total of 16.87 acres of mitigation would be required for habitat impacts (including at least 16.59 acres of Tier I habitat and the remainder as Tier II habitat).

Table 3
MITIGATION REQUIREMENTS FOR PROJECT IMPACTS ON SENSITIVE UPLAND VEGETATION COMMUNITIES

Habitat Type	Tier	Project Impact (acres)		Mitigation Requirement			
		Inside MHPA	Outside MHPA	Inside MHPA		Outside MHPA	
				Ratio	Acres	Ratio	Acres
Southern Maritime Chaparral	I	5.53	-	2:1[1]	11.06	3:1[1]	16.59
Diegan coastal sage scrub	II	0.13	0.01	1:1/1:1[2,3]	0.14	2:1/1.5:1[2,3]	0.28
TOTALS		**5.66**	**0.01**		**11.20**		**16.87**

[1] Must occur as Tier I habitat, though this can be out-of-kind.
[2] For impacts occurring inside/outside the MHPA.
[3] Can occur as Tier I or II habitat.

2.6.2 Sensitive Species

Project impacts to ashy spike moss, which is relatively common in San Diego and is being conserved through the MSCP program, would not be significant and require no mitigation.

Coast barrel cactus is an MSCP covered species; thus, take of the species is allowed for projects that comply with the City's MSCP implementing regulations. The Project complies with MSCP implementing regulations; therefore, impacts would be less than significant. Salvage and transplantation of this species is included in this plan to further protect this species.

The loss of approximately 45 Nuttall's scrub oak plants is considered adverse; however, securing comparable habitat and compliance with the MSCP offsets impacts to this species; therefore, impacts are not considered significant and no species-specific mitigation is required.

Coast horned lizard is an MSCP covered species; thus, take of the species is allowed for projects that comply with the City's MSCP implementing regulations. To comply with the implementing regulations for this species the Project is (1) not creating edge effects since it is replacing an existing reservoir with an underground reservoir and (2) removing all aboveground temporary irrigation (which encourages Argentine ant population increases).

Orange-throated whiptail is not an MSCP covered species. The potential loss of orange-throated whiptail individuals, if present, would be adverse; however, securing comparable habitat and compliance with the MSCP offsets impacts on most sensitive species, including orange-throated whiptails. Therefore, potential impacts on this species would not be considered significant and no species-specific mitigation is required.

2.6.3 Ephemeral Drainages

Please note that impacts to potential federal and state jurisdictional waters have not yet been permitted. Mitigation ratios will be determined during consultation with the USACE, CDFW, CCC, and RWQCB and will depend on mitigation type (creation, restoration, etc.), mitigation location, and quality of mitigation proposed; however, a 1:1 to 3:1 mitigation ratio is a reasonable estimate for planning purposes. As previously noted, no City wetlands or buffers would be impacted.

3.0 RESTORATION OVERVIEW

3.1 RESTORATION GOALS/LOCATION

To partially meet the mitigation requirement for temporary and permanent impacts to sensitive Tier I and Tier II habitat, the City proposes the on-site restoration of 4.57 acres of as Tier I SMC of which 4.53 acres is located inside the MHPA and 0.04 acre is located outside of the MHPA (Figure 6, *Proposed On-site Upland Restoration/Revegetation*; Table 4, *Proposed Mitigation for Project Impacts to Sensitive Upland Vegetation Communities*). The remaining 6.64 acres of required Tier I and 0.14 acre of Tier II mitigation would occur off site within the MHPA at Los Peñasquitos Canyon Preserve; off-site mitigation is addressed in a separate report (HELIX 2019). In addition to upland restoration, unvegetated ephemeral drainages would be restored on site to partially meet mitigation requirements for impacts to potentially jurisdictional areas (Figure 7, *Proposed On-site Wetland Restoration*). The final goal will be to

La Jolla View Reservoir



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Source: Aerial (SanGIS 2017); Project Limits (IEC December 2016); Mitigation Plan (IEC 2017)

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Proposed On-site Upland Restoration/Revegetation

Figure 6



0 100 Feet

Source: Aerial (SanGIS 2017); Site Plan (IEC December 2016)

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Proposed On-site Wetland Restoration

Figure 7

restore habitat that meets the City's description of SMC (Oberbauer 2008) and jurisdictional drainages by the end of five years.

Table 4
PROPOSED MITIGATION FOR PROJECT IMPACTS TO SENSITIVE UPLAND VEGETATION COMMUNITIES

Impacts		Mitigation Requirements		Proposed Mitigation		
				On-Site		
Vegetation Community	Tier	Ratio[1]	Acres[1]	Inside MHPA	Outside MHPA	Off-Site[4]
Southern Maritime Chaparral	I	2:1/3:1	11.06/16.59	4.53[2]	0.04[3]	6.50[5]
Diegan Coastal Sage Scrub	II	1:1/2:1	0.14/0.28	--	--	0.14
	TOTAL	**--**	**11.20/16.87**	**4.53**	**0.04**	**6.64**

[1] For mitigation occurring inside/outside the MHPA.
[2] Based on a 2:1 mitigation ratio, 4.53 acres of on-site restoration provides mitigation for 2.27 acres of project impact.
[3] Based on a 3:1 mitigation ratio, 0.04 acre of on-site restoration provides mitigation for 0.01 acre of project impact.
[4] All off-site mitigation will occur within the MHPA.
[5] Based on 2.28 acres of southern maritime chaparral mitigated on-site (see footnotes 2 and 3, above) and a 2:1 mitigation ratio for off-site mitigation within the MHPA [(5.53-2.28) x 2 = 6.50].

To further protect San Diego barrel cactus, all individuals identified within the impact area will be salvaged, stored temporarily, and transplanted back into the on-site restoration area. Although not required, the on-site restoration plant palette includes this species to further offset impacts. Like coast barrel cactus, Nuttall's scrub oak is included in the on-site restoration plant palette, substantially offsetting the Project-related loss of this species.

The new reservoir, associated pipelines, and overlying easements, as well as the parking area and access roadway are considered permanent impacts. Although these areas will not be restored for mitigation purposes, non-paved areas within this category, as well as an on-site brush management zone will be revegetated with native species for erosion control and adjacent habitat protection. All revegetated areas (3.02 acres in total) will be subject to a 25-month maintenance and monitoring period.

3.2 EXISTING CONDITIONS/FUNCTIONS AND SERVICES

Existing conditions within the on-site upland and ephemeral drainage restoration/revegetation areas are the same as those addressed for the Project (Section 2.3, above). Following Project implementation pre-existing site topography will be restored throughout temporarily impacted portions of the site by the grading contractor. This will include the re-creation of pre-existing drainage features. Following the recreation of site topography, salvaged topsoil will be applied by the grading contractor in two steps, with those salvaged from sub-surface soils applied first (approximately 12 inches in depth) and those salvaged from the top two inches applied to the ground surface. Cryptogamic soil crusts will also be installed at the approximate locations of where they were salvaged from, to the extent possible. It is expected that the entire site will be in a graded condition at the end of the Project. The functions and services of the graded, unvegetated site will be limited, and are expected to be greatly improved by implementation of on-site restoration/revegetation described in this plan.

3.3 MITIGATION SITE SUITABILITY

The proposed upland restoration is considered suitable for SMC habitat because of the following factors:

1) the proposed restoration area currently contains the target vegetation community;
2) pre-Project site topography will be recreated;
3) salvaged topsoil will be used to re-establish appropriate rooting medium;
4) the restoration area is located on City-owned Park land within the MHPA;
5) there adequate site access for restoration installation and five-year maintenance period;
6) the target habitat is also located immediately adjacent to the proposed restoration area;
7) proximity to irrigation hook-ups;
8) location outside of utility easements; and
9) location outside of any brush management zone.

The restoration of ephemeral drainages is considered feasible due to pre-Project topography being recreated at the site in all temporarily impacted areas. This will include the restoration of sloping topography and narrow valleys that will convey rain runoff.

Areas proposed for revegetation are considered suitable for the same reasons as listed above for proposed restoration.

Both during installation and the five-year maintenance/monitoring period, access to the restoration and revegetation areas will be obtained along the reservoir access road. Once restored/revegetated, long-term maintenance and management of these areas will be executed by the City P&R Department as part of their Open Space management program. Future potential impacts to the proposed restoration area and associated ephemeral drainage resulting from utility maintenance activities or future utility upgrades are not anticipated.

3.4 RESTORATION DESIGN

The design of the on-site SMC restoration and revegetation effort consists of restoring pre-Project topography wherever feasible, reusing salvaged topsoil and installing irrigation, native plantings (including those salvaged prior to Project initiation), and seed of species that are characteristic of local SMC habitat. Restoration areas will be maintained and monitored for five years (up to three with irrigation), while revegetation areas will be maintained and monitored for 25 months (during which time irrigation may be used), or until success criteria specified for the restoration/revegetation areas have been met. Ephemeral drainages will be re-created at the same locations where they existed prior to Project grading, mainly at the bottom of slopes.

