Hollister Quarry Mitigation Site

Conceptual Aquatic Resources Habitat Mitigation and Monitoring Plan

June 12, 2018 | SDD-24.46

Prepared for:

City of San Diego
2781 Caminito Chollas, MS 46
San Diego, CA 92105

Prepared by:

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With assistance from:

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ACRONYMS AND ABBREVIATIONS

AA	Assessment Area
AMSL	above mean sea level
APN	Assessor's Parcel Number
APRM	Advanced Permittee Responsible Mitigation
BMP	Best Management Practice
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
CRAM	California Rapid Assessment Method
CWA	Clean Water Act
ESL	Environmentally Sensitive Lands
EPA	Environmental Protection Agency
HU	Hydrological Unit
HUC	Hydrological Unit Code
JEPA	Joint Exercise of Powers Agreement
KPI	Key Performance Indicators
lbs	pounds
MHPA	Multi-Habitat Planning Area
MMP	Master Storm Water Maintenance Program
MSCP	Multiple Species Conservation Program
O&M	Operations and Maintenance
OVRP	Otay Valley Regional Park
P&R	Parks and Recreation
PEIR	Program Environmental Impact Report
Plan	Conceptual Aquatic Resources Habitat Mitigation and Monitoring Plan for the Hollister Quarry Mitigation Site
Port	Port of San Diego
RWQCB	Regional Water Quality Control Board
SDG&E	San Diego Gas & Electric
SDP	Site Development Permit

SHB	shot hole borer
SWS	Southern Willow Scrub
U.S.	United States
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service

1.0 INTRODUCTION

This Habitat Mitigation and Monitoring Plan (Plan) provides the conceptual framework for aquatic resource habitat re-establishment and rehabilitation at the Hollister Quarry mitigation site. This Plan was prepared to offset impacts resulting from channel maintenance activities hydrologically connected to the Otay watershed (hydrologic unit code [HUC] 10) by the City of San Diego (City) Transportation & Storm Water Department's Master Storm Water System Maintenance Program (MMP; City 2013). The MMP outlines maintenance procedures including periodically clearing out City storm water facilities, allowing them to effectively convey storm water. During this maintenance process, sediment and vegetation is removed, including wetland vegetation. Specifically, this Plan is needed as part of anticipated mitigation for aquatic resource impacts (U.S. Army Corps of Engineers [USACE], Regional Water Quality Control Board [RWQCB], California Department of Fish and Wildlife [CDFW], and California Coastal Commission (CCC), and City jurisdiction) from the maintenance proposed for Nestor Creek channel (MMP Map No. 134) by the City's Storm Water Division, Operations and Maintenance Section (O&M). In addition, this Plan is needed to provide mitigation for past emergency maintenance that occurred in 2010 and 2016 within the Nestor Creek channel (Map No. 134). Excess aquatic resource mitigation provided by this Plan is proposed to satisfy an Advanced Permittee Responsible Mitigation (APRM) requirement for the USACE (U.S. Army Corps of Engineers [USACE] 2015a, 2015b). Based on meetings and correspondences, mitigation proposed in this Plan is anticipated to fulfill mitigation requirements of several resource agencies, as well as meet requirements of the City, and fulfill the MMP's obligation under the California Environmental Quality Act (CEQA).

The Hollister Quarry mitigation site is owned by the City (Assessor Parcel Number [APN] 6280510200). This Plan provides the details for mitigation of impacts to City-designated sensitive wetland habitats, as well as to waters of the U.S. under Section 401 and 404 of the federal Clean Water Act (CWA), and CDFW habitat under Section 1602 of the California Fish and Game Code. Section 404 of the CWA is administered by the USACE and Section 401 of the CWA is administered by the RWQCB. This Plan should ultimately be used as a guide to create construction plans and specifications (construction documents) for the mitigation effort. The proposed aquatic resource restoration (re-establishment and rehabilitation) is in line with the goals and objectives of the City's Multiple Species Conservation Program (MSCP) Subarea Plan (City 1997) and is in accordance with the City's Transportation & Storm Water Department MMP Final Program Environmental Impact Report (PEIR; City 2011). Also, since the proposed re-establishment component would provide a gain in both function and value by restoring an existing upland that may have been historically part of the Otay River, it would meet the no-net loss policy and minimum 1:1 restoration or creation component. For this report, re-establishment will be used to meet the minimum no-net loss policy and rehabilitation will be used for any remaining mitigation needed to fulfill the required mitigation ratios.

Mitigation at the Hollister Quarry mitigation site will be achieved through the re-establishment of aquatic resource habitat in place of disturbed land; aquatic resource rehabilitation will occur in areas currently dominated by large stands of invasive giant reed (*Arundo donax*). The proposed re-establishment and rehabilitation areas are expected to approach the function and services of early successional habitat within five years. This plan is written to implement both the proposed 1.71-acre and alternate 2.20-acre design concepts (see Section 3.8, below). Nomenclature used in this report follows Oberbauer et al. (2008) and the City's Biology Guidelines (City 2016) for vegetation communities, Baldwin et al. (2012) for plants, and American Ornithologists' Union (2017) for birds.

2.0 PROJECT DESCRIPTION

2.1 PROJECT PURPOSE

The purpose of this Plan is to provide the framework for compensatory mitigation for biological impacts resulting from past emergency and proposed O&M channel maintenance work occurring in Nestor Creek channel (specifically Map 134 of the MMP), located within the Otay River watershed (HUC 10). The MMP outlines maintenance procedures for emergency and periodic maintenance of City storm water facilities to allow them to function as designed. During this maintenance process, sediment and vegetation are removed, including wetland vegetation, in accordance with local, state, and federal regulations. This Plan addresses compensatory mitigation for impacts resulting from past emergency maintenance and proposed future maintenance activities within the Nestor Creek Channel (Map 134). Emergency maintenance within Map 134 occurred in 2010 and 2016, and maintenance is proposed for 2018.

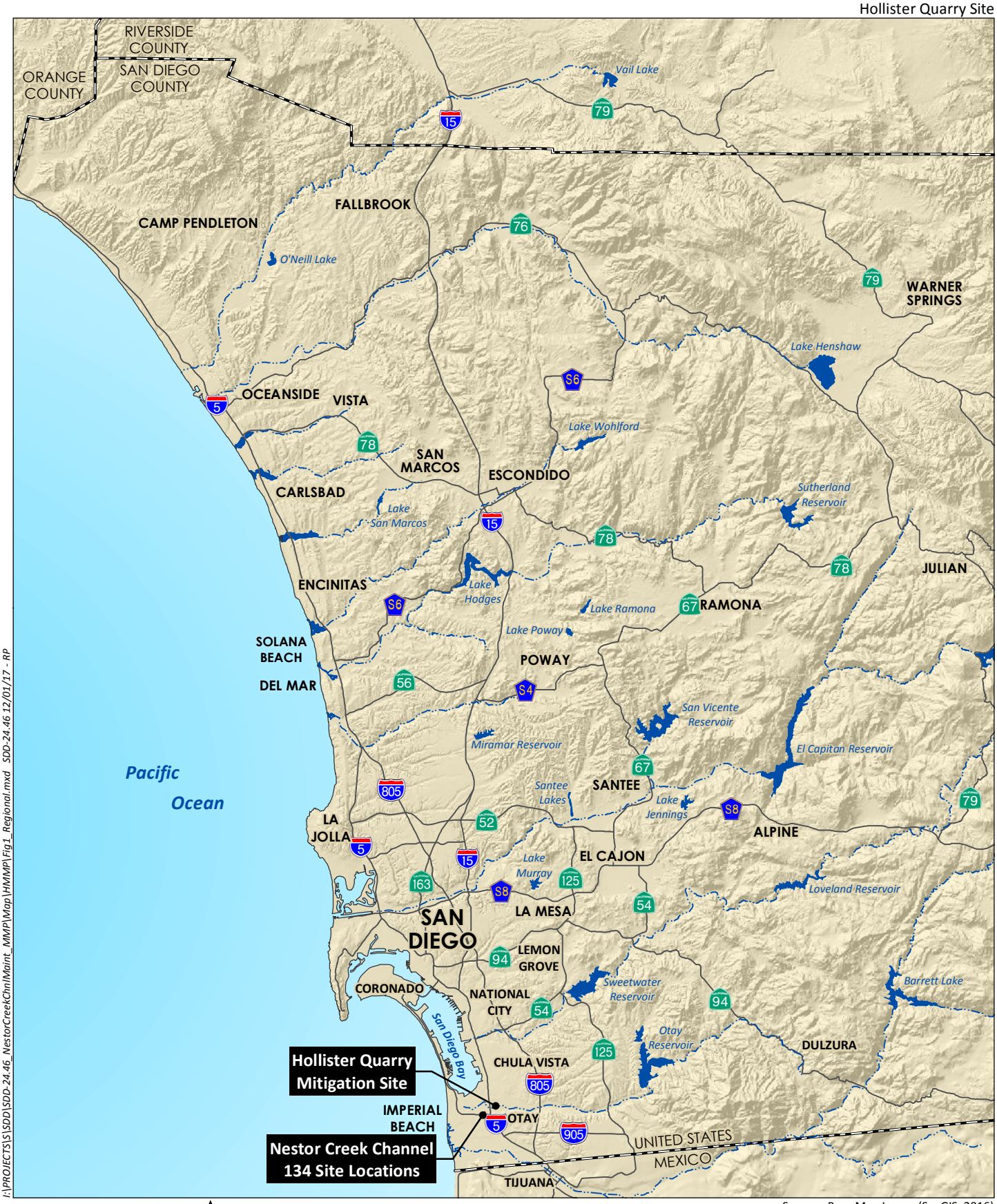
After compensatory aquatic resource mitigation has been allocated for Nestor Creek Map 134 (Table 1), excess or remaining mitigation credits available at the Hollister Quarry mitigation site would be assigned to future impacts associated with the City's projects based on each agency's requirements.

2.2 PROJECT LOCATION AND SERVICE AREA

The Hollister Quarry mitigation site is in the City of San Diego in Southwest San Diego County (Figure 1). It is within the Otay Hydrological Unit (HU; HUC 10) and would provide mitigation for impacts from Nestor Creek Map 134 maintenance, also located within the Otay HU. Both the Nestor Creek Map 134 channel and the Hollister Quarry mitigation site are in Township 18 South, Range 2 West, in the Imperial Beach U.S. Geological Survey 7.5-minute quadrangle map (Figure 2; latitude 32.590 and longitude -117.081). The Hollister Quarry mitigation site is owned by the City and is located entirely within the Multi-Habitat Planning Area (MHPA) of the City's MSCP Subarea Plan (City 1997; Figure 3). It is also located within the Otay Valley Regional Park (OVRP) and in the Otay Mesa-Nestor Community Plan. The Nestor Creek Map 134 area is not within the MHPA. Map 134 and the Hollister Quarry mitigation site are within the Coastal Zone (Figures 3 and 4).