3.5 TARGET FUNCTIONS AND SERVICES

The functions and services of the restored Tier I SMC and ephemeral drainages are expected to approach those present in existing SMC habitat and drainages prior to Project impacts. The restored habitat will provide suitable habitat for sensitive species such as San Diego barrel cactus, San Diego horned lizard, and orange-throated whiptail as well as nesting and foraging habitat for a variety of other invertebrates, mammals, reptiles, and birds. Restored drainages would convey runoff during and shortly following rain events down slope and off site.

Revegetated areas are expected to stabilize soils with native vegetation so that impacts to adjacent, native habitat can be minimized.

3.6 MULTIPLE SPECIES CONSERVATION PROGRAM LAND USE CONSISTENCY ANALYSIS

The MSCP General Planning Policies and Design Guidelines apply to lands in the MHPA to preserve its value as habitat for covered species. The City's MSCP (1997) includes Land Use Adjacency Guidelines designed to minimize indirect impacts to sensitive resources contained adjacent to the MHPA and, thus, maintain the value of the preserved open space. These adjacency guidelines govern impacts within and adjacent to the MHPA. The land use adjacency and compatible land use guidelines were implemented to minimize impacts and maintain the function of the MHPA. Land use adjacency guidelines pertain to drainage, toxins, lighting, noise, barriers to incursion, invasive species, brush management, and grading/land development. Compatible land use guidelines consist of roads and utilities, fencing and lighting, materials storage, mining, extraction, processing facilities, and flood control. Activities in this restoration plan that align with MSCP-compatible land use requirements include: storing materials within designated areas and using appropriate containment and using approved erosion and sediment controls during and after maintenance, and restoring unavoidable temporary impacts to native habitat.

The proposed restoration effort is consistent with the MSCP General Planning Policies and Design Guidelines, as discussed below. It is consistent with the roads and utilities guideline because temporary construction areas, roads, and staging areas will be located within the Project development footprint and will not disturb adjacent sensitive habitat unless it is unavoidable. All vehicular site access will occur along the access road or other disturbed areas; foot trails will be designated by the Restoration Specialist and will occur through disturbed habitat wherever possible. If temporary habitat disturbance beyond minor trimming of aboveground vegetation is unavoidable, then restoration of, and/or other mitigation for, the disturbed area will occur. Restoration and revegetation areas will be delineated using construction fencing/staking. No lighting is included as part of the restoration effort. Long-term materials storage (e.g., hazardous or toxic, chemicals, equipment, etc.) will not occur within the MHPA. Storage may occur, if necessary, temporarily during construction, per applicable regulations and only within designated staging areas. Best Management Practices (BMPs) will be used, as needed, to protect habitat within the MHPA. Mining will not occur as part of the restoration effort. The need for flood control is not expected.

Consistency of the restoration and revegetation effort with the land use adjacency guidelines is detailed below. Proposed restoration/revegetation will restore current drainage patterns and will not create any new, impermeable surfaces within the mitigation site. No toxins will be introduced as only appropriate herbicides will be used for weed control. No night lighting will be used as part of the restoration effort. Since grading of the restoration/revegetation area will be completed during Project construction, no

noise impacts or constraints are expected. No permanent barriers will be constructed as part of the restoration effort; temporary signage will direct public access away from the mitigation site. Temporary barriers may be installed if public access becomes detrimental to the restoration effort. Invasive plants will be removed from the mitigation site and will not be included in the restoration/revegetation plant palettes. A small area of revegetation will be located within the brush management zone, but no new structures are being installed as part of the restoration effort. The proposed restoration is consistent with the land use adjacency guideline concerning grading/land development as no separate grading is proposed (all grading will be part of the Project). One existing utility access road will remain within the on-site mitigation area.

The proposed restoration specifically conforms to the MSCP because existing, healthy Tier I and Tier II habitat will be restored in kind, thereby re-creating existing functions and services. All the proposed restoration/revegetation and subsequent maintenance and monitoring will be consistent with the City's MSCP.

4.0 MITIGATION ROLES AND RESPONSIBILITIES

4.1 FINANCIAL RESPONSIBILITY

The Project proponent will be responsible for financing the installation, five-year maintenance program, and biological monitoring of the restoration proposed in this plan. Damage to facilities occurring as a result of unusual weather or vandalism will be repaired, as directed by the Restoration Specialist. The cost of such repairs will be paid for as extra work. The contractor will be responsible for damage caused by the contractor's inadequate maintenance or operation of facilities, as determined by the Restoration Specialist.

4.2 RESTORATION TEAM

4.2.1 4.2.1 Project Proponent

The Project proponent will be responsible for retaining a qualified Restoration Specialist with over five years of experience monitoring habitat restoration to oversee the entire installation and monitoring of the mitigation program in coordination with City DSD staff. The Project proponent will also be responsible for retaining qualified installation and maintenance contractors with documented success in restoration of native upland habitat. Contact information for the Project proponent is:

City of San Diego
Public Works Department
Contact: Sean Paver
525 B Street, MS908A
San Diego, CA 92101
Office: 619-533-3629

4.2.2 Responsible Agencies

The City DSD will be responsible for issuing any necessary permits and reviewing and approving this plan.

City of San Diego
Development Services Department
Contact: Mr. Mark Brunette
1222 First Ave., MS 501
San Diego, CA 92101-4101
Office: 619-446-5379

Due to the location of the restoration/revegetation areas on City-owned Park lands, the City's P&R will be responsible for overseeing the establishment and development of habitat during the five-year maintenance and monitoring period and beyond. The primary avenue for the City's participation is through the permitting process; reviewing and commenting on this plan, the construction documents, and subsequent annual reports; and inspecting and commenting on significant milestones involved in the implementation of this plan.

Contact: Mr. Paul Kilburg
City of San Diego
Parks and Recreation Department
Office: 619-685-1327
pkilburg@sandiego.gov

4.2.3 Landscape Architect

A licensed landscape architect will prepare the necessary construction documents, including grading, irrigation, and planting plans, and will provide the draft landscape plans to the City for review and approval prior to initiating construction. This person will inspect the irrigation system for adequate pressure and appropriate coverage.

4.2.4 Restoration Specialist

Overall supervision of the installation and maintenance of this restoration effort will be the responsibility of a Restoration Specialist with at least five years of experience in upland habitat restoration. The Restoration Specialist will oversee the efforts of the installation/maintenance contractor(s) for the life of the restoration. Specifically, the Restoration Specialist will educate all participants about restoration goals and requirements; inspect plant material; directly oversee planting, seeding, weeding, installation of erosion control materials, and other maintenance activities; and conduct regular monitoring as well as annual assessments of the restoration effort. The Restoration Specialist will help ensure that the contractor does not inadvertently impact adjacent sensitive habitat during installation or maintenance activities. When necessary, the Restoration Specialist will provide the Project proponent and contractor with a written monitoring memo, including a list of items in need of attention. The Restoration Specialist will prepare and submit required reports annually. A Biologist may perform some of the duties outlined under the supervision of the qualified Restoration Specialist.

4.2.5 Installation/Maintenance Contractor(s)

The installation and maintenance contractor(s), hired by the Project proponent, will have experience in native habitat restoration, be knowledgeable as to the maintenance of native upland habitat, and be familiar with native and non-native plants. The maintenance contractor and the installation contractor may be the same entity. The installation and maintenance contractor(s) will be a firm (or firms) holding a valid C-27 Landscape Contracting License from the State of California, a valid Maintenance Gardener Pest Control Business License or Pest Control Business License, and a Qualified Applicator Certificate or Qualified Applicator License, with Category B, that will allow them to perform the required work for this restoration effort. The Project proponent may change contractors at its discretion.

The installation contractor will be responsible for plant salvage, initial weed control, irrigation installation, planting, and seeding as well as maintenance of the mitigation sites during the 120-day plant establishment period (PEP). Following installation, this contractor will submit marked up as-built irrigation plans to the Project proponent and lists of all plant/seed material installed to the Restoration Specialist for inclusion in the as-built report. The installation contractor will remain responsible for the restoration/revegetation effort until these areas have met the success criteria specified for the PEP and official sign off has been obtained from the Restoration Specialist, City's Project Manager, and City DSD staff.

The maintenance contractor will implement maintenance of the restoration area for five years and revegetation areas for 25 months after the end of the PEP (and formal sign off by the City). The maintenance contractor will service the entire mitigation site according to the maintenance schedule (Section 6.1, below). Service will include, but not be limited to, weed control, irrigation maintenance, trash removal, watering, dead plant replacement, re-seeding, and pest and disease management. Following restoration/revegetation sign off, the maintenance contractor also will remove any erosion control, fencing/staking, and the aboveground portion of the irrigation system, as directed by the Restoration Specialist and Project Manager. All activities conducted will be seasonally appropriate and approved by the Restoration Specialist and Project Manager. The maintenance contractor will meet the Restoration Specialist and Project Manager at the site when requested and will perform all checklist items in a timely manner as directed.

4.2.6 Archeologist/Native American Monitor

A qualified archaeologist and a Native American (Kumeyaay) monitor are required on site full time during all topsoil salvage. Ground disturbance for restoration/revegetation installation is anticipated to be limited to digging the irrigation mainline, digging holes for the installation of plants, and installation of signs and stakes. These activities are not anticipated to require archeological/Native American monitoring as they will result in minimal disturbance to surface and subsurface soils; however, monitors must be informed of any new developments, such as inadvertent discovery of cultural resources.

4.2.7 Nursery (Seed/Plant Procurement)

Plants and seed may be purchased from a nursery or supplier specializing in native plants or contract grown. Plant and seed material should be locally propagated and collected from coastal San Diego County, within 25 miles of the coast. If necessary, salvaged plants may be stored at a qualified nursery under the supervision of the Restoration Specialist.

5.0 INSTALLATION PLAN

5.1 INSTALLATION SCHEDULE

Restoration activities will begin immediately after construction is completed, as weather allows, and should be completed within 18 months or as quickly as practicable. Because it can take 12 months or more to collect seed of various species and grow seedlings into one-gallon sized container plantings, this process should be initiated as soon as possible following restoration authorization.

Restoration implementation is dependent on seasonal factors. Ideally, site preparation should begin before the rainy season so that planting and seeding can occur at the start of the rainy season.

If significant ground disturbance work is proposed during the nesting season (January 15 through August 31), a qualified biologist will conduct a pre-construction nesting bird survey within and adjacent to the restoration/revegetation areas. Additional measures that take into consideration the type of work being conducted will be implemented if CAGN is detected or nesting migratory birds or raptors are found. The results of the pre-construction nesting bird survey shall be reported to the Project proponent in a brief memorandum, which will then be forwarded on to City DSD.

Monitoring of the restoration effort will begin during site preparation, continue throughout the installation and a 120-day PEP, and extend for five years for restoration and 25 months for revegetation areas following completion of the PEP. Maintenance will begin following completion of installation and will continue during the 120-day PEP and for a minimum of five years (restoration area) or 25 months (revegetation areas) thereafter. Manual non-native plant removal or control (including use of herbicides) may be conducted in the restoration/revegetation areas at any time of year, provided it does not involve use of equipment which could result in noise-related direct or indirect impacts to sensitive bird species (i.e., greater than 60 decibels hourly average) within DCSS.

5.2 CONSTRUCTION ACCESS AND STAGING

A Right-of-Entry permit may be required for implementation of this plan; if necessary, it would be obtained from the City's P&R Department prior to any disturbance activities. Vehicle access to the restoration site will occur from the junction of Exchange Place and Soledad Avenue and continue along Country Club Drive (Figure 6); City key access will be required. Some equipment (e.g., irrigation materials or container plantings) may be temporarily stored directly inside of the delineated restoration boundaries, as approved by the Restoration Specialist.

The type of equipment used for site preparation and installation will be at the discretion of the installation contractor. Staging for restoration activities will be on site, within disturbed land. All vehicles and construction equipment will be restricted to the staging area(s) when not required for restoration activities. No impacts to native habitat are proposed by construction staging or access. Materials cannot be stored along dirt roads or trails, where it could block access. The contractor will be responsible for determining the location of any buried utilities prior to any earth disturbance.

5.3 PRE-CONSTRUCTION ACTIVITIES

5.3.1 Delineating Limits of Work

The grading contractor should survey and stake the Project limits of work and fence these boundaries prior to the start of any Project-related construction.

5.3.2 Plant/Seed Orders

The plant species selected for installation within the restoration/revegetation areas have been observed nearby in existing SMC habitat or are common in the region in this or DCSS habitat. A combination of container plants and seed will be used for the restoration and revegetation efforts. All plants and seed installed will be collected or derived from local plant populations occurring in San Diego County within 25 miles of the restoration area. Substitutions, other donor sites, or use of commercial material may be allowed if materials are unavailable, at the discretion of the Restoration Specialist, City P&R Department, and Project Manager.

The Restoration Specialist and Project Manager must approve all container stock prior to installation. Extra container stock may be installed at the time of initial planting or be held in a nursery to be used to replace plants that die during the PEP, at the contractor's discretion. Because it can take 12 months or more to collect seed of various species and grow seedlings into one-gallon sized container plantings, this process should be initiated as soon as possible following restoration authorization. It is important to note that many of the species specified for planting will have mature seed from mid to late spring. Collected seed will be labeled and stored in a cool, dry location until it is used.

5.3.3 Pre-Construction Meeting

Prior to initiation of restoration activities, an on-site meeting will be held with the Project proponent, grading contractor, installation contractor, landscape architect, Restoration Specialist, Cultural/Native American monitor, City DSD, and City P&R staff. Topics that will be addressed at this meeting include but are not limited to: (1) plant salvage, (2) timing constraints for vegetation clearing and topsoil salvage, (3) identification of sensitive areas and a strategy for avoidance, (4) defining site access routes and restrictions, (5) locating staging areas, and (6) the overall restoration goal.

5.3.4 Pre-Construction Site Documentation

Pre-grading photos will be taken by the Restoration Specialist from at least six designated photo stations. This information will be used later to track vegetation establishment within the restoration and revegetation areas.

5.3.5 Plant Salvage

Salvage of all intact specimens of coast barrel cactus (*Ferrocactus viridescens*), as well as other cacti, succulents (e.g., dudleya), and bulbs (e.g., *Allium* spp. and *Calochortus* spp.) will be required. Additional cuttings and/or seed may also be collected by the installation contractor to grow into container plantings for the restoration effort. Plant salvage should be conducted by the installation contractor and monitored by the Restoration Specialist. In conformance with the cultural resources report (Laguna Mountain Environmental 2018), an archeologist and Native American (Kumeyaay) monitor(s) will also

need to be present during any salvage operations that result in initial ground disturbance. To facilitate re-planting in the same sun/shade orientation as these individuals were originally growing, the north-facing orientation needs to be marked on each plant during salvage. Cacti, succulents, and bulbs can simply be heeled into topsoil from the site.

If construction proceeds quickly, specimens can be stored on site, watered as needed, and planted at completion. If a longer storage period (more than two to three months) is required, salvaged plants can be container-grown at a qualified nursery for reuse in the restoration and revegetation areas.

5.3.6 Topsoil/Mulch Salvage

Initial clearing/grubbing and soil salvage should be conducted as follows:

(1) cryptogamic crusts shall be harvested and stored separately from other materials;

(2) existing vegetation will be cut to within four inches of the ground surface, chipped, and stockpiled separately;

(3) the organic matter on the ground surface, uppermost roots, and upper two inches of topsoil will be harvested and stored separately;

(4) the next 12 inches of soil will be salvaged and stored separately from the upper two inches.

Topsoil not used for container plant growth should be sidecast and stockpiled separately for later reuse. Brush materials should be kept moist throughout the construction period for later use as mulch during restoration and revegetation. This mulched material will help maintain soil moisture, help control erosion, and provide an additional source of native plant recruitment for the restoration/revegetation areas.

Cryptogamic crusts shall be harvested in the following manner, as much as is practicable:

> Contractor shall carefully excavate manageable chunks (maximum around one-foot square) of cryptogams with 4 to 10 inches of soil below, depending on the depth of their roots. Collected soil clods should be carefully laid flat in a single layer (on pallets) and carefully moved (by hand) as they will be easily broken apart or destroyed. Cryptogams shall be stored on site, covered with a filter cloth, watered lightly and occasionally (but often enough to keep them viable), and protected from intense sunlight. Contractor is to be advised that these are delicate plant communities and an important element in the restoration of this habitat, so they should be handled with great care.
>
> Contractor and the Restoration Specialist shall also map the locations on site where these crusts were harvested, so they can be re-introduced into a similar exposure/orientation.

All phases of soil/mulch salvage should be conducted by the installation contractor and monitored by the Restoration Specialist. In conformance with the cultural resources report (Laguna Mountain Environmental 2018), an archeologist and Native American (Kumeyaay) monitor(s) will also need to be present during any salvage operations that result in initial ground disturbance.

5.4 SITE PREPARATION

5.4.1 Timing

Site preparation should start prior the rainy season, if possible, so that planting/seeding can occur at the start of the rain season to take advantage of the winter and spring natural growing period for upland vegetation.

5.4.2 Topsoil Installation

As part of Project construction, pre-project site topography will be recreated, and salvaged topsoil will be spread out over the restoration and revegetation areas. Salvaged cryptogamic soils will be re-installed in the mapped collection locations, to the extent practicable. All topsoil/cryptogamic soil installation will be overseen by the Restoration Specialist.

5.4.3 Delineating Restoration/Revegetation Areas

Prior to initiating installation of the restoration/revegetation areas, the City must survey and mark the limits of the SMC revegetation with materials that will remain in place until the end of the 25-month maintenance/monitoring period. In addition, the City must survey and permanently mark the limits of the on-site brush management area so that long-term brush management activities will not encroach into the SMC restoration area.

5.4.4 Clearing/Weeding

Since the site will have been recently disturbed prior to restoration and revegetation, no grubbing is proposed and weed control activities will not likely be required as part of the site preparation. If for some reason revegetation is delayed, weed control measures should be implemented. Weed control measures employed prior to the commencement of planting are the most effective method for control of invasive, non-native species. Following Project completion and site preparation, if sufficient time for plant growth has occurred, the Restoration Specialist will identify non-native plants for removal. All cut vegetation should be taken to a licensed landfill or green waste recycling center.