The OVRP is a multi-jurisdictional park, jointly administered by the County of San Diego and Cities of Chula Vista and San Diego. The mitigation site is within the area identified as Area A within the Joint Exercise of Powers Agreement between the three agencies. The City of San Diego has management responsibility for Area A, in addition to fee ownership of the mitigation parcels. The site is within the jurisdictional boundary of the City of San Diego and borders the City of Chula Vista on the northern side of the parcel. An updated OVRP Concept Plan was approved by the San Diego City Council on October 13, 2017 (and by the two other jurisdictions prior to that; County et al. 2017).

Nestor Creek channel impacts will occur in the City, within one primarily concrete bottom channel segment. The Map 134 channel segment runs north from Palm Avenue between the parking lots for a Super 8 Motel and an auto repair shop before turning westward along the northern edge of businesses fronting on Palm Avenue (Figure 4). It is bordered by development along all its length. The proposed mitigation site is located less than one mile northeast of the Nestor Creek channel facilities, along the Otay River, east of Hollister Street, and south of Main Street (Figures 2 and 5).



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0 8 Miles

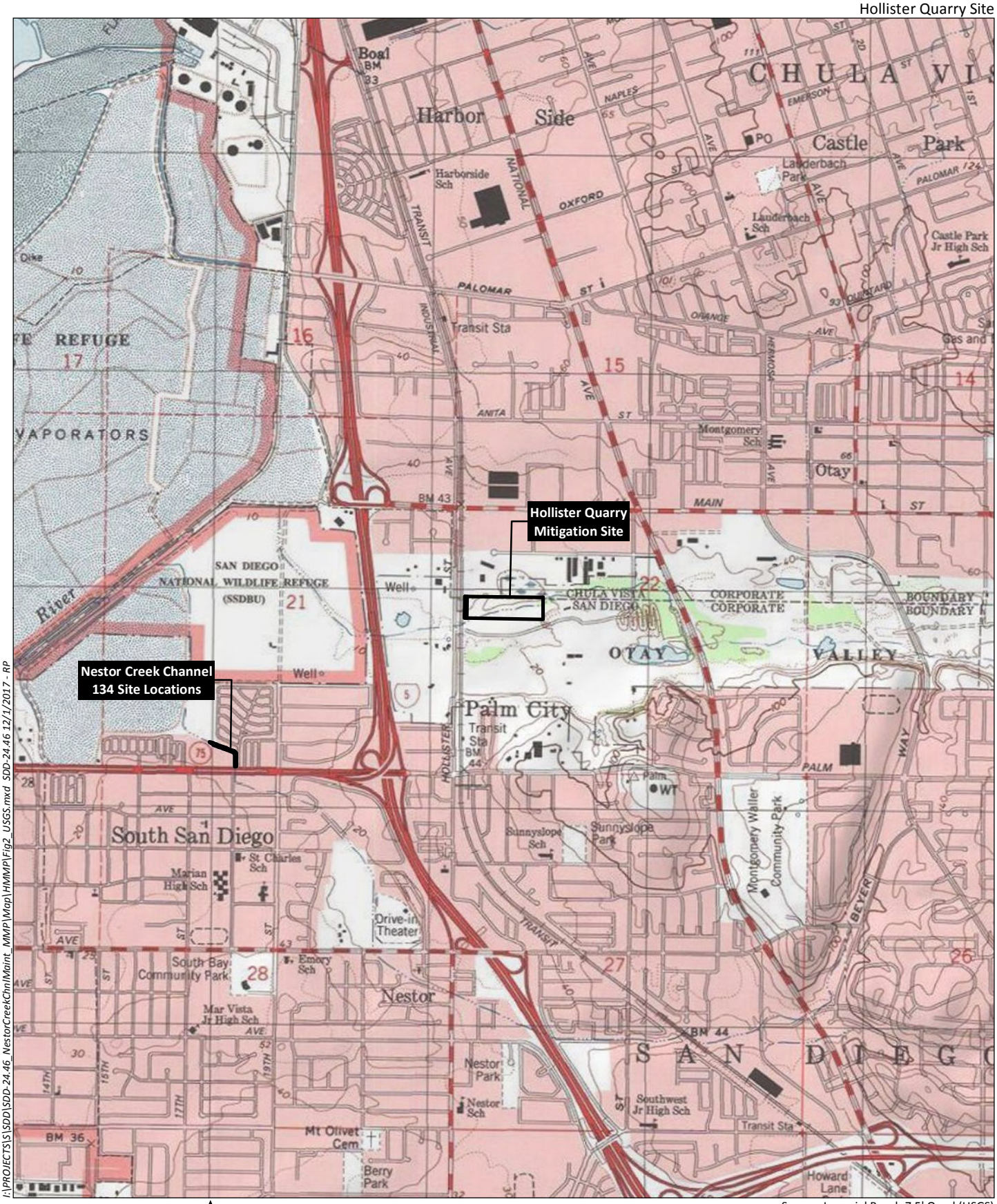
Source: Base Map Layers (SanGIS, 2016)

HELIX Environmental Planning

Regional Location

Figure 1

Hollister Quarry Site



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0 2,000 Feet

Source: Imperial Beach 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2

Hollister Quarry Site

Parcel Boundary
MHPA
OVRP
Coastal Zone
Wetland Re-establishment/Potential Grading Area
Wetland Rehabilitation

Vegetation Type

Upland Scrub (*Ambrosia monogyra* population)
Giant Reed (*Arundo donax*)
Disturbed Land
Southern Willow Scrub

HOLLISTER ST

Potential Staging Area

Potential Access Area

PRIVATE RD

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0 100 Feet

Source: Aerial (NAIP 2016)

HELIX Environmental Planning

MHPA and Coastal Zone

Figure 3

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0 100 Feet

Source: Aerial (SanGIS, 2014)

HELIX Environmental Planning

Existing Vegetation and Sensitive Biological Resources, Nestor Creek Channel - Map 134/Reach 1

Figure 4

Hollister Quarry Site

Parcel Boundary

Vegetation Type

- Upland Scrub (*Ambrosia monogyra* population)
- Disturbed Land
- Disturbed Wetland (Arundo-dominated)
- Southern Willow Scrub
- Upland Scrub - Bacharis Srub

Hollister Street

singlewhorl burrowbrush

least Bell's vireo

Potential Staging Area

Potential Access Area

least Bell's vireo

least Bell's vireo

least Bell's vireo

least Bell's vireo

least Bell's vireo

least Bell's vireo

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0 100 Feet

N

Source: Aerial (NAIP 2016)

HELIX Environmental Planning

Existing Vegetation and Sensitive Biological Resources

Figure 5

In addition to providing mitigation for the Nestor Creek Map 134 channel, the proposed service area for the Hollister Quarry mitigation site includes projects not only within the Otay River HU, but also within the adjacent Tijuana River, Sweetwater, and Pueblo San Diego HUs.

2.3 JURISDICTIONAL IMPACTS

Jurisdictional waters and wetlands within the maintenance areas include waters of the U.S. subject to the regulatory jurisdiction of the USACE pursuant to Section 404 of the CWA, the RWQCB pursuant to Section 401 of the CWA, streambed and riparian habitat subject to the regulatory jurisdiction of the CDFW pursuant to Section 1600 of the California Fish and Game Code, and wetlands pursuant to the City's Environmentally Sensitive Lands (ESL) regulations. Jurisdictional impacts requiring mitigation associated with Nestor Creek Channel Map 134 maintenance were identified in the project's Individual Biological Assessment (HELIX 2017a) and include 0.04 acre of impacts to USACE/RWQCB jurisdiction, 0.02 acre of impacts to CDFW jurisdiction, and 0.25 acre of City impacts. Section 2.6 of this Plan provides further detail on the mitigation requirements for the proposed Nestor Creek Map 134 maintenance.

2.4 FUNCTIONS AND SERVICES OF IMPACTED AREAS

Map 134 of Nestor Creek is channelized, rectangular, and primarily concrete-lined on the bottom and both banks (Figure 4). The western 65 feet of Map 134 is earthen bottom. The channel contains patches of cattails (*Typha* sp.) and bulrush (*Schoenoplectus* sp.); other vegetation includes giant reed*,* Mexican fan palm (*Washingtonia robusta*), Canary Island date palm (*Phoenix canariensis*), and castor bean (*Ricinus communis*) (HELIX 2017a).

The storm water channel associated with Map 134 receives storm flows from upstream and surrounding areas. The primary function provided by this channel includes water conveyance and sediment transport. The wetland conditions of this channel aid in nutrient cycling and other biophysical processes on a small scale. Although small stands of wetland plant communities are present, they are isolated and surrounded predominantly by development, which lowers the quality of the habitat substantially. The vegetated channel contains potential nesting habitat for common avian species and limited foraging opportunities for wildlife. There is limited potential for groundwater recharge and flood attenuation due to the impermeable, concrete-lined nature of most of the channel, which limits the potential for the system to function naturally.

A desktop California Rapid Assessment Method (CRAM) assessment for Map 134 was completed according to the *California Rapid Assessment Method for Wetlands: Riverine Wetlands Field Book, v. 6.1* (California Wetlands Monitoring Workgroup [CWMW] 2013) using field data collected on September 15, 2016. Given the majority of the Nestor Creek channel is a partially concrete-lined flood control channel within an urbanized area, the structural complexity and size of the Assessment Area was limited and thus, the AA received an overall low score of 30. The overall CRAM score was calculated by averaging the scores for each of the CRAM Attributes/Metrics: Buffer and Landscape Context (25), Hydrology (41.7), Physical Structure (25), and Biotic Structure (27.8).

2.5 COMPENSATORY MITIGATION DEFINITIONS

Each permitting agency has its own perspective on how aquatic resource mitigation is defined and credited. Definitions, by agency, are provided below.

U.S. Army Corps of Engineers

The USACE and U.S. Environmental Protection Agency (EPA) jointly provided mitigation definitions for the mitigation of losses to aquatic habitat (USACE and EPA 2008). Each mitigation type has a unique, acknowledged compensatory value for temporary and permanent impacts.

Establishment (creation) – the manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area and functions.

Restoration – the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

> **Re-establishment** – the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/ historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.
>
> **Rehabilitation** – the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/ historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

While rehabilitation does not result in a gain in aquatic resource area for purposes of tracking ‘‘not net loss’’ of wetlands, this does not mean that it cannot be used to compensate for a loss in resource area at the impact site. The district engineer will determine on a case-by-case basis the appropriate type and amount of mitigation to compensate for permitted impacts.

Enhancement – the manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Regional Water Quality Control Board

The RWQCB uses aquatic resource mitigation definitions that are generally consistent with those provided by the RWQCB (Regional Water Quality Control Board [RWQCB] 2016).

Establishment – The creation of vegetated or unvegetated waters of the U.S./State where the resource has never previously existed.

Restoration – Restoration is divided into two activities, re-establishment and rehabilitation

> **Re-establishment –** The return of natural/historic functions to a site where vegetated or unvegetated waters of the U.S./State previously existed

> **Rehabilitation** – The improvement of the general suite of functions of degraded vegetated or unvegetated waters of the U.S./State.