5.4.5 Irrigation Installation

Temporary, automatic irrigation will be provided for proper germination, development, and maintenance of the vegetation during the initial stages of the restoration and revegetation process. A temporary overhead irrigation system will be installed in restoration and revegetation areas prior to installing container plants. The irrigation system must conform to City Landscape Standards (City 2016). Irrigation lines for restoration and revegetation areas should be separate lines so when the 25-month revegetation period is completed, the irrigation in these areas can be discontinued but irrigation in restoration areas can continue for another year.

The water source for the La Jolla View Reservoir site irrigation system will be a temporary two-inch water meter from a new eight-inch City of San Diego water pipeline on Encelia Drive access road that is being installed as part of the Project. The source for the Exchange Place irrigation system will be a temporary one-inch water meter from an existing City of San Diego water pipeline in Country Club Drive. For additional irrigation plan information, please refer to Project restoration and revegetation plans

prepared by David Reed Landscape Architects (in process). Complete coverage of the restoration and revegetation areas, to be confirmed by the Restoration Specialist and Landscape Architect will be required prior to installing plantings and seed.

5.4.6 Erosion Control

Per the Project's Stormwater Pollution Prevention Plan (SWPPP), standard erosion control will be in place during construction activities. It is presumed that all perimeter BMPs required for the Project site will be intact and functional at the end of the Project; however, any BMPs installed within the Project boundaries will have been removed to install topsoil. The installation contractor should confirm the condition of all perimeter BMPs prior to initiating restoration activities. The BMPs required within the restoration/revegetation areas will be installed by the installation contractor. Erosion control materials typically consist of, but are not limited to, silt fencing, straw wattles, sand bags, and use of hydroseed. In areas receiving container plants and hydroseed, erosion control measures should be installed before planting/hydroseed application. Any straw must be free of weed seeds to avoid further introduction of non-native species to the restoration area.

5.5 PLANT INSTALLATION SPECIFICATIONS

5.5.1 Plant/Seed Palettes

All restoration/revegetation areas will be installed with a SMC plant palette that is consistent with species that were observed in habitats within the Project area and are known to occur in coastal San Diego County as follows:

(1) Table 5, *SMC Restoration Plant Palette*: This plant palette will be installed in temporarily impacted areas that are being counted towards mitigation credit and will be maintained/monitored for five years or until success criteria have been attained. In addition, all salvaged plants will be installed throughout the restoration area in the same orientation as they were originally salvaged.

(2) Table 6, *SMC Revegetation Plant Palette – For New Utility Easement*: This plant palette will be installed in temporarily impacted areas located within the new utility easement. This area will be maintained/monitored for 25 months or until success criteria have been attained. Note that this palette excludes large shrubs because these cannot be installed over the new reservoir or along the pipeline.

(3) Table 7, *Low Fuel/Erosion Control Revegetation Plant Palette – For Brush Management Zones*: This plant palette will be located within the brush management zone located adjacent to residences will be planted with a modified plant palette to maintain defensible space for the residences in accordance with Municipal Code section 142.0412 and with Park & Recreation Department Zone 2 planting policies. For instance, more combustible species such as chamise have not been included in this area. These areas will have a lower overall plant coverage requirement, in accordance with brush management regulations, and will be maintained/monitored for 25 months or until success criteria have been attained.

Plant species may be added or deleted from the list by the Restoration Specialist based on suitability or commercial availability. For example, use of a plant species that consistently fails to germinate

and/or grow within the restoration and revegetation areas may be discontinued and replaced with an appropriate species that is suitable for on site conditions.

Steep Slope Guidelines: Restoration proposed in this plan has been written to be consistent with Section 142.0411 of the Land Development Code that states that disturbed areas with a slope greater than 4:1 with a slope height over 15 feet shall require container stock consistent with Table 142-04F. Areas that meet this criteria will be planted with container stock at a minimum rate of one tree/shrub (minimum one-gallon size) for every 100 ft^2 of disturbed area and will be temporarily irrigated.

Pursuant to the City's Landscape Standards (Section 4.2, Slope Revegetation Guidelines), "a minimum of 50 percent of total slope area shall be planted with deep rooting groundcovers, (i.e., those with a typical root depth of five feet or greater)." In addition, "…at least 50 percent of the viable seed count shall be deep rooting species." The use of shrubs such as toyon, lemonadeberry (*Rhus integrifolia*), summer holly (*Comarostaphylis diversifolia*), bush rue (*Cneoridium dumosum*), and other species in the restoration planting palette will achieve this standard in steep slope areas.

It should be noted that, to comply with restrictions on deep-rooting vegetation over utilities, revegetation areas located on steep slopes do not comply with the deep rooting requirements outlined above.

Table 5
SOUTHERN MARITIME CHAPARRAL (SMC) RESTORATION PLANT PALETTE
(4.57 acres)

Container Plantings*					
Scientific Name	**Common Name**	**Spacing on Center (feet)**	**Grouping Size**	**Number Per Acre**	**Quantity Required**
Astragalus trichopodus var. *lonchus*	ocean locoweed	3	3	25	115
Adenostoma fasciculatum	chamise	5	20	300	1380
Ceanothus verrucosus	wart-stem-lilac	10	20	250	1150
Cneoridium dumosum	bush rue	5	5	50	230
Comarostaphylis diversifolia	summer holly	10	5	50	230
Crocanthemum [*Helianthemum*] *scoparium* var. *scoparium*	peak rush-rose	3	15	150	690
Dudleya edulis	ladies' fingers	3	5	50	230
Dudleya lanceolata	lance-leaf dudleya	3	5	50	230
Dudleya pulverulenta	chalk dudleya	3	5	50	230
Encelia californica	California encelia	5	5	50	230
Eriogonum fasciculatum var. *fasciculatum*	coast California buckwheat	5	5	50	230
Ferocactus viridescens	San Diego barrel cactus	3	5	50	230

Table 5 (cont.)
SOUTHERN MARITIME CHAPARRAL (SMC) RESTORATION PLANT PALETTE
(4.57 acres)

Container Plantings*					
Scientific Name	**Common Name**	**Spacing on Center (feet)**	**Grouping Size**	**Number Per Acre**	**Quantity Required**
Heteromeles arbutifolia	toyon	10	3	25	115
Lonicera subspicata var. *denuta*	Johnston's honeysuckle	3	5	50	230
Malosma laurina	laurel sumac	10	3	25	115
Mimulus aurantiacus var. *puniceus*	coast monkey flower	3	5	50	230
Opuntia littoralis	coast prickly-pear	5	5	100	460
Quercus dumosa	Nuttall's scrub oak	10	15	150	690
Rhus integrifolia	lemonadeberry	10	3	25	115
Salvia mellifera	black sage	5	5	50	230
Yucca schidigera	Mohave yucca	3	5	50	230
			TOTAL	**1,650**	**7,590**

Seed Mixture				
Scientific Name	**Common Name**	**% Purity / Germination[1]**	**Application Rate (pounds [lbs.]/acre)**	**Amount to be Ordered (lbs.)[2]**
Artemisia californica	California sage brush	90/25	3	13.8
Corethrogyne filaginifolia var. *filaginifolia*	common sand aster	8/30	1	4.6
Deinandra fasciculata	fascicled tarplant	25/65	2	9.2
Calochortus splendens	splendid mariposa lily	95/90	1	4.6
Calystegia macrostegia	morning-glory	95/90	0.5	2.3
Crocanthemum [Helianthemum] scoparium var. *scoparium*	peak rush-rose	98/80	1	4.6
Dichelostemma capitatum	blue dicks	95/80	0.5	2.3
Encelia californica	California encelia	30/45	2	9.2
Eriogonum fasciculatum var. *fasciculatum*	coast California buckwheat	50/10	4	18.4
Eriophyllum confertiflorum	golden yarrow	n/a	1	4.6
Mimulus aurantiacus	coast monkey flower	2/75	1	4.6
Plantago erecta	dwarf plantain	97/89	2	9.2
Salvia mellifera	black sage	85/50	3	13.8
Sisyrinchium bellum	blue-eyed grass	98/80	2	9.2
Stipa lepida	foothill needlegrass	90/71	4	18.4
Stipa pulchra	purple needlegrass	90/75	2	9.2
		TOTAL	**30**	**138.0**

* All container stock is one-gallon size; it is recommended that 10-15 percent extra plantings be ordered and either installed or kept at a nursery facility and installed as-needed to compensate for plant mortality.

[1] Based on 2016 seed list from S&S Seeds.

[2] Application rate * Size of project = Amount to be ordered (lbs.). Final order amount shall be adjusted based on seed availability, but shall be no less than 25 lbs./acre

Table 6
SMC REVEGETATION PLANT PALETTE – FOR NEW UTILITY EASEMENT
(2.17 acres)

Container Plantings*					
Scientific Name	**Common Name**	**Spacing on Center (feet)**	**Grouping Size**	**Number Per Acre**	**Quantity Required**
Astragalus trichopodus var. *lonchus*	ocean locoweed	3	3	50	110
Adenostoma fasciculatum	chamise	5	20	400	880
Cneoridium dumosum	bush rue	5	5	150	330
Crocanthemum [Helianthemum] scoparium var. *scoparium*	peak rush-rose	3	15	150	330
Encelia californica	California encelia	5	5	125	275
Eriogonum fasciculatum var. *fasciculatum*	coast California buckwheat	5	5	125	275
Ferocactus viridescens	San Diego barrel cactus	3	5	50	110
Lonicera subspicata var. *denuta*	Johnston's honeysuckle	3	5	50	110
Mimulus aurantiacus var. *puniceus*	coast monkey flower	3	5	175	385
Opuntia littoralis	coast prickly-pear	5	5	100	220
Salvia mellifera	black sage	5	5	125	275
Yucca schidigera	Mohave yucca	3	5	50	110
			TOTAL	**1,550**	**3,410**

Seed Mixture				
Scientific Name	**Common Name**	**% Purity / Germination[1]**	**Application Rate (lbs./acre)**	**Amount to be Ordered (lbs.)[2]**
Artemisia californica	California sage brush	90/25	2	4.4
Corethrogyne filaginifolia var. *filaginifolia*	common sand aster	8/30	1	2.2
Crocanthemum [Helianthemum] scoparium var. *scoparium*	peak rush-rose	98/80	1	2.2
Deinandra fasciculata	fascicled tarplant	25/65	2	4.4
Encelia californica	California encelia	30/45	2	4.4
Eriogonum fasciculatum var. *fasciculatum*	Coast California buckwheat	50/10	3	6.6
Eriophyllum confertiflorum	golden yarrow	n/a	1	2.2
Mimulus aurantiacus	coast monkey flower	2/75	1	2.2
Plantago erecta	dwarf plantain	97/89	2	4.4
Salvia mellifera	black sage	85/50	2	4.4
Sisyrinchium bellum	blue-eyed grass	98/80	2	4.4
Stipa lepida	foothill needlegrass	90/71	4	8.8
Stipa pulchra	purple needlegrass	90/75	2	4.4
		TOTAL	**25**	**55.0**

1 Based on 2016 seed list from S&S Seeds.

2 Application rate * Size of project = Amount to be ordered (lbs.). Final order amount shall be adjusted based on seed availability, but shall be no less than 22 lbs./acre.

Table 7
LOW FUEL/EROSION CONTROL REVEGETATION PLANT PALETTE – FOR BRUSH MANAGEMENT ZONES
(0.85 acre)

Container Plantings*					
Scientific Name	**Common Name**	**Spacing on Center (feet)**	**Grouping Size**	**Number Per Acre**	**Quantity Required**
Astragalus trichopodus var. *lonchus*	ocean locoweed	3	3	25	23
Corethrogyne filaginifolia var. *filaginifolia*	common sand aster	3	5	50	45
Cneoridium dumosum	bush rue	5	5	50	45
Crocanthemum [Helianthemum] scoparium var. *scoparium*	peak rush-rose	3	15	150	135
Dudleya edulis	ladies' fingers	3	5	50	45
Dudleya lanceolata	lance-leaf dudleya	3	5	50	45
Dudleya pulverulenta	chalk dudleya	3	5	50	45
Encelia californica	California encelia	5	5	50	45
Eriogonum fasciculatum var. *fasciculatum*	coast California buckwheat	5	5	50	45
Ferocactus viridescens	San Diego barrel cactus	3	5	50	45
Lonicera subspicata var. *denuta*	Johnston's honeysuckle	3	5	50	45
Mimulus aurantiacus var. *puniceus*	coast monkey flower	3	5	50	45
Opuntia littoralis	coast prickly-pear	5	5	100	90
Rhus integrifolia	lemonadeberry	15	3	20	18
Salvia mellifera	black sage	5	5	50	45
Yucca schidigera	Mohave yucca	3	5	50	45
			TOTAL	**895**	**806**

Seed Mixture				
Scientific Name	**Common Name**	**% Purity / Germination[1]**	**Application Rate (lbs./acre)**	**Amount to be Ordered (lbs.)[2]**
Artemisia californica	California sage brush	90/25	2	1.8
Corethrogyne filaginifolia var. *filaginifolia*	common sand aster	8/30	1	0.9
Crocanthemum [Helianthemum] scoparium var. *scoparium*	peak rush-rose	98/80	1	0.9
Deinandra fasciculata	fascicled tarplant	25/65	2	1.8
Encelia californica	California encelia	30/45	2	1.8
Eriogonum fasciculatum var. *fasciculatum*	Coast California buckwheat	50/10	3	2.7
Eriophyllum confertiflorum	golden yarrow	n/a	1	0.9
Eschscholzia californica	California poppy	98/80	2	1.8
Mimulus aurantiacus	coast monkey flower	2/75	1	0.9
Plantago erecta	dwarf plantain	97/89	4	3.6
Salvia mellifera	black sage	85/50	2	1.8
Sisyrinchium bellum	blue-eyed grass	98/80	2	1.8
Stipa lepida	foothill needlegrass	90/71	4	3.6
Stipa pulchra	purple needlegrass	90/75	3	2.7
		TOTAL	**30**	**27**

[1] Based on 2016 seed list from S&S Seeds.
[2] Application rate * Size of project = Amount to be ordered (lbs.). Final order amount shall be adjusted based on seed availability, but shall be no less than 25 lbs./acre.

5.5.2 Planting Method

Planting may occur at any time of year, but ideally should be completed in the fall or early winter, which coincides with cooler temperatures and the rainy season. The Restoration Specialist must inspect all plant material prior to installation. Container plants that are dead, changing color, rootbound, stunted, diseased, pest-infested (e.g., Argentine ants [*Linepithema humile*]), or otherwise unacceptable may be rejected. The Restoration Specialist and City Project Manager must approve any seed or plant substitutions prior to installation.

The Restoration Specialist will direct the container plant layout. Plant material will be clustered and distributed to emulate the natural structure and diversity of the habitat being restored. Except as otherwise specified or directed by the Restoration Specialist, each species should be located where favorable conditions are present, and in a manner similar to natural plant distribution rather than attempting to achieve even cover across the site. As much as possible, plant species should be placed where they have the highest potential to thrive based on their known habitat preferences.

Container stock will be installed in holes that are three times the width and 1.5 times the depth of the planting container. Holes will be dug by hand or with mechanical augers. Holes must be filled with water and allowed to drain prior to installation, and, after installation, each container plant must be watered with at least one gallon of water. To aid plant establishment, plants should be inoculated with mycorrhizae by the nursery or at installation. Following planting, the chipped plant material that was collected from the site will be installed within each 12-inch planting basin to a depth of one inch.

5.5.3 Seeding Method

After container plantings have been installed and the Restoration Specialist and Project Manager have approved the seed order, the restoration and revegetation areas will be hydroseeded per the specifications outlined in the construction documents (David Reed Landscape Architects, in process). The restoration/revegetation areas will be watered the day hydroseed is installed.

5.5.4 Irrigation Method

All areas designated for SMC restoration and revegetation will be watered. Initial watering will be frequent to encourage germination of installed seed. Watering will continue daily until seedlings are at least one inch in height, then decrease to five times a week, and further decrease as vegetation becomes established during the first three years of maintenance. To the extent feasible, irrigation should attempt to mimic wet rainfall years using periodic, deep applications of water. A deep soaking of the soil will help promote root development and will enhance plant survivorship and growth. To obtain deep penetration of water, the irrigation system may be activated several times in one 24-hour period. Supplemental watering should occur during early morning hours and/or evening hours to avoid excess moisture loss.

6.0 MAINTENANCE PROGRAM

6.1 MAINTENANCE SCHEDULE

Maintenance will be performed as necessary to prevent re-seeding by non-native plants and will likely change with varying site conditions and seasons; the schedule outlined herein (Table 8, *Maintenance Schedule*) serves only as a guideline. At a minimum, the installation contractor will conduct monthly maintenance during the 120-day PEP, continuing until the Restoration Specialist recommends and the City approves sign off of the PEP in writing. Thereafter, the maintenance contractor will be responsible for all maintenance activities during the minimum 25-month revegetation and five-year restoration maintenance and monitoring periods. Maintenance of the entire restoration/revegetation area will be conducted at least six times per year during Years 1 and 2; maintenance of the restoration area will continue six times per year in Year 3 and four times per year, or as needed, in Years 4 and 5. Maintenance activities should focus on the winter and spring growing season for most upland vegetation, but also be conducted in early summer to catch late growing weed species. The installation/ maintenance contractor(s) will complete maintenance requests from the Restoration Specialist and Project Manager within 14 days of any written request.

Table 8
MAINTENANCE SCHEDULE[1]

Time Frame	Schedule
Installation Contractor	
120-day Plant Establishment Period	Monthly
Maintenance Contractor	
Year 1 through Year 3	Six times per year
Year 4 and Year 5	Four times per year

[1] This schedule is only a guideline; maintenance will be performed as necessary as directed by the Restoration Specialist. The entire restoration/revegetation area will be serviced during each maintenance "event", which may span multiple days depending on crew size.

6.2 MAINTENANCE ACCESS

Maintenance access to the mitigation site will occur along the access road.

6.3 MAINTENANCE ACTIVITIES

Both the 120-day PEP and five-year maintenance programs will focus on weed control, trash removal, irrigation system maintenance, irrigation application rates and schedules, and any remedial measures deemed necessary for the success of the restoration effort. During this period, the installation and maintenance contractors will be responsible for performing remedial measures to fix any observed problems identified by the Restoration Specialist.