Enhancement – The improvement to one or two functions of existing vegetated or unvegetated waters of the U.S./State.

Preservation – The acquisition and legal protection from future impacts in perpetuity of existing vegetated or unvegetated waters of the U.S./State (e.g., conservation easement).

The RWQCB definitions also provide clarifying examples that distinguish rehabilitation from enhancement. An example of rehabilitation is the removal of a heavy infestation or monoculture of exotic plant species from jurisdictional areas and replacing with native species; an example of enhancement is the removal of small patches of exotic plant species from an area containing predominantly natural plant species.

California Department of Fish and Wildlife

The CDFW does not have official definitions of aquatic resource mitigation but has typically followed traditional definitions like those in the City's Biology Guidelines (City 2016). The CDFW has discretion in evaluating the appropriateness of mitigation proposals considering the project impacts and available mitigation options.

City of San Diego

The following list provides the City operational definitions of the four types of activities that constitute wetland mitigation under "Environmentally Sensitive Lands" in the *Land Development Manual–Biology Guidelines* (City 2016):

Wetland creation – an activity that results in the formation of new wetlands in an upland area. An example is excavation of uplands adjacent to existing wetlands and the establishment of native wetland vegetation.

Wetland restoration – an activity that re-establishes the habitat functions of a former wetland. An example is the excavation of agricultural fill from historic wetlands and the re-establishment of native wetland vegetation.

Wetland enhancement – an activity that improves the self-sustaining habitat functions of an existing wetland. An example is removal of exotic species from existing riparian habitat.

Wetland acquisition – may be considered in combination with any of the three mitigation activities above.

The Biology Guidelines further state that:

> "Wetland enhancement and wetland acquisition focus on the preservation or the improvement of existing wetland habitat and function, and do not result in an increase in wetland area; therefore, a net loss of wetland may result. As such, acquisition and/or enhancement of existing wetlands may be considered as partial mitigation only, for any balance of the remaining

> mitigation requirement after restoration or creation if (sic) wetland acreage is provided at a minimum of a 1:1 ratio."

However, the Biology Guidelines acknowledge that:

> "Wetland mitigation required as part of any federal (404) or state (1601/1603) wetland permit will supersede and will not be in addition to any mitigation identified in the California Environmental Quality Act (CEQA) document for those wetland areas covered under any federal or state wetland permit."

This Plan generally uses the following terminology for proposed aquatic resource mitigation: re-establishment and rehabilitation. The City's definition of creation and restoration could include establishment or re-establishment, respectively, if the activity includes excavation of uplands adjacent to existing wetlands when that upland area is fill from historic wetlands. For the purpose of this report and historic consideration of the Otay River wetland, removal of upland fill and re-establishment of native vegetation will be considered USACE/RWQCB re-establishment that also meets the City's 1:1 minimum creation or restoration component, as it results in increased function and value, and results in increased USACE/RWQCB and City jurisdictional wetland area. The USACE rehabilitation does not always result in an increase in jurisdictional area. A case-by-case determination must be made if rehabilitation satisfies the City's 1:1 minimum creation or restoration component, based on the impact type and whether the project and proposed mitigation would result in a biologically superior net gain in overall function and values. The project and proposed mitigation would result in a biologically superior net gain in overall function and values. Enhancement includes the City, USACE, and RWQCB definition for enhancement. Enhancement typically occurs in disturbed wetlands where the dominant wetland community also includes ornamental, exotic, or invasive plant species and are removed to enhance the existing wetland function. Enhancement usually does not require replanting of new wetland vegetation, just removal of ornamental, exotic, or invasive plant species. The City's definition of acquisition is the same as the RWQCB's definition for preservation, but it can only be used after the minimum 1:1 creation/restoration component is met.

2.6 MITIGATION REQUIREMENTS

No mitigation is required for impacts relating to the removal of giant reed (*Arundo donax*) or other invasive, non-native vegetation. Mitigation requirements for each agency are described below (Table 1). The mitigation ratios for the 2010 and 2016 emergency work were established as part of the emergency permitting completed for each of those maintenance events. Mitigation ratios for the upcoming 2018 impacts to USACE, RWQCB, and CDFW are proposed below and in Table 1; however, final mitigation requirements for USACE, RWQCB, and CDFW will be determined during the permitting process.

U.S. Army Corps of Engineers

Mitigation for impacts to USACE jurisdictional areas can be dependent upon the composition of the channel. Mitigation ratios are often different for earthen and concrete-lined channels. The USACE usually requires compensatory mitigation for maintenance impacts to aquatic resources in earthen channels, but maintenance of the existing storm water facilities is exempt per section 404 (f)(1)(b) of the CWA. The proposed mitigation for impacts to USACE regulated areas within Map 134 totals 0.05 acre (Table 1). No impacts to USACE jurisdictional areas in earthen components of Nestor Creek Map 134 occurred during the 2010 emergency. During the 2016 emergency, impacts included 0.02 acre to

wetland waters of the U.S. (freshwater marsh). Proposed 2018 maintenance would impact 0.01 acre of non-wetland waters of the U.S. (natural flood channel). The mitigation ratio proposed for non-wetland waters of the U.S. is 1:1, consisting of 0.01 acre of re-establishment.

Regional Water Quality Control Board

Much like the USACE, mitigation for RWQCB jurisdictional impacts can be dependent upon the composition of the channel. Mitigation ratios are often different for earthen and concrete channels. The RWQCB requires compensatory mitigation for maintenance impacts to aquatic resources in earthen and concrete-lined channels. The proposed mitigation for impacts to RWQCB regulated areas within Map 134 totals 0.04 acre of waters of the State (Table 1). The mitigation ratio proposed for non-wetland waters of the State on earthen channel is 1:1, consisting of a minimum of 0.01 acre of rehabilitation. By request from the RWQCB, the mitigation ratio proposed for wetland waters of the U.S. on the concrete-lined channel is also 1:1, consisting of a minimum of 0.03 acre of enhancement. No mitigation is proposed for impacts to non-wetland waters of the State on concrete-lined portions of the channel.

California Department of Fish and Wildlife

The CDFW has jurisdiction over the earthen and concrete portions within Nestor Creek channel, but only typically requires compensatory mitigation for maintenance impacts to aquatic resources and unvegetated earthen portions of the channel. While CDFW requires notification of activities within concrete-lined channels, it typically does not require compensatory mitigation for these activities. The total proposed mitigation for CDFW is 0.01 acre (Table 1). No mitigation is required for impacts to CDFW jurisdictional areas in earthen components of Nestor Creek Channel resulting from emergency maintenance in 2010 and 2016. Proposed 2018 maintenance would impact 0.01 acre of disturbed wetland (Arundo-dominated) and 0.01 acre of streambed. Mitigation ratios proposed are 1:1 for streambed, consisting of 0.01 acre of re-establishment.

City of San Diego

The City regulates both earthen and concrete-lined channels and requires compensatory mitigation for aquatic resource impacts pursuant to the mitigation ratios specified in the Site Development Permit (SDP). The City's mitigation ratios for maintenance activities within Nestor Creek Map 134 must be consistent with those identified in the MMP's SDP, which incorporates specific conditions from the Settlement Agreement (2013) related to the MMP's Final PEIR. The total mitigation requirement for the City is 0.91 acre (Table 1). Impacts to areas under the City's jurisdiction resulting from 2010 emergency maintenance include 0.02 acre of freshwater marsh, 0.03 acre of southern willow scrub (SWS), and 0.06 acre of disturbed wetland. Impacts resulting from 2016 emergency maintenance include 0.02 acre of freshwater marsh. Proposed 2018 maintenance would impact 0.03 acre of freshwater marsh, 0.07 acre of disturbed wetland, 0.01 acre of disturbed wetland (Arundo-dominated), and 0.01 acre of streambed/natural flood channel. Mitigation ratios consist of 3:1 for SWS, 4:1 for freshwater marsh and disturbed wetland, and 2:1 for natural flood channel/streambed.

Mitigation requirements would consist of a minimum of 1:1 re-establishment (0.25 acre) and the remainder (0.66 acre) as rehabilitation. The City Biology Guidelines (City 2016) stated preference for impacts to be mitigated in-kind with better habitat. Out-of-kind may be considered where it would clearly benefit sensitive species and result in a biologically superior alternative.

The mitigation outlined in this Plan is intended to fully mitigate for emergency maintenance in 2010 and 2016, as well as proposed 2018 proposed maintenance MMP impacts to Nestor Creek Map 134 Channel . Any remaining credit will be used as APRM.

Table 1
AQUATIC RESOURCE MITIGATION REQUIREMENTS
FOR NESTOR CREEK MAP 134 CHANNEL MAINTENANCE (acres)[1]

Habitat	U.S. Army Corps of Engineers (USACE)/ Regional Water Quality Control Board (RWQCB)			California Department of Fish and Wildlife (CDFW)			City of San Diego (City)		
	Past/Proposed Impacts[2]	Ratio[3]	Mitigation[3]	Past/Proposed Impacts	Ratio[3]	Mitigation[3]	Past/Proposed Impacts	Ratio[3]	Mitigation[3]
2010 Emergency									
Southern willow scrub (concrete)[4]	--	--	--	--	--	--	0.03	3:1	0.09
Freshwater marsh (concrete)[4]	--	--	--	--	--	--	0.02	4:1	0.08
Disturbed wetland (concrete)[4]	--	--	--	--	--	--	0.06	4:1	0.24
Subtotal	**--**	**--**	**--**	**--**	**--**	**--**	**0.11**	**--**	**0.41**
2016 Emergency									
Freshwater marsh (earthen)[4]	0.02	2:1	0.04	--	--	--	0.02	4:1	0.08
Disturbed wetland (Arundo-dominated; earthen)[4]	0.01	0:1	--	0.01	0:1	--	0.01	0:1	--
Subtotal	**0.03**	**--**	**0.04**	**0.01**	**--**	**--**	**0.03**	**--**	**0.08**

Table 1 (cont.)
AQUATIC RESOURCE MITIGATION REQUIREMENTS
FOR NESTOR CREEK MAP 134 CHANNEL MAINTENANCE (acres)[1]

Habitat	U.S. Army Corps of Engineers (USACE) / Regional Water Quality Control Board (RWQCB)			California Department of Fish and Wildlife			City of San Diego		
	Past/Proposed Impacts[2]	Ratio[3]	Mitigation[3]	Past/Proposed Impacts	Ratio[3]	Mitigation[3]	Past/Proposed Impacts	Ratio[3]	Mitigation[3]
2018 Proposed Maintenance									
Freshwater marsh (concrete)[4]	--/0.03[6]	--/1:1[6]	--/0.03[6]	--	--	--	0.03	4:1	0.12
Disturbed wetland (concrete)[4]	--/0.07[6]	--/0:1[6]	--/--[6]	--	--	--	0.07	4:1	0.28
Natural flood channel/ streambed (earthen)[5]	0.01	1:1	0.01	0.01	1:1	0.01	0.01	2:1	0.02
Disturbed wetland (Arundo-dominated; earthen)[5]	--	--	--	0.01	0:1	--	0.01	0:1	--
Subtotal	**0.01/0.11**[6]	**--**	**0.01/0.04**[6]	**0.02**	--	**0.01**	**0.12**	**--**	**0.42**
TOTAL	**0.04/0.14**[6]	**--**	**0.05/0.08**[6]	**0.03**	--	**0.01**	**0.25**	**--**	**0.91**

[1] Acreages are rounded to the nearest 0.01 acre; thus, totals reflect rounding.
[2] No wetland mitigation was required in 2010 under Nationwide Permit (NWP) 43 or the associated 401 certification. Proposed maintenance of serviceable structures is exempt from USACE regulation. Previous habitat mitigation required by the San Diego RWQCB for maintenance on concrete-lined MMP channels has been on a case-by-case basis. While no RWQCB mitigation for the habitats within the concrete portions is being proposed at this time, at the RWQCB's discretion, habitat mitigation can be accommodated within the Hollister Quarry mitigation site.
[3] Mitigation ratios/acreages for 2010 and 2016 emergencies have been established with the agencies, whereas mitigation ratios/acreages are proposed for the upcoming 2018 maintenance.
[4] Wetland waters of the U.S./State.
[5] Non-wetland waters of the U.S./State.
[6] Mitigation for concrete-lined channel is not proposed for USACE; however, mitigation for concrete-lined channel is proposed for RWQCB by request.