Maintenance personnel will be informed of the goals of the restoration effort as well as the maintenance requirements. A professional with experience and knowledge in native habitat restoration maintenance will supervise all maintenance. It is the contractor's responsibility to remove non-native vegetation; keep the mitigation site free of debris; maintain site staking, erosion control measures, and

irrigation; adjust the irrigation schedule; monitor native plant condition and health; and implement any remedial measures deemed necessary for the success of the restoration effort (e.g., re-seeding and re-planting, soil amendment, and pest management). The contractor will also be responsible for replacing any dead or terminally diseased plants, at the direction of the Restoration Specialist and Project Manager. Maintenance activities will be directed by the Restoration Specialist and Project Manager.

6.3.1 Non-Native/Invasive Plant Control

All non-native vegetation shall be treated/removed prior to flowering and/or prior to attaining a height of six inches. A licensed Pest Control Advisor will recommend which treatment method will be implemented and will supervise the use of herbicide. Any herbicide used to control non-native plants as part of the restoration effort must be on a City list of approved herbicides. Herbicides should be applied following manufacturer's guidelines and used only as necessary. In addition, herbicides must be applied by an individual with a valid applicator's license, as specified in Section 4.2.4.

All target invasive plant species considered to be Moderate or Highly invasive by the California Invasive Plant Council (Cal-IPC; 2018), other than annual non-native grasses, will be removed or killed in place prior to flowering and/or prior to attaining a height of six inches. These target invasive plant species shall be totally eradicated within the boundaries of the SMC restoration and revegetation areas. Additional species may be added to this list if found to be a threat to the long-term success of the restoration effort.

6.3.2 Horticultural Treatments

No post-installation pruning is necessary unless otherwise directed by the Restoration Specialist and Project Manager. If weed control continues to be an issue, mulch application around plants may be specified by the Restoration Specialist and Project Manager. Fertilizer will not be applied except in extraordinary circumstances and only at the written direction of the Restoration Specialist and Project Manager. Shrubs and trees will be monitored for signs of disease and pests; infected and infested plants will be treated as necessary and as directed by the Restoration Specialist and Project Manager. Treatment measures may include pruning to prevent the spread of the disease or pestilence. Severely diseased or pest damaged plants will be removed and replaced if directed by the Restoration Specialist and Project Manager. Plant substitutions may be recommended if the disease is likely to affect its replacement (i.e., soil borne pathogens). Active pest control measures will be implemented if a pest species poses a competitive threat to native species establishment.

6.3.3 Erosion Control

During the 120-day PEP and five-year maintenance period, the installation and maintenance contractors will replace or add erosion control measures, as needed to comply with the Project's SWPPP, or as identified by the Restoration Specialist and Project Manager. Any installed erosion control materials will be removed from the site by the maintenance contractor once the Restoration Specialist and Project Manager determines sufficient native plant cover has established.

6.3.4 Trash/Debris Removal

All trash and debris will be removed from the restoration and revegetation areas by the installation/ maintenance contractor during each visit. Trash removal activities will minimize or avoid impacts to plants. All trash and debris will be removed and disposed of at an off-site, licensed, waste-disposal facility.

6.3.5 Replacement Planting and Seeding

Plantings will be replaced as needed based on biological monitoring assessments. Visual inspections conducted by the Restoration Specialist will be used to determine plant survivorship. Any losses of container stock within 120 days of installation will be replaced in-kind by the installation contractor. After 120 days, any losses for the first year will be replaced in-kind by the maintenance contractor unless it has been determined by the Restoration Specialist that use of another species and/or stock size would better achieve the restoration goals. Thereafter, plant materials will be checked as part of the monitoring program. Thereafter, if success criteria outlined in Section 8.0 are not being met, additional measures, such as installation of replacement container plantings or additional seed, may be implemented as directed by the Restoration Specialist and Project Manager.

6.3.6 Site Protection and Signage; Vandalism

Perimeter fencing as well as staking to differentiate the restoration and revegetation areas will be maintained, as needed, until removal is authorized by the Restoration Specialist. It is likely that markers or fencing delineating the restoration/revegetation areas will be needed until final sign off has been authorized.

Pedestrian access is a potential maintenance issue in portions of the restoration area. The proposed reservoir relocation site is part of a current unofficial pathway that continues down the slope and through the park. It is likely that nearby residents will attempt to connect to this existing pathway by passing through the restoration area. Fencing and/or signage is recommended in this area; however, it should be noted that users will likely create new paths around it due to the lack of formalized trail system in the Park and community desire for access to this open space area.

Issues such as illegal access, off-road vehicle activity, or destruction of plant material or irrigation system, would be handled by the maintenance contractor in coordination with the Project Manager and the Restoration Specialist. Corrective and preventative actions could include irrigation repairs, additional fencing, placement of other barriers, and posting of signs that designate the site as a habitat restoration area. The cost of such repairs/work will be paid for as extra work. The contractor will be responsible for damage caused by inadequate maintenance or operation of facilities, as determined by the Restoration Specialist and Project Manager.

6.3.7 Pest Management

All plantings will be inspected for evidence of pests during each maintenance event. Any pest-infested plants shall be immediately treated or replaced as needed by the installation/maintenance contractor. If herbivores are found to be a significant problem for installed plant material, the Restoration Specialist may request that container plants in the affected area be caged or similarly protected. Generally, there will be a high threshold of tolerance before other control measures are considered. As required by law,

specific recommendations (e.g., for pesticide use) will be made only by a licensed pest control adviser. All applicable federal and state laws and regulations will be closely followed. The Restoration Specialist and Project Manager will be consulted on any pest control matters.

6.3.8 Irrigation Maintenance

Irrigation will be installed within the SMC restoration and revegetation areas. If deemed appropriate by the landscape architect, the irrigation system will incorporate the use of moisture sensors connected to an irrigation controller. The contractor will be responsible for maintaining the temporary irrigation system in good working order throughout the duration of the project. The goal is to obtain germination and growth with the least amount of irrigation. Frequent irrigation encourages weed invasion and leaches nutrients from the soil; therefore, water will be applied infrequently and only as needed to obtain seed germination and prevent plant and seedling mortality. Native plantings that are infrequently irrigated may grow slower initially but will ultimately be better able to withstand natural variations in rainfall and, therefore, be more successful in the long term.

Assuming cool, dry weather conditions, it is anticipated that the restoration/revegetation areas would initially be irrigated daily for approximately 15 minutes. After seedlings are established, the irrigation schedule should be modified to develop deep-root growth with evenly spaced, infrequent, deep applications of water (e.g., to a depth of 12 inches or more). To obtain deep penetration of water, the irrigation system may be activated several times in one 24-hour period. Supplemental irrigation will be minimized to the extent possible following natural rain events. The Restoration Specialist and Project Manager should be notified of all irrigation schedule modifications. Irrigation will be discontinued at the end of Year 3, or sooner if recommended by the Restoration Specialist.

6.3.9 Brush Management

During the five-year maintenance period, non-native vegetation in Zone 2 must be removed on a regular basis by the maintenance contractor. Selective thinning and pruning of native may also be required to reduce the fuel-load to levels in accordance with Section 142.0412 of the City's Municipal Code. Stakes delineating the brush management zone must be maintained by the installation contractor for the duration of the PEP and the maintenance contractor for the duration of the five-year maintenance period.

7.0 BIOLOGICAL MONITORING PROGRAM

The Restoration Specialist will monitor all phases of the installation process, including initial plant and topsoil salvage, and installation of irrigation, container plantings and seed. Following completion of all installation activities, the Restoration Specialist will monitor the restoration/revegetation areas during a 120-day PEP and a separate five-year (for the restoration area) or 25-month (for all revegetation areas) maintenance and monitoring period. Monitoring will include regular site visits to check on the progress of the restoration effort, and annual assessments to document site conditions.

7.1 MONITORING SCHEDULE

Maintenance monitoring visits and annual assessments will be carried out under direction of the Restoration Specialist. Biological monitoring of the restoration effort is divided into four phases:

(1) pre-installation; (2) installation and establishment, (3) maintenance monitoring, and (4) annual monitoring (Table 9, *Monitoring Schedule*). Details of each phase are provided in this section of the plan.

Table 9
MONITORING SCHEDULE [1]

Time Frame	Schedule
Pre-Installation/Site Preparation	
Pre-construction meeting	Once
Plant/topsoil salvage	As needed
Pre-installation photos	Once
Installation and 120-Day Plant Establishment Period	
Site preparation and installation	As needed
120-day Plant Establishment Period	Monthly
Maintenance Monitoring	
Year 1	Eight times per year
Years 2 and 3	Six times per year
Years 4 and 5	Four times per year
Annual Monitoring	
Years 1 through 5	April (1 visit per year)

[1] This schedule is only a guideline; monitoring will be performed as necessary. Restoration areas will be monitored for the full five years; revegetation areas will be monitored for 25 months.

7.2 MONITORING METHODS

7.2.1 Pre-Installation/Site Preparation Monitoring

The Restoration Specialist will attend one pre-construction meeting to review restoration goals, site access, and maintenance restrictions (e.g., timing for use of mechanized equipment for non-native plant control) with the installation contractor. Pre-construction photos of the Project site will be taken from designated photo stations that will be mapped using a global positioning system (GPS) device. In addition, prior to Project impacts, the Restoration Specialist will oversee plant and topsoil salvage from the impact area and monitor plants during storage. Following completion of Project grading, the Restoration Specialist will then oversee the installation of topsoil and cryptogamic soil crusts.

Prior to installing the restoration/revegetation areas, the Restoration Specialist shall confirm the boundaries of these areas have been staked/fenced, as appropriate, and any required signs have been installed. Photos will be taken from the previously designated photo stations, which will be marked in the field using rebar for later use.

7.2.2 Installation Monitoring

The Restoration Specialist will monitor all phases of the installation process, including installation of irrigation, container plantings, salvaged plantings, and seed (Table 9). The Restoration Specialist and Project Manager must inspect and authorize each phase of work before the next phase may begin. Post-installation photos will be taken from the designated photo stations and will be used in each annual report for comparison with the respective year's annual assessment photos.

7.2.3 120-Day Plant Establishment Period Monitoring

Following installation, a Restoration Specialist will monitor maintenance activities conducted by the installation contractor monthly during the 120-day PEP. The Restoration Specialist will evaluate the establishment of container plantings and seed and note the presence of non-native and target invasive species that need to be removed. Sign off of the 120-day PEP by City DSD staff, the Restoration Specialist, and Project Manager will be based on a final site inspection and whether the site meets the requirements outlined in Section 8.0.

7.2.4 Maintenance Monitoring

Immediately following the 120-day PEP, the Restoration Specialist will monitor maintenance activities as follows: (1) for five years within the restoration area and (2) for 25 months within all revegetation areas (Table 9). Maintenance monitoring will consist of walking the entire area, making observations of native and non-native vegetation, and recording all wildlife incidentally observed or detected. Monitoring visits will be conducted eight times in Year 1, six times per year during Years 2 and 3, and four times per year in Years 4 and 5. This monitoring schedule is the minimum; more frequent inspections may be necessary if there are problems with contractor performance or habitat development.

7.2.5 Annual Monitoring

In addition to maintenance monitoring visits, the Restoration Specialist will conduct an annual technical monitoring of the mitigation site, preferably in April of each year during the five-year maintenance and monitoring period. The timing of this assessment should coincide with the peak of the growing season for most native herbs and shrubs; however, the exact timing of the visits will depend on site and weather conditions.

Annual monitoring will include both qualitative (visual) and quantitative (transect data collection) sampling. The qualitative assessment will consist of the following: (1) estimates of cover by native and non-native plant species; (2) a complete list of plant and animal species observed; (3) general observations of plant health and native recruitment; and (4) photo documentation. The quantitative assessment will include measurements along line transects within the restoration area. Restoration area observations/data will be compared to a reference site located in undisturbed SMC on the slopes immediately to the west of the Project area.

7.2.5.1 Vegetation Analysis

During each annual assessment, at least two 50-meter long line transects will be randomly located within the restoration area and permanently marked with rebar to facilitate their use in subsequent years. Vegetative data will be collected along each transect using the point intercept line transect sampling methods described in the California Native Plant Society's Field Sampling Protocol (Sawyer and Keeler-Wolf 1995). Species cover data will be collected by recording all species intercepted at each 0.5-meter interval along the length of each transect. Vegetation will be recorded separately for herb (0 to 0.6 meter), shrub (0.6 to two meters), and tree (greater than two meters) layers. Species richness is the number of native species present in a given area. Species richness data will be collected by noting all species occurring within a five-meter belt transect centered on each line transect. These data will be used to obtain native, non-native, and invasive cover values, as well as native species richness data. Data will be averaged for the transects sampled.

7.2.5.2 Wildlife Observations

Wildlife use of the mitigation site will be noted incidentally during each annual assessment by hearing species-specific vocalizations, or by observing the species or their tracks, scat, or dens. No focused wildlife surveys will be conducted.

7.2.5.3 Photo Documentation

Photos will be taken at the previously established photo stations as part of all five annual monitoring events and will be included in the respective year's annual report.

8.0 SUCCESS CRITERIA

This section addresses performance standards that will be used to determine the successful completion of the restoration effort. Attainment of these standards indicates that the restoration effort is developing the habitat functions and services targeted by this plan.

8.1 INSTALLATION

For sign off of the installation effort, the following parameters must be met: (1) revegetation areas must be delineated from restoration areas; (2) temporary irrigation must provide 100 percent coverage of the restoration and revegetation areas without any overspray or runoff into adjacent habitat; and (3) all plantings/seed must be installed. The installation contractor must provide the Restoration Specialist and Project Manager copies of the irrigation mark-ups for approval and submittal with the as-built report. The Restoration Specialist and Project Manager must approve the irrigation system installation and oversee a coverage test for the restoration area for approval of installation.

8.2 120-DAY PLANT ESTABLISHMENT PERIOD

Success at the end of the 120-day PEP will be met if: (1) revegetation areas are clearly delineated from restoration areas; (2) there is 100 percent survivorship of container stock; (3) there is some evidence of establishment from seed; (4) no target invasive plant species are present; (5) any installed irrigation continues to provide adequate cover and appropriate application rates; and (6) there are no erosion-related issues or trash. Any replacement plantings added to attain the survivorship criterion must be installed for at least 30 days prior to sign off. The 120-day PEP will end when the Restoration Specialist recommends, and Project Manager approves sign off of the 120-day PEP in writing. The five-year maintenance/monitoring period for the restoration area and 25-month maintenance/monitoring period for revegetation areas will begin following formal sign off of the PEP by the Project Manager.

8.3 MAINTENANCE AND MONITORING PERIOD

Standards to determine the successful completion of the restoration effort as well as methods for determining success criteria will be specified for the five-year/25-month maintenance and monitoring periods. Attainment of specified success criteria will indicate whether the restoration/revegetation areas are progressing toward the habitat function and value specified by this plan. Success criteria will include native cover targets, native species richness targets, cover limits for non-native and invasive vegetation, and irrigation requirements. Data should be measured, and success determined separately

for the following: (1) SMC restoration area, (2) SMC revegetation area, and (3) each of the two low fuel/erosion control revegetation areas.

8.3.1 Native Vegetation Cover

Cover by native plants is a key component of determining successful native habitat restoration. Cover by native vegetation should increase over time and ultimately approach that of healthy native SMC in San Diego County. As previously noted, undisturbed SMC that occurs on the slopes immediately to the west of the Project area will be used as a reference site starting in Year 3.

For the SMC restoration area, the final native cover target is at least 80 percent of that in the reference site (Table 10, *SMC Restoration Success Criteria*), comprising at least 80 percent cover by native shrub species as compared to that occurring at the reference site.

Table 10
SMC RESTORATION SUCCESS CRITERIA

Criteria	Year 1	Year 2	Year 3	Year 4	Year 5
Mean Minimum Total Native Cover[1, 2]	--	--	60	70	80
Mean Minimum Native Shrub Cover[1, 2]	--	--	60	70	80
Mean Minimum Native Species Richness[3]	--	--	5	6	7
Mean Maximum Non-Native Cover[1, 3]	15	15	10	10	10
Mean Maximum Target Invasive Plant Cover[1]	0	0	0	0	0
Irrigation	OK	OK	OK	None	None

1 Percent
2 Relative to a reference site (e.g., 80 percent native cover at the reference site translates to a 64 percent final cover criterion)
3 Excluding target invasive plants
4 Number of species

Due to restrictions on vegetation that can be established within the utility easement, brush management zone, and former Exchange Place reservoir site, only absolute cover requirements will be set for these areas (Table 11, *SMC and Low Fuel/Erosion Control Revegetation Success Criteria*). If annual goals are not met, remedial measures, including reseeding, planting, irrigation adjustments, and increased weeding, may be implemented to ensure final success.

Table 11
SMC AND LOW FUEL/EROSION CONTROL REVEGETATION SUCCESS CRITERIA

Criteria	Year 1	Year 2 (end of 25 months)
Minimum Total Native Cover[1]	30	40
Native Species Richness[2]	5	6
Maximum Non-Native Forb Cover[1, 3]	5	5
Maximum Non-Native Grass Cover[1]	15	20
Maximum Target Invasive Plant Cover[1, 4]	0	0

1 Percent
2 Number of species
3 Excluding invasive species
4 Excluding non-native annual grasses

8.3.2 Native Species Richness

The SMC restoration area shall have at least seven native species at the end of the restoration effort. Species richness will be determined as the average number of native plant species measured along a five-meter wide belt centered along each of the sampled line transects. Within the SMC revegetation areas, native species richness is expected to be lower (five species) due to the shorter time frame (25 months) and more limited plant palette (no larger/deep rooting shrubs). If neither the restoration nor revegetation areas appear to be on track to meet the species richness goal, additional seed or plantings may be recommended.

8.3.3 Non-Native Vegetation Cover

Non-native plants are typically a problem in habitat restoration, particularly at the outset. The restoration and revegetation areas will be disturbed by grading, which favors the establishment of fast-germinating and fast-growing non-native annual species. As the restoration effort takes hold, cover by non-native forbs should decrease because of diligent removal of these species and expanding cover by native vegetation. Because native cover targets are lower, there will be more tolerance for non-native vegetation, primarily annual grasses. The final success criteria stipulate no more than 20 percent cover by non-native annual grasses and five percent cover by non-native forbs.