3.0 MITIGATION SITE DESCRIPTION

3.1 MITIGATION LOCATION

Aquatic resource mitigation specified by this Plan will occur on a City-owned parcel (APN 6280510200) on the Otay River, which is located east of Hollister Street and south of Main Street. Aquatic resource re-establishment and rehabilitation proposed by this Plan will occur within areas currently supporting disturbed land and disturbed wetland (Arundo-dominated; Figure 5).

3.2 MITIGATION AREA SELECTION

HELIX biologist Jasmine Bakker, Rocks Biological Consulting biologist Brenda Bennett, and representatives from the City assessed the property on October 17, 2017, to determine whether any potential aquatic resource mitigation opportunities were available. Physical parameters assessed included soil condition, presence of indicator plant and animal species, slope, aspect, and hydrology. The abundance of giant reed was identified for potential aquatic resource rehabilitation. In addition, an area was identified for aquatic resource re-establishment, if the elevation of existing uplands (disturbed land) adjacent to the existing riverbed were lowered, to expand the area capable of supporting wetland hydrology and vegetation.

3.3 MITIGATION SITE SUITABILITY

The area proposed for mitigation is considered suitable for aquatic resource habitat re-establishment and rehabilitation due to the location of the site along an existing riparian corridor and the presence of existing riparian habitat both within the Hollister Quarry mitigation site as well as upstream and downstream of the site. Suitable aquatic resource mitigation areas were selected by mapping areas dominated by giant reed and other invasive species. The vertical and horizontal proximity to existing wetland habitat aided the identification of aquatic resource re-establishment and rehabilitation areas. A jurisdictional wetland delineation was conducted on November 21, 2017, to document pre-mitigation wetland status of the area and to aid in identifying suitable aquatic resource mitigation areas (Figures 6 and 7; Appendix A). The existing riparian corridor was confirmed to be under the jurisdiction of both the CDFW and City, and included SWS and disturbed wetland (Arundo-dominated). Areas under the jurisdiction of the USACE and RWQCB were similar, albeit slightly narrower than the City and CDFW jurisdictional areas. In addition, a USACE Compensatory Mitigation Site Evaluation Checklist was prepared for the site (Appendix B).

3.4 EXISTING CONDITIONS AND ENVIRONMENTAL SETTING

Vegetation within the Hollister Quarry mitigation site consists of native and disturbed lands (Figure 5). Vegetation communities and land types identified include SWS, upland scrub, disturbed wetland (Arundo-dominated), and disturbed land. Dominant native species observed on site include mule fat (*Baccharis salicifolia*), broom baccharis (*Baccharis sarothroides*), Goodding's willow (*Salix gooddingii*), and arroyo willow (*Salix lasiolepis*). Dominant non-native species observed on site include giant reed, tamarisk (*Tamarix* sp.), and Brazilian pepper tree (*Schinus terebinthifolius*).

Wetland communities within the proposed site are predominantly composed of SWS and disturbed wetland (Arundo dominated). The SWS primarily comprises a dense canopy of tree-sized willows (*Salix*

spp.) with non-native species interspersed. The disturbed wetland areas have minimal native vegetation. Upland communities on site consist primarily of upland scrub dominated by baccharis and disturbed land. A patch of upland scrub containing singlewhorl burrowbush (*Ambrosia monogyra*) occurs to the north of the disturbed wetland. Disturbed land includes a concrete pad on the northwest corner and the potential staging area for the proposed project in the southeast corner of the site.

Ms. Bakker and Ms. Bennett identified one sensitive plant species, singlewhorl burrowbush (California Rare Plant Rank [CRPR] 2B.2), within the proposed mitigation site boundary. HELIX biologist Laura Moreton observed an adult pair and one juvenile least Bell's vireo (*Vireo bellii pusillus*; Federally and State Endangered) during focused species surveys conducted between May 17 and July 31, 2017. Additionally, four individual least Bell's vireo were observed in the vicinity of the site during the 2017 survey effort and least Bell's vireo are expected to be present. The SWS within and adjacent to the proposed mitigation site are considered suitable habitat for least Bell's vireo. Additionally, two federally endangered species (light-footed Ridgway's rail [*Rallus longirostris levipes*] and southwestern willow flycatcher [*Empidonax traillii extimus*]) and three CDFW Species of Special Concern (Cooper's hawk [*Accipiter cooperii*], burrowing owl [*Athene cunicularia*], and northern harrier [*Circus hudsonius*]) have low potential to nest on, or near, the project site. Avoidance of grading and enhancement activities during the nesting bird and raptor breeding season, which includes the least Bell's vireo breeding season, will also address potential indirect impact concerns on the sensitive avian species with low potential to occur: light-footed Ridgway's rail and southwestern willow flycatcher. A nesting bird survey has been incorporated into project protocol prior to construction (Section 5.2) to account for the low potential for these species.

Figures 6 and 7 show the estimated limits of the USACE, RWQCB, and CDFW jurisdiction within the Hollister Quarry mitigation site boundary. Appendix A provides the wetland delineation forms completed by HELIX biologist Larry Sward on November 21, 2017, at the sample locations shown on Figures 6 and 7. Based on field verification and with the assistance of two-foot topography, USACE-jurisdictional wetlands occur within the primary Otay River channel below the 16-foot contour lines where hydrophytic vegetation, hydric soils, and wetland hydrology occur. These wetland areas would also be considered jurisdictional wetlands/streambed by RWQCB and CDFW. Indicators of regular flow also occur beyond the delineated wetland areas throughout most of the site boundary with the exception of bermed and disturbed upland habitats estimated to be above the 28-foot contour lines. Figures 6 and 7 display these areas as non-wetland waters of the U.S./State and CDFW streambed.

Soils within the Hollister Quarry mitigation site are mapped as gravel pits along the Otay River in the eastern third of the site, and riverwash in the western portion of the site (Natural Resource Conservation Service 2016). The gravel pit parent material is listed as sandy and gravelly alluvium. Sandy, gravelly, or cobbly alluvium derived from mixed sources is the parent material of the riverwash soil type. Elevations on site range between 14 feet above mean sea level (AMSL) along the riverbed to 34 feet AMSL in the northeast portion of the site.

The Otay River flows approximately 10 miles west from a large hydrologic break at the Savage Dam at the upper segment of the Lower Otay River watershed until it reaches the proposed mitigation area. Drainage of the Hollister Quarry mitigation site occurs primarily from runoff from the surrounding urban uses including mining, agriculture, and commercial; groundwater from the Otay River watershed and direct precipitation also contribute to the site's hydrology. Several areas of fill (e.g., bermed and disturbed areas) associated with the adjacent mine separate the riparian habitat south of the Otay River

Hollister Quarry Site

Parcel Boundary
Non-wetland Waters of the U.S.
Wetland Waters of the U.S./State
Sampling Pits

Louret Avenue

SP2
SP1
SP4
SP3

Hollister Street

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0 100 Feet

Source: Aerial (NAIP 2016)

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USACE/RWQCB Waters of the U.S./State

Figure 6

Hollister Quarry Site

Parcel Boundary
Riparian Areas
Sampling Pits

Louret Avenue

Southern Willow Scrub

Disturbed Wetland (Arundo-dominated)

SP1
SP2
SP3
SP4

Disturbed Wetland (Arundo-dominated)

Hollister Street

I:\PROJECTS\S\SDD\SDD-24.46_NestorCreekChnlMaint_MMP\Map\HMMP\Fig7_CDFW.mxd SDD-24.46 5/18/2018 -RP

0 100 Feet

Source: Aerial (SanGIS, 2016)

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CDFW Jurisdiction Riparian Areas

Figure 7

from the main river channel. The Otay River connects with the Pacific Ocean approximately one mile from the Hollister Quarry mitigation area.

Review of the property deed documents revealed a historic easement for San Diego Gas & Electric (SDG&E) recorded in 1914 for poles, wires, and anchors. The City requested pole removal in 2000, and it is believed that easement no longer exists. Based on the work completed as part of this Plan, SDG&E infrastructure does not exist within the proposed mitigation area, and rather would be used to maintain potential infrastructure on the northwestern side of the parcel. In addition, there is record of an agreement between the Pacific Telephone and Telegraph Company and the Sim J. Harris Company dated June 5, 1959 for underground conduit construction. No easement data was provided, and the current status of this easement is unknown.

A multi-use trail, which is part of the OVRP network of trails (County et al. 2017), occurs in the general vicinity of the mitigation site (Figure 5). The trail runs north to south approximately 0.25 mile east of the mitigation site, east to west approximately 0.10 mile south of the mitigation site, and north to south approximately 0.08 mile west of the mitigation site. No additional trails are proposed near the mitigation site.

3.5 EXISTING FUNCTIONS AND SERVICES

The degraded state of the Hollister Quarry mitigation site limits its potential functions and services given the density of invasive, perennial species (e.g., giant reed), extensive adjacent quarry operations, and associated berming and soil compaction. However, the retained Otay River functions within the proposed mitigation area include groundwater recharge and flood control. Wildlife use of the areas proposed for re-establishment and rehabilitation is lower due to the prevalence of non-native species. Furthermore, the presence of non-native invasive vegetation provides a weed seed source for the downstream habitat along the Otay River. The re-establishment and rehabilitation of the Hollister Quarry mitigation site will increase the value of the area to native flora and fauna, including least Bell's vireo known to occur within the site boundary. The functions and services of the site will be improved with the removal of invasive non-native species and large bermed and disturbed areas to restore flows and allow for improved hydrologic connectivity to the active floodplain and associated aquatic resources of the primary channel of Otay River.