8.3.4 Target Invasive Species

Target invasive plant species ranked as “Moderate” or “High” for invasiveness by the Cal-IPC will be eradicated from all restoration and revegetation areas each year before re-seeding can occur. Seedlings of invasive species are expected to volunteer into the restoration/revegetation areas each year as seed from the seed bank or adjacent habitat establishes; however, the acceptable cover value throughout the restoration/revegetation areas and a five-foot buffer is set at zero percent (Tables 10 and 11) to indicate that no re-seeding can occur. Certain non-native grasses are listed as invasive species by Cal-IPC. Some of these are naturalized in our region and are a common component of “undisturbed” scrub habitats. The tolerance for these species will be the same as other non-invasive, non-native species (i.e., will be included as part of the non-native cover criterion).

8.3.5 General Wildlife

No success criteria are specified for wildlife but increasing use of the restoration site by native wildlife would be a positive indicator that target wildlife functions and services have been improved.

8.3.6 Irrigation

To demonstrate that established vegetation within the restoration area is self-sustaining, all artificial water supplies will be off for at least two years prior to sign off. Irrigation can be used the full 25 months in the revegetation areas.

9.0 REPORTING PROGRAM

This section provides a summary of all reporting required for this restoration effort.

9.1 INSTALLATION PERIOD

The results of cultural monitoring by the archeologist and Native American (Kumeyaay) monitor will be presented in a memo following completion of cultural monitoring. A brief memo documenting completed installation will be submitted to the Project proponent by the Restoration Specialist.

9.2 120-DAY PLANT ESTABLISHMENT PERIOD

Monitoring memos noting any issues with plant establishment, irrigation, non-native species, sediment control, etc., will be provided as necessary to the installation contractor and Project proponent during the 120-day PEP.

Following successful completion of the PEP, the Restoration Specialist shall submit a brief as-built letter report to the Project proponent, MSCP, and City DSD-MMC within 30 days. The report will describe restoration/revegetation preparation, installation methods, activities conducted during the 120-day PEP, and the as-built status of the site, including plant material installed and deviations from this plan and construction documents (David Reed Landscape Architects, in process). To document implementation of the plan and baseline site conditions, the letter will include an as-built graphic on an aerial photo base, as well as photos taken from the designated photo stations before and after restoration installation. All geographic information system (GIS) data and associated metadata shall be provided in a digital medium. The as-built letter will serve as the "time zero" report, noting when the five-year maintenance and monitoring period began.

9.3 MAINTENANCE AND MONITORING PERIOD

Monitoring memos noting any issues with plant establishment, irrigation, non-native species, sediment control, etc., will be provided as necessary to the maintenance contractor and Project proponent during all five years of the maintenance and monitoring period. These memos will also provide adaptive management strategies for keeping the restoration on track toward final success criteria.

Annual reports will be prepared during the five-year monitoring period. These reports will (1) provide a summary of maintenance and monitoring activities for the year, (2) evaluate the progress of the restoration effort relative to the success criteria, and (3) include any recommendations for future work that may be deemed necessary to ensure ultimate success of the restoration effort. Baseline photos, as well as photos from recent site visits, will be included in the reports, which will be submitted within 60 days of the end of each year. Annual reports will be sent to the Project proponent, who will then distribute the report to MSCP and City DSD-MMC.

10.0 SCHEDULE OF ACTIVITIES

This section provides a summary of the proposed schedule of activities for the restoration area and non-mitigation revegetation areas (Table 12, *Restoration Schedule of Activities*).

Table 12
RESTORATION SCHEDULE OF ACTIVITIES

Milestone	Action
Prior to Reservoir Project Construction	--Delineate limits of work --Order container plantings and seed --Salvage plants, topsoil, and cryptogamic soils
Within 90 Days of Grading and Construction Completion	--Install salvaged topsoil and cryptogamic soils --Install temporary, above-grade irrigation system --Install erosion control measures --Install container plantings and salvaged plantings --Install hydroseed
Monthly During 120-Day Plant Establishment Period	--Biological monitoring --Inspect plantings and adjust irrigation levels as needed based on weather conditions --Inspect area for invasive plants and control as necessary --Inspect plants for pests or disease; treat/replace as needed --Monitor irrigation system and erosion control measures; replace/repair as needed --Monitor site for trash and vandalism; remove/repair as needed --Re-seed/re-plant, as needed, to achieve milestones
120 Days after Plant Installation	--Site inspection with DSD and Project Manager --Submit biological monitoring report within 30 days of monitoring
1 Year after Plant Installation	-- Biological monitoring during the year, including qualitative annual monitoring --Seed/re-plant as needed to achieve milestone --Submit biological monitoring report within 30 days of monitoring
2 Years (Restoration Area) or 25 Months (Revegetation Areas) after Plant Installation	--Biological monitoring during the year, including qualitative annual monitoring --Inspect plantings and adjust irrigation levels as needed based on weather conditions --Inspect area for invasive plants and control as necessary --Inspect plants for pests or disease; treat/replace as needed --Monitor irrigation system and erosion control measures; replace/repair as needed --Monitor site for trash and vandalism; remove/repair as needed --Submit biological monitoring report within 30 days of monitoring --Final site inspection of revegetation areas with DSD and Project Manager --Remove irrigation system and BMPs/fencing in revegetation areas approved for sign off

Table 12 (cont.)
RESTORATION SCHEDULE OF ACTIVITIES

Milestone	Action
3 Years after Plant Installation	--Biological monitoring during the year, including quantitative annual monitoring --Inspect plantings and adjust irrigation levels as needed based on weather conditions --Inspect area for invasive plants and control as necessary --Inspect plants for pests or disease; treat/replace as needed --Monitor irrigation system and erosion control measures; replace/repair as needed --Monitor site for trash and vandalism; remove/repair as needed --Cease irrigation if deemed appropriate by the restoration biologist --Submit biological monitoring report within 30 days of monitoring
4 Years after Plant Installation	--Biological monitoring during the year, including quantitative annual monitoring --Inspect plantings and adjust irrigation levels as needed based on weather conditions --Inspect area for invasive plants and control as necessary --Inspect plants for pests or disease; treat/replace as needed --Monitor irrigation system and erosion control measures; replace/repair as needed --Monitor site for trash and vandalism; remove/repair as needed --Submit biological monitoring report within 30 days of monitoring
5 Years after Plant Installation	--Biological monitoring during the year, including quantitative annual monitoring --Inspect plantings and adjust irrigation levels as needed based on weather conditions --Inspect area for invasive plants and control as necessary --Inspect plants for pests or disease; treat/replace as needed --Monitor irrigation system and erosion control measures; replace/repair as needed --Monitor site for trash and vandalism; remove/repair as needed --Submit biological monitoring report within 30 days of monitoring
Prior to City Approval of Restoration Area	--Final report submission --Final site inspection of restoration areas with DSD and Project Manager --Remove temporary irrigation system and any remaining fencing/BMPs

11.0 REMEDIATION MEASURES

11.1 INITIATING PROCEDURES

If the restoration effort is not meeting success standards, the Project proponent will notify City DSD and propose corrective measures, as needed and as soon as possible once a problematic situation has been identified. The Project proponent shall be responsible for all costs associated with the implementation of any required remedial measures and associated monitoring.

11.2 ALTERNATIVE LOCATIONS FOR CONTINGENCY MITIGATION

HELIX has identified Tier I restoration and enhancement potential for maritime succulent scrub habitat within the Los Peñasquitos Canyon Preserve (HELIX 2019). In the unlikely event that the proposed location was to fail or be otherwise deemed unsuitable, the Project proponent will work with City DSD

to identify a mutually acceptable alternative location for Tier I, Tier II, and/or ephemeral drainage mitigation.

11.3 NATURAL DISASTER

Should the restoration effort fail due to a natural disaster such as fire or flood, the Project proponent will not be held responsible for replanting.

12.0 COMPLETION OF RESTORATION

12.1 CONFIRMATION

If the restoration effort meets all success standards at the end of the five-year maintenance and monitoring period (or sooner) and all irrigation has been discontinued for at least two years, then the restoration effort will be considered a success. If not, the Project proponent will submit a revised or supplemental restoration program to compensate for those portions of the mitigation site that were not successful. The maintenance and monitoring program will be extended one year at a time until the standards are met. Specific remedial measures (approved by City DSD-MMC) will be used during any such extension. Monitoring extensions will be done only for areas that fail to meet final success criteria. This process will continue until all Year 5 standards are attained or until City DSD-MMC determines that other mitigation measures are appropriate.

12.2 NOTIFICATION OF COMPLETION

The Project proponent will notify and coordinate with City DSD-MMC to seek concurrence that the final performance criteria have been met through the submittal of the final monitoring report and a letter requesting a Notification of Completion. The final report will include analysis of quantitative sampling data that will illustrate the final success criteria have been met. All temporary structures, fences, stakes, irrigation, BMPs, and similar temporary items must be removed from the site prior to filing the notification of completion. The site may qualify for early approval if final success criteria have been met prior to Year 5 and the site is accepted as complete by City DSD-MMC; however, the site must be off supplemental irrigation for at least two growing seasons prior to final approval.

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