The existing wetland condition at the Hollister Quarry mitigation site was assessed using CRAM. Results of this pre-mitigation CRAM will be used to project the expected functional lift on wetland condition post-mitigation based on the proposed re-establishment and rehabilitation design. Ms. Bakker and Rocks Biological Consulting regulatory specialist Shanti Santulli conducted a CRAM assessment on December 1, 2017 according to the *California Rapid Assessment Method for Wetlands: Riverine Wetlands Field Book, v. 6.1* (CWMW 2013). One assessment area (AA) was established to encompass the primary re-establishment and rehabilitation areas.

The data form for the AA is included in Appendix C. Overall CRAM scores are calculated by averaging the scores for each of the four CRAM Attributes (buffer and landscape context, hydrology, physical structure, and biotic structure). The CRAM practitioners rate each metric and submetric for the AA with a letter rating (A-D), with A denoting the best attainable wetland condition based on CRAM Riverine reference sites in California and D denoting the worst attainable wetland condition. Each letter rating equates to a numeric value (12, 9, 6, or 3 for A, B, C, or D, respectively) to quantify a raw score for each attribute. The raw score is converted into a percentage of the maximum score possible for each

attribute. The sum of the four final attribute scores is the overall CRAM score for the AA, the lowest score being 25 percent and the highest 100 percent.

Table 2 below provides the CRAM data of the pre-mitigation condition of the AA. The overall CRAM score for the AA was 56 (Table 2). HELIX also conducted CRAM for the Nestor Creek Channel Map No. 134 (HELIX 2017b). The AA on Map No. 134 received a score of 30. The score is lower than the score received by the site prior to mitigation occurring. This indicates that the baseline condition of the Hollister Quarry mitigation site is greater than that of the impact site. However, with a CRAM score of 56, the re-establishment and rehabilitation of the Hollister Quarry mitigation site will increase the overall structure and function of the riverine system resulting in a higher CRAM score after the five-year mitigation and monitoring period. Table 2 also provides the expected target scores after the five-year monitoring period.

Table 2
CALIFORNIA RAPID ASSESSMENT METHOD (CRAM) DATA SUMMARY

CRAM Attributes	Metrics		Baseline Scores[1]	Year 5 Target Scores
			AA1	AA1
Buffer and Landscape Context	Stream Corridor Continuity		12	12
	- Percent of Assessment Area with Buffer		9	9
	- Average Buffer Width		6	6
	- Buffer Condition		6	6
	Attribute Score (Raw/Final Percent)		**19/77**	**19/77**
Hydrology	Water Source		6	6
	Channel Stability		12	12
	Hydrologic Connectivity		6	9
	Attribute Score (Raw/Final Percent)		**24/67**	**27/75**
Structure	Physical	Structural Patch Richness	6	9
		Topographic Complexity	6	9
	Attribute Score (Raw/Final Percent)		**12/50**	**18/75**
	Biotic	Plant Community Sub-metrics:		
		- Number of Plant Layers Present	6	9
		- Number of Co-dominant Species	3	6
		- Percent Invasion	6	12
		Horizontal Interspersion	3	6
		Vertical Biotic Structure	3	6
	Attribute Score (Raw/Final Percent)		**11/31**	**21/58**
	OVERALL AA SCORE		**56**	**71**

[1] Based on CRAM completed at the Hollister Quarry mitigation site prior to mitigation activities

3.5.1 Buffer and Landscape Context

Only 80 meters of the 250-meter buffers upstream and downstream are non-buffer segments (i.e., trolley tracks/Hollister Street break downstream); therefore, the AA scored high for stream corridor continuity. However, the buffer metric/sub-metrics scored lower (B and Cs) because of the disturbed lot in the southeastern corner within the surrounding buffer of the AA; an average buffer width of

126 meters; and buffer condition characterized by primarily non-native vegetation (50-75 percent), heavily manipulated and compacted soils (e.g., large berms and concrete rubble), and evidence of moderate intensity of human visitation (e.g., homeless encampments). The AA scored 77 percent for the buffer and landscape attribute overall.

3.5.2 Hydrology

The watershed defined for the water source rating reaches just past Beyer Way along the Otay River. Substantial hydrology for the defined watershed used in the CRAM analysis comes from surrounding urban uses such as mining, agriculture, and commercial, with the primary natural hydrologic input from groundwater and direct precipitation. Given the high urban influence of the water source, the AA scored low (C). The hydrologic connectivity was also low (C), with an average entrenchment ratio of 1.4 for the AA. Channel stability appeared to be at equilibrium due to the lack of strong indicators of aggradation or degradation in the AA, resulting in a high score for channel stability (A). Overall, the AA scored 67 percent for the hydrology attribute.

3.5.3 Physical Structure

The AA received a low score (C) for structural patch richness in that it supported four patch types out of a total of 12. Topographic complexity was also lower (C) within the AA with the lack of abundant micro-topographic complexity and one small bench present. The AA scored 50 percent for the physical structure attribute.

3.5.4 Biotic Structure

The AA received low scores (Cs and Ds) for all biotic structure submetrics. The dominance of giant reed (66 percent), minimal plant layers (two plant layers), and minimal horizontal interspersion and vertical structure resulted in a 31 percent score for the AA.

3.6 MITIGATION SUMMARY AND CONCEPT

This Plan includes the restoration (re-establishment and rehabilitation) of riparian scrub habitat at the Hollister Quarry mitigation site. The proposed aquatic resource re-establishment would occur in areas that are currently in an upland setting, adjacent to the southern bank of the Otay River that is entirely comprised of disturbed land (Figure 8). The rehabilitation will also occur on the south side of the Otay River in areas currently dominated by vast stands of giant reed. Some of the areas currently dominated by giant reed and located on upland berms (above existing boundaries of wetland and non-wetland waters of the U.S./State) will also be considered re-establishment for the USACE/RWQCB since multiple natural/historic wetland functions are expected to be restored within these areas. The mitigation areas will be converted to USACE-/RWQCB-jurisdictional riparian scrub by lowering the elevation to match that of existing USACE-/RWQCB-jurisdictional habitat and planting with riparian species. Final elevations of the aquatic resource rehabilitation and re-establishment areas will be similar to existing aquatic resources. Additional mitigation areas will be converted to CDFW-jurisdictional riparian scrub habitat by removing non-native species and planting with riparian scrub species. The conceptual approach includes a total of 0.90 acre of USACE mitigation, 1.71 acres of CDFW mitigation, and 1.71 acres of City wetland mitigation.

Table 3
PROPOSED AQUATIC RESOURCES MITIGATION – HOLLISTER QUARRY MITIGATION SITE[1]

Jurisdictional Resource/ Habitat	Re-establishment[3] (Restoration[4])	Rehabilitation[5] (Restoration[5])	Total
USACE/RWQCB			
Riparian scrub[2]	0.30	0.60	**0.90**
Total USACE/RWQCB Credit	**0.30**	**0.60**	**0.90**
CDFW			
Riparian Scrub	0.29	1.42	**1.71**
Total CDFW Credit	**0.29**	**1.42**	**1.71**
City			
Riparian Scrub	0.29	1.42	**1.71**
Total City Credit	**0.29**	1.42	**1.71**

[1] Rounded to the nearest 0.01 acre.
[2] Wetland waters of the U.S./State.
[3] Re-establishment as defined by USACE that meets no-net loss policy because of gains in function and value.
[4] Meets City 1:1 restoration or creation component because of gains in both function and value.
[5] Rehabilitation as defined by USACE which meets City 1:1 restoration or creation component on a case by case basis.

This Plan provides 0.30 acre of USACE/RWQCB aquatic resource re-establishment and 0.60 acre of aquatic resource rehabilitation. It provides 0.29 acre of re-establishment and 1.42 acres of rehabilitation in CDFW jurisdiction. The reason there is less CDFW re-establishment credit than for the USACE/RWQCB is because the CDFW is expected to take jurisdiction over a large stand of giant reed currently in an upland position, at the top of a berm, where this area is above USACE/RWQCB jurisdiction. Grading and restoration of this portion of the mitigation site will result in riparian rehabilitation credits for the CDFW since the existing area currently functions as CDFW riparian habitat albeit dominated by giant reed.

All mitigation requirements for the Nestor Creek Map 134 channel maintenance (2010/2016 emergencies and 2018 proposed maintenance) would be fulfilled by this Plan. Excess mitigation is proposed as APRM, as described in more detail below. Finally, this Plan provides for 0.14 acre of upland restoration for the City, which is not part of the mitigation requirements for Nestor Map 134. Mitigation requirements and their fulfillment are summarized by jurisdiction below.

U.S. Army Corps of Engineers

This Plan will provide aquatic resources mitigation to offset the total expected USACE mitigation requirements for Nestor Creek Map 134 channel emergency and proposed maintenance. The total USACE mitigation requirement is expected to be 0.05 acre and this Plan proposes 0.05 acre of wetland waters of the U.S. consisting of 0.03 acre of riparian scrub re-establishment and 0.02 acre of riparian scrub rehabilitation (Table 4a).

Hollister Quarry Site

- Existing Topography
- Proposed Grading
- Vegetation
- Upland Buffer (0.14 acre)

Transitional Riparian Scrub

- CDFW Re-establishment (0.19 acre)
- CDFW Rehabilitation (0.62 acre)

Riparian Scrub

- USACE & CDFW Rehabilitation (0.60 acre)
- USACE & CDFW Re-establishment (0.10 acre)
- USACE Re-establishment & CDFW Rehabilitation (0.20 acre)

Avenue

Railroad

Hollister Street

PRIVATE RD

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0 100 Feet

Source: Aerial (SanGIS, 2014)

HELIX Environmental Planning

Conceptual Mitigation Plan

Figure 8

Table 4a
PROPOSED USACE MITIGATION – NESTOR MAP 134

Habitat	Impacts (earthen bottom[2])	Mitigation Required/Proposed		Mitigation Provided	
		Re-establishment	Rehabilitation	Re-establishment	Rehabilitation
2010 Emergency					
No mitigation required					
2016 Emergency					
Freshwater marsh[1]	0.02	0.02	0.02	--	--
Riparian scrub[1]	--	--	--	0.02[1]	0.02[1]
Subtotal	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**
2018 Proposed Maintenance					
Disturbed wetland (Arundo-dominated)[1]	0.01	--	--	--	--
Streambed/ Natural flood channel[2]	0.01	0.01	--	--	--
Riparian scrub[1]	--	--	--	0.01[3]	--
Subtotal	**0.02**	**0.01**	--	**0.01**	**--**
TOTAL	**0.04**	**0.03**	**0.02**	**0.03**	**0.02**

[1] Wetland waters of the U.S./State.
[2] USACE is not expected to require mitigation for impacts within concrete-lined channels; thus, only impacts within earthen bottom channel are listed.
[3] Non-wetland waters of the U.S.
[4] Out-of-kind mitigation to satisfy freshwater marsh and Streambed/Natural flood channel re-establishment and rehabilitation.

Regional Water Quality Control Board

This Plan will provide aquatic resource mitigation to offset the total expected RWQCB mitigation requirements for Nestor Creek Map 134 channel emergency and proposed maintenance. The total RWQCB mitigation requirement is expected to be 0.08 acre and this Plan proposes 0.08 acre of wetland waters of the State consisting of 0.03 acre of riparian scrub re-establishment and 0.05 acre of riparian scrub rehabilitation (Table 4b).

Table 4b
PROPOSED RWQCB MITIGATION – NESTOR MAP 134

Habitat	Impacts	Mitigation Required/Proposed		Mitigation Provided	
		Re-establishment	Rehabilitation	Re-establishment	Rehabilitation
2010 Emergency					
No mitigation required					
2016 Emergency					
Freshwater marsh (earthen)[1]	0.02	0.02	0.02	--	--
Riparian scrub[1]	--	--	--	0.02[1]	0.02[1]
Subtotal	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**
2018 Proposed Maintenance					
Streambed/ Natural flood channel (earthen)[2]	0.01	0.01	--	--	--
Freshwater marsh (concrete-lined)[1]	0.03	--	0:03		
Riparian scrub[1]	--	--	--	0.01[3]	0.03[3]
Subtotal	**0.04**	**0.01**	**0.03**	**0.01**	**0.03**
TOTAL	**0.06**	**0.03**	**0.05**	**0.03**	**0.05**

[1] Wetland waters of the State.
[2] Non-wetland waters of the State.
[3] Out-of-kind mitigation to satisfy freshwater marsh and Streambed/Natural flood channel re-establishment and rehabilitation.

California Department of Fish and Wildlife

This Plan will provide riparian habitat mitigation to offset the total expected CDFW mitigation requirements for Nestor Creek Map 134 channel emergency and proposed maintenance. The total CDFW mitigation requirement is expected to be 0.01 acre, consisting of 0.01 acre of riparian scrub (re-establishment; Table 4c).

Table 4c
PROPOSED CDFW MITIGATION – NESTOR MAP 134

Habitat	Impacts (earthen bottom[1])	Mitigation Proposed	Mitigation Provided
		Re-Establishment (Restoration[3])	Re-Establishment (Restoration[3])
2010 Emergency			
No mitigation required			
2016 Emergency			
No mitigation required			
2018 Proposed Maintenance			
Disturbed wetland (Arundo-dominated)	0.01	--	--
Streambed	0.01	0.01	--
Riparian scrub	--	--	0.01[2]
Subtotal	**0.02**	**0.01**	**0.01**
TOTAL	**0.02**	**0.01**	**0.01**

[1] CDFW is not expected to require mitigation for impacts within concrete-lined channels; thus, only impacts within earthen bottom channel are listed.
[2] Out-of-kind mitigation to satisfy streambed re-establishment .
[3] Restoration, such as USACE re-establishment, that meets no-net loss policy (gain in both function and value) and 1:1 restoration or creation component.

City of San Diego

The total mitigation requirement for Nestor Creek Map 134 channel maintenance to City wetlands and natural flood channel is 0.91 acre, consisting of 0.24 acre of restoration (re-establishment) and 0.67 acre of restoration (re-establishment or rehabilitation) or enhancement (Table 4d).

The City requires mitigation for impacts to SWS, freshwater marsh, disturbed wetland (except for Arundo-dominated areas), and natural flood channel (streambed). The City Biology Guidelines (City 2016) preference for these habitats is in-kind mitigation with better habitat. Out-of-kind could be considered where it would clearly benefit sensitive species and result in a biologically superior alternative. This Plan provides out-of-kind mitigation (riparian scrub). The riparian scrub vegetation community has been carefully selected on the basis that it can successfully establish within the existing conditions and hydrology on, and adjacent to, the mitigation site. The proposed riparian scrub will provide better quality habitat and be of greater value to wildlife than the impacted disturbed wetland, freshwater marsh, SWS, and natural flood channel.

The following reasons have been used to determine that the out-of-kind the mitigation on the Hollister Quarry mitigation site will provide a biologically superior alternative to the impacted site:

- Disturbed wetland, which was mapped in Map 134, contains a high concentration of non-native species. The out-of-kind created habitat (riparian scrub) will be an improvement over the existing disturbed wetland as the plant pallet will only contain native species.

- Least Bell's vireo (*Vireo bellii pusillus*) is known to occur on and adjacent to the proposed mitigation site. The mitigation will increase the total area of habitat available for this federally endangered species as well as increase the value of the disturbed habitat currently on the site, by removing the non-native invasive component. The impacted location does not support least Bell's vireo.

- Diversity is a critical component of conservation. The creation of diverse communities will help to ensure long-term sustainability of the mitigation site. By creating three vegetation communities using a variety of plant species (19 wetland and 12 upland native species are included in the plant pallet), long-term viability of the site will be augmented. Approximately 12 species (including at least six non-natives) were noted in the aquatic resource communities in Map 134.

- The impacted location is generally isolated on a landscape scale, and surrounded by development, whereas the proposed mitigation site is part of the OVRP and the City's MHPA. The mitigation site will be more valuable as part of a large swath of habitat than the isolated pockets of aquatic resource that were mapped in the impact area.

Table 4d
PROPOSED CITY MITIGATION – NESTOR MAP 134

Habitat	Impacts	Mitigation Required		Mitigation Provided	
		Creation or Restoration[2]	Restoration[3], Enhancement or Acquisition	Restoration (Re-establishment)[2]	Restoration (Rehabilitation)[3]
2010 Emergency					
Freshwater marsh	0.02	0.02	0.06	--	--
Southern Willow Scrub	0.03	0.03	0.06	--	--
Disturbed wetland	0.06	0.06	0.18	--	--
Riparian Scrub	--	--	--	0.11[1]	0.30[1]
Subtotal	**0.11**	**0.11**	**0.30**	**0.11**	**0.30**
2016 Emergency					
Freshwater marsh	0.02	0.02	0.06	--	--
Riparian scrub	--	--	--	0.02[1]	0.06[1]
Subtotal	**0.02**	**0.02**	**0.06**	**0.02**	**0.06**

Table 4d (cont.)
PROPOSED CITY MITIGATION – NESTOR MAP 134

Habitat	Impacts	Mitigation Required		Mitigation Provided	
		Creation or Restoration[2]	Restoration[3], Enhancement or Acquisition	Re-Establishment Restoration[2]	Rehabilitation Restoration[3]
2018 Proposed Maintenance					
Freshwater marsh	0.03	0.03	0.09	--	--
Disturbed wetland	0.07	0.07	0.21	--	--
Disturbed wetland (Arundo-dominated)	0.01	--	--	--	--
Natural flood channel/ Streambed	0.01	0.01	0.01	--	--
Riparian scrub	--	--	--	0.11[1]	0.31[1]
Subtotal	**0.12**	**0.11**	**0.31**	**0.11**	**0.31**
TOTAL	**0.25**	**0.24**	**0.67**	**0.24**	**0.67**

[1] Out-of-kind mitigation to satisfy freshwater marsh, southern willow scrub, disturbed wetland, and natural flood channel/streambed restoration (re-establishment) and restoration (rehabilitation).
[2] Restoration, such as USACE re-establishment, that meets no-net loss policy (gain in both function and value) and 1:1 restoration or creation component.
[3] Rehabilitation as defined by USACE which meets City 1:1 restoration or creation component on a case by case basis.

3.7 ADVANCED PERMITTEE RESPONSIBLE MITIGATION

Mitigation provided by this Plan includes an excess of aquatic resource re-establishment and rehabilitation. As described in the introduction, this Plan is being prepared in part, to satisfy an APRM requirement for the USACE (USACE 2015a, USACE 2015b), which allows the City to provide compensatory mitigation for the USACE in advance of impacts associated with Essential Public Projects. These projects include, but are not limited to, storm channel maintenance, culvert replacement, repair, installation, and flood control activities. To comply with the APRM, the City must first demonstrate that aquatic resources have been avoided to the maximum extent practicable, then that they have minimized aquatic resources impacts to fullest extent appropriate and practicable, and finally that they are providing adequate compensatory mitigation for the remaining unavoidable aquatic resources impacts. The APRM process includes preparation of a detailed compensatory mitigation plan (i.e., the City's Land Development Code and Manual); development of a detailed habitat mitigation and monitoring plan; providing financial assurances to ensure successful compensatory mitigation implementation; and providing a long-term management plan with a site protection instrument, long-term management entity, and perpetual funding mechanism.

The excess or remaining mitigation, as shown in Table 5, would be used to mitigate for future impacts associated with the City's programs.

Table 5
EXCESS AQUATIC RESOURCE MITIGATION CREDITS FOR ADVANCED PERMITTEE RESPONSIBLE MITIGATION (APRM) AT HOLLISTER QUARRY MITIGATION SITE

Summary	Restoration (Re-establishment) (acre)	Restoration (Rehabilitation) (acre)
City		
- Mitigation Provided	0.29	1.42
- Map 134 Mitigation Requirements (City)	0.24	0.67
Excess Credits Available (City)	**0.05**	**0.75**
CDFW		
- Mitigation Provided	0.29	1.42
- Map 134 Mitigation Requirements (CDFW)	0.01	0.01
Excess Credits Available (CDFW)	**0.28**	**1.41**
USACE		
- Mitigation Provided	0.30	0.60
- Map 134 Mitigation Requirements (USACE)	0.03	0.02
Excess Credits Available (USACE)	**0.27**	**0.58**
RWQCB		
- Mitigation Provided	0.30	0.60
- Map 134 Mitigation Requirements (RWQCB)	0.03	0.05
Excess Credits Available (RWQCB)	**0.27**	**0.55**

3.8 ALTERNATIVE CONCEPTUAL DESIGN

An alternative conceptual mitigation plan is being considered by the City (Appendix D; Figure 9). The alternative contains essentially the same design elements as are proposed in this Plan; however, it encompasses a larger area of aquatic resource mitigation totaling 2.20 acres. The feasibility of the alternative is contingent on the permitted use of a neighboring private parcel for staging, and is being evaluated by consultation with the adjacent property owner. Discussions on access and staging have been underway with the neighboring owner since November 2017. The alternative conceptual design encompasses additional grading to expand jurisdictional wetland into the current staging area by creating a depressional wetland for a larger total mitigation footprint. If staging is permitted on the neighboring parcel throughout the installation, then the City proposes to implement the alternative conceptual design in Appendix D. Since this alternative would only increase available mitigation credit/acreages at Hollister Quarry, this plan is intended to cover or apply to both proposed designs.

3.9 TARGET FUNCTIONS AND SERVICES

The goal of aquatic resource mitigation within the Hollister Quarry mitigation site is to re-establish and rehabilitate habitat with better functions and services (flood control, water filtration, wildlife habitat, etc.) than those that occur in the Maintenance Area. Once successful, the mitigation will improve the functions and services of the existing habitat in part by creating a larger, contiguous block of aquatic resources. The target hydrologic regime of the Hollister Quarry mitigation site is a riverine aquatic resource supporting seasonal flows with inundated or saturated soils most of the year, and fed by groundwater and overland flows. At the end of five years of maintenance and monitoring, the re-established and rehabilitated habitats are expected to be in the preliminary stages of development.

Hollister Quarry Site

- Existing Topography
- Proposed Grading
- Vegetation
- Upland Buffer (0.26 acre)

Transitional Riparian Scrub

- CDFW Re-establishment (0.30 acre)
- CDFW Rehabilitation (0.84 acre)

Riparian Scrub

- USACE & CDFW Rehabilitation (0.54 acre)
- USACE & CDFW Re-establishment (0.35 acre)
- USACE Re-establishment & CDFW Rehabilitation (0.17 acre)

Louret Avenue

Hollister Street

Private Road

0 100 Feet

N

Source: Aerial (SanGIS, 2014)

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HELIX Environmental Planning

Alternative Conceptual Mitigation Plan

Figure 9

However, the entire site is expected to contain sufficient quantities of native vegetation to allow development of mature and permanent target vegetation types.

For the Year 5 CRAM assessment, the attributes for Buffer and Landscape Context are not expected to change. Hydrology is expected to increase slightly based on an increased score for hydrologic connectivity, once the berm is removed from the Southern portion of the Otay River. Also, the Biotic Structure attribute is expected to increase due to the removal of invasive species and the increase in native species. At the end of five years, the overall post-mitigation CRAM score of AA1 is expected to increase from 56 to 71.

To summarize, site-specific goals include:

- Re-establishment and rehabilitation of 0.90 acre of aquatic resources habitat that would be jurisdictional to USACE and RWQCB and meet the three-parameter definition for wetlands.
- Re-establishment and rehabilitation of 1.71 acres of CDFW-jurisdictional and City/CCC wetlands.
- Re-establishment of 0.14 acre of native upland buffer.
- Year 5 aquatic resource and riparian vegetation communities that will provide increased hydrologic, biogeochemical, and habitat functions.

These goals will be achieved by implementation of the following objectives:

- Vegetation types to be established are expected to include riparian scrub, which will mature and become contiguous with adjacent riparian habitats.
- Site grading will allow high flows from the Otay River to flow into the re-establishment area, which will contribute to increased hydrologic and water quality functions.
- Maintenance of the site will keep it free of invasive exotic species and allow native plant communities to thrive, providing additional habitat for wildlife and listed species, such as least Bell's vireo, which is known to occur in the area.

3.10 MULTIPLE SPECIES CONSERVATION PROGRAM LAND USE CONSISTENCY ANALYSIS

Although the Hollister Quarry mitigation site is located within the MHPA, the Nestor Channel Map 134 maintenance activities being mitigated for are not. Therefore, the discussion in this section is only relevant to the Hollister Quarry mitigation site. 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 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 preserve. 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 Plan that align with MSCP-compatible land use requirements include: storing materials within designated areas and using appropriate containment, using approved erosion and sediment controls during and after maintenance, and restoring unavoidable temporary impacts to native habitat.

The project 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 not disturb existing habitat unless it is unavoidable. All access roads will occur on existing disturbed areas, not in native habitat. If temporary habitat disturbance is unavoidable, then restoration of, and/or mitigation for, the disturbed area will occur. Fencing on site will be temporary to demarcate the work area and only as needed. No lighting is included as part of the project. Signage will be posted for litter control and educational purposes only. Long-term materials storage (e.g., hazardous or toxic, chemicals, equipment, etc.) will not occur within the MHPA. Storage may occur, as needed, and temporarily during construction, per applicable regulations only within staging areas. Best Management Practices (BMPs) will be used, due to the potential for leakage, in any areas where the MHPA could be impacted. Mining will not occur as part of the project. Flood control will be considered during the project design. No riprap, concrete, or other unnatural material shall be used to stabilize the river, and channel banks will be natural, and stabilized, where necessary, with willows and other native plants.

Project consistency with the land use adjacency guidelines is detailed below. The project will not affect current drainage patterns or create any new, impermeable surfaces within the project footprint. No toxins will be introduced as the project will only use herbicides appropriate for aquatic environments. No night lighting will be used for the project. To comply with the noise guideline, construction activities will be conducted outside the bird breeding season and/or noise resulting from construction activities will be kept below the level of significance by utilizing sound attenuation measures, as needed. No permanent barriers will be constructed as part of the project, but temporary signage will direct public access away from the restoration site and provide a contact number for public inquiries. Temporary barriers may be installed if public access becomes detrimental to the site. Invasive plants will be removed from the site, and will not be included in the plant palette for the project. Brush management does not apply as no new residential structures are being constructed as part of the project. The project is consistent with the land use adjacency guideline concerning grading/land development as all graded slopes are within the project footprint. Finally, although located within the OVRP, the nearest multi-use trail that passes by the site is approximately 400 feet from the mitigation site. Due to this distance, the presence and the use of existing trails is not expected to have any direct or indirect impacts on the mitigation site.

The mitigation specifically conforms to the MSCP because the disturbed and low-quality status of the site will be restored to native habitat, increasing, and improving existing functions and services. Specifically, invasive species will be removed and replaced with native vegetation, creating habitat for native flora and fauna. The proposed aquatic resource mitigation and subsequent maintenance and monitoring will be consistent with the San Diego MSCP and the OVRP Concept Plan (CP) (County et al. 2017).

4.0 PROJECT RESPONSIBILITY

4.1 FINANCIAL RESPONSIBILITY

The City will be financially responsible for the planning and implementation of this aquatic resource mitigation plan, as well as for its maintenance and monitoring.

4.2 PROJECT TEAM

4.2.1 Project Proponent

The City will be responsible for retaining a qualified restoration specialist with over five years of experience monitoring aquatic resource mitigation and habitat restoration to oversee the entire installation and monitoring of the mitigation program in coordination with City staff. The City will also be responsible for retaining qualified installation and maintenance contractors with documented successful experience installing and maintaining aquatic resource and upland habitat restoration projects. Contact information for the project proponent is:

Jamie Kennedy, Associate Planner
City of San Diego
Transportation & Storm Water Department
2781 Caminito Chollas, MS 46
San Diego, CA 92105
Phone: (619) 527-3495

4.2.2 Responsible Agencies

The USACE, RWQCB, CDFW, CCC, and City's Development Services Department will be responsible for issuing any necessary permits, reviewing and approving this Plan, and overseeing the establishment and development of habitat within the Hollister Quarry mitigation site. The primary avenue for their 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.

4.2.3 Restoration Specialist

Overall supervision of the installation, maintenance, and monitoring of this project will be the responsibility of a restoration specialist, hired by the City, experienced with aquatic resource and upland habitat restoration. The restoration specialist will oversee the efforts of the installation and maintenance contractor(s) for the life of the project. Specific tasks of the restoration specialist include educating all participants about mitigation goals and requirements; directly overseeing planting, seeding, weeding, and other maintenance activities; and conducting annual assessments of the re-establishment and rehabilitation effort. This document provides a conceptual plan only, and the restoration specialist will oversee the preparation of the final construction documents by the landscape architect and explain to the contractor(s) how to avoid impacts to existing sensitive habitat and sensitive species. The restoration specialist will also be responsible for preparing site observation reports, interim reports, and annual reports.

4.2.4 Landscape Architect

Although conceptual level plans are provided in this document, a licensed landscape architect and/or engineer will prepare the final construction documents, including grading and planting plans.

The proposed final elevations of the rehabilitation and re-establishment areas will be shown on construction grading plans. Final grading and planting plans will also include existing/open trails depicted in the OVRP Concept Plan (County et al. 2017). Final grading and planting plans will be submitted to the regulatory agencies for review and approval prior to initiating impacts.

4.2.5 Installation/Maintenance Contractor(s)

The installation and maintenance contractor(s) will have experience in aquatic resource and upland habitat mitigation and be under the direction of the restoration specialist who will assist the contractor(s) with the installation and maintenance of target vegetation communities.

The installation contractor will be responsible for removal of targeted invasive plants within Otay River, grading of proposed re-establishment areas in currently disturbed uplands, installation of container plants and seed, and maintenance of all re-establishment and rehabilitation areas during the 120-day installation period. The restoration specialist must recommend sign-off, and the City must approve and sign off on all criteria to end the installation period.

The City will hire a maintenance contractor (or multiple maintenance contractors depending on contracting requirements) for the five-year maintenance period. The maintenance contractor and the installation contractor may be the same entity. Using the same contractor for installation and maintenance, or changing maintenance contractors is at the discretion of the City. The maintenance contractor should be knowledgeable about maintenance of native plant habitat, and the difference between native and non-native plants. The maintenance contractor will maintain the entire Hollister Quarry mitigation site as determined by the restoration specialist. Maintenance will include, but not be limited to: weed control, trash removal, watering, dead plant replacement, maintaining a weed-free buffer, and re-seeding. All activities conducted will be seasonally appropriate and approved by the restoration specialist. The maintenance contractor will meet the restoration specialist at the site when requested, and will perform all punch list items in a timely manner, as directed.

4.2.6 Nursery (Seed/Plant Procurement)

Native plant nurseries are generally capable of conducting seed collection and contract growing services for the required plant material. All plant nurseries providing seed/plant materials will possess a valid California Nursery License. Seed shall have been tested for purity and germination not more than one year prior to application of seed.

4.3 PRE-CONSTRUCTION MEETING

Implementation of this Plan will begin with project approval. The implementation schedule is provided in Section 5.2 of this mitigation plan. Prior to the initiation of aquatic resource mitigation activities, an on-site meeting will be held with the project proponent, installation contractor, and restoration specialist. Topics that will be addressed at this meeting include, but are not limited to: (1) timing constraints for non-native plant removal/clearing; (2) identification of sensitive areas and a strategy for

avoidance; (3) defining site access routes and restrictions; (4) locating staging areas; and (5) the overall project goal.

A summary of all major tasks related to the project, starting with the pre-construction phase, and ending with the end of the minimum five-year maintenance and monitoring period, is provided in Table 6.

Table 6
AQUATIC RESOURCE MITIGATION PLAN CHECKLIST

Construction Phase	Restoration Task	Applicable Parties					
		Project Proponent[1]	Landscape Architect	Installation Contractor	Maintenance Contractor	Restoration Specialist	Resource Agencies[2]
Pre-Construction	Order container plantings and seed[3]			X		X*	
	Soil Boring	X					
	Prepare Landscape Plans	X*	X			X	X*
	Attend pre-construction meeting	X		X		X	
	10-day notification to resource agencies	X				X	
	Install perimeter fencing			X		X*	
	Install erosion control to protect existing habitat			X		X*	
	Document pre-installation site conditions	X*				X	
Site Preparation	Grading			X		X*	
	Grading inspection/potential modifications	X*		X		X*	
	Non-native plant removal			X		X*	
Installation	Install container plantings, cuttings, and seed			X		X*	
	Submit as-built mark-ups			X			
	Document as-built conditions					X	
	Prepare/submit as-built report	X*				X	
120-Day Establishment Period	Maintain site for 120 days, or until sign off by restoration specialist	X*		X		X*	X*
	Replace dead container plantings			X		X*	
Five-Year Maintenance & Monitoring Period	Maintain site for minimum of five years or until signed off by resource agencies	X*			X	X*	X*

[1] City Transportation & Storm Water Department (project proponent) and City Parks and Recreation Department (land manager)
[2] USACE, RWQCB, CDFW, and City's Development Services Department
[3] Must provide all source locations and receive authorization of final seed and plant lists prior to ordering.
* Inspection of work related to this task.

5.0 INSTALLATION PLAN

5.1 RATIONALE FOR EXPECTING IMPLEMENTATION SUCCESS

Aquatic resource habitat re-establishment and rehabilitation are anticipated to be successful due to the site location, within and directly adjacent to the existing floodplain of the Otay River. Further increasing the potential for success is the installation of native species observed growing in less-disturbed habitat on and adjacent to the site. The upland area selected for aquatic resource re-establishment will involve soil removal and grading to bring the elevation of the habitat down to the elevation of existing aquatic resource habitat of the Otay River where existing surface hydrology and groundwater conditions support three-parameter wetlands. The re-establishment areas will be subject to soil and depth to ground water testing to verify and adjust the locations capable of supporting aquatic resource habitat.

The areas designated for aquatic resource re-establishment and rehabilitation currently support dense stands of giant reed and areas of disturbed upland fill. Restoration of these areas will involve removing the invasive species, as well as homeless encampments, trash and debris, and installing native container plants and seed, thereby improving the overall quality of the habitat. The removal of non-native and invasive species within the mitigation areas is expected to provide an overall benefit to the Otay River watershed by decreasing the dispersal of non-natives to areas downstream of the Hollister Quarry mitigation site.

Additionally, wetland mitigation has been completed upstream of the Hollister Quarry mitigation site. Upstream wetland mitigation efforts have included wetland creation and enhancement of cismontane alkali marsh, mule fat scrub, and SWS habitats for the County's OVRP Trails Project. These wetland creation and enhancement areas are located approximately 1.7 miles upstream of the Hollister Quarry Mitigation site and involved grading and invasive plant removal (M&A 2006 and ICF International [ICF] 2013). Wetland mitigation also is proposed further upstream from the Hollister Quarry mitigation site and includes the City's T&SWD's approximately five-acre wetland creation and enhancement project known as the Otay Reed Mitigation Site and the establishment, re-establishment, rehabilitation, and enhancement within the uppermost reach of the Lower Otay River Watershed for the Otay Land Company's Otay Ranch University Villages project sites (ICF 2016). Invasive plant removal efforts at the upstream wetland mitigation sites, including the City's Otay Reed Mitigation Site, will help promote the sustainably of the downstream Hollister Quarry mitigation efforts.

5.2 INSTALLATION SCHEDULE

Implementation of this Plan will begin with project approval. Grading and initial removal or clearing non-native vegetation should occur between September 16 and January 14 to avoid impact to avian species protected by the Migratory Bird Treaty Act. If grading or vegetation removal is proposed during the nesting bird and raptor breeding season (January 15 through September 15), a pre-construction survey shall be conducted by a qualified biologist within 900 feet of the project limits to look for active nests. If no active nest is found, grading and/or vegetation removal can commence. If an active nest is found, no mechanized vegetation removal or grading shall occur within 100 feet of an active bird nest (900 feet for Northern Harriers, 500 feet for raptors) until it has been determined by the qualified biologist that the nestlings have fledged or that the nesting birds are not being impacted by the activity in question.

Grading and initial vegetation removal should avoid the least Bell's vireo breeding season (March 15-September 15) to avoid indirect impacts on nesting individuals. If grading or initial vegetation removal is proposed during the least Bell's vireo breeding season due to weather delays or other unforeseen circumstances, the USFWS and City will be notified in writing before March 8 and either of the following measures shall be implemented:

- A qualified biologist familiar with least Bell's vireo should be present on site at least three hours per day (three times per week) to determine if vireos have begun arriving to the area. Once vireos have been determined to be present for the season in the area, the grading contractor shall complete grading work within two days. The City will provide the qualified biologist's daily monitoring report for the three days per week monitoring; or

- The grading contractor will install noise attenuation materials within the work area to reduce the grading noise levels to below 60 dB(A)L^{eq}. The type of material and location of installation will need to be determined prior to March 15 in coordination with a qualified biologist knowledgeable with least Bell's vireo and in coordination with a qualified acoustician. All noise attenuation materials would need to be installed prior to March 15 and noise monitoring will be implemented to help ensure grading noise is below 60 dB(A)L^{eq} at the edge of suitable least Bell's vireo habitat. Prior to March 15, the City will provide the qualified acoustician's written report that confirms that noise attenuation is installed and adequately reducing noise levels at the edge of vireo habitat. Noise monitoring will continue into the vireo breeding season until grading is completed.

All other activities, such as planting, can begin at any time and completion of five-year maintenance would not be precluded during the avian breeding season. Ideally, planting, seeding, and cutting installation should occur in October or November to ensure that these activities coincide with the beginning of the rainy season.

The maintenance and monitoring program will begin following sign-off of the 120-day establishment period, and last for a five-year period (or until all success criteria have been met) following completion of installation. Maintenance will be conducted eight times per year from Year 1 through 3, and quarterly thereafter (refer to Section 6.1). Regular monitoring visits will be conducted to coincide with maintenance visits (refer to Section 7.1). Annual monitoring will occur in August or September to coincide with the peak growing season of wetland plant species, with an annual report submitted at the end of each monitoring year.

5.3 SITE PREPARATION

5.3.1 Soils Testing

Prior to the start of work soil testing will be conducted in the re-establishment portion of the mitigation area. Soil borings will be collected to a depth of approximately 30 feet. Preliminary examination of the surface soils in the mitigation site (zero to 16 inches) indicated the presence of fill. Confirmation of the presence of suitable wetland soils will be required, to help ensure a successful aquatic resource mitigation project. If suitable wetland soils are not present, as determined by soil testing, over-excavation of the existing area and installation of appropriate soils may be needed at the site to increase the chances of a successful mitigation project.

5.3.2 Site Access

A Right-of-Entry permit will be obtained by the City prior to any disturbance activities. Equipment access (e.g., crane, excavator, front end loader, small bulldozer, dump truck, and backhoe) will be required for soil removal within the aquatic resource re-establishment and rehabilitation areas. The type of equipment used for site preparation and installation will be at the discretion of the installation contractor. Staging for the grading and invasive removal will be in the southeast corner of the mitigation site within disturbed land (Figure 5). All vehicles and construction equipment will be restricted to the staging area(s) when not required for mitigation activities. No impacts to native habitat are proposed by construction staging or access. However, should temporary impacts to native habitats from construction equipment access occur, these areas will be restored with the appropriate native seed mix (Tables 7-9). The contractor will be responsible for determining the location of any buried utilities prior to any earth disturbance.

Access to the Hollister Quarry mitigation site will occur along existing dirt paths, roads, and disturbed land to the maximum extent possible. Access created through disturbed land (i.e., areas dominated by non-native garland daisy) will be limited by a maximum width of 20 feet, or by the maximum width provided in the Right-of-Entry permit. Access along established trails and roads must be maintained for public and private use. Any equipment used to remove non-native vegetation will not block existing access roads, except for when they are traveling between the staging and work areas. Materials cannot be stored along dirt roads or trails, where it could block access.

Access to the mitigation site from Hollister Road will be through Hollister Quarry, on land owned by Hanson Aggregates Pacific Southwest, Inc. (Hanson). Permission from Hanson will be required to access the site. Access is anticipated to be via an established dirt road that runs east of the mitigation site via 27th Street.

Access to mitigation areas within the Hollister Quarry mitigation site will be approved by the restoration specialist prior to equipment being mobilized. Where access is only possible over native habitat, a route will be chosen to minimize impacts to native habitat and will be flagged to ensure impacts to native habitats are restricted to what is minimally necessary. Mitigation for habitat used for access may include decompaction, seeding, and subsequent maintenance. Minimal temporary impacts may be allowed in some areas (consisting of vegetation trimming) to allow construction vehicle access mitigation areas, at the direction of the restoration specialist. Any vegetation removal conducted for access will be monitored by the restoration specialist, and all temporarily impacted areas will be monitored and maintained for the full five-year maintenance and monitoring period to ensure that non-native species do not encroach into these areas.

5.3.3 Temporary Signage

Temporary signs will provide an explanation of the project and a contact number for public inquiries. Signs will be installed at entrances to the project site. Sign language and location will be approved by the City.

5.3.4 Delineating Limits of Work

Prior to any mitigation activities, each work area will be staked, roped off, or otherwise demarcated to conspicuously mark the limits. This is to avoid impacts to native habitat and sensitive plant species.

Project boundaries will be marked by the restoration specialist, and temporary staking/fencing will be installed by the installation contractor.

5.3.5 Grading

Grading will involve lowering the topography to increase frequency and length of surface inundation, and decrease the proximity of the ground surface to the water table. This modification will entail the excavation of quarry spoils along the south side of Otay River (Figure 8). The area planned for excavation includes two stands of disturbed wetland (Arundo-dominated) and disturbed land.

The aquatic resource creation/re-establishment area is currently characterized by a fabricated pad. The aquatic resource rehabilitation area is characterized by unnatural slopes, hummocks, and depressions, which are remnants of past quarry operations. Grading will involve lowering existing elevations by as much as 14 feet and will result in an area near the elevation of the adjacent riverbed. The existing low-flow channel of the river is currently confined to a straight alignment. The planned grading will expand the area subject to frequent flooding and allow the river to meander. The slopes extending south from the reclaimed riverbed will be no steeper than 3:1.

All grading shall be completed in fall (September 16 through January 14), which is outside the riparian bird breeding season, and during a time with a low probability of flooding. This is necessary to avoid impacts to nesting bird species and, by not grading when precipitation is most likely, to minimize erosion. Proper BMPs will be installed to protect the river from unnatural levels of sedimentation. BMPs that will be used will be sourced to avoid spreading insect pests, such as the Polyphagous and Kuroshio shot hole borer (*Euwallacea* sp. [SHB]) and associated pathogenic fungus responsible for Fusarium Dieback (*Fusarium euwallaceae)* to and from other sites in the Otay River or Tijuana River Valley. All grading equipment will be washed prior to being brought to the site to prevent the spread of weeds and/or insect pests such as SHB. If grading is necessary during the breeding season, additional survey and monitoring requirements will be required, as described in Section 5.2. Grading will occur with front end loaders, back hoes, excavators, small bulldozers, and/or dump trucks, at the discretion of the installation contractor.

The installation contractor, under the direct supervision of the restoration specialist, will conduct grading at the Hollister Quarry mitigation site. Grading may be done concurrently with or after non-native plant removal (see Section 5.4, below). The project involves a net export of soil. Soil may be recontoured on site, and in that process, the staging areas on City/Hanson property would be used as temporary storage with appropriate BMPs present to prevent runoff to other areas.

The subsurface hydrology must be suitable for riparian habitat. To that end, borings will be conducted to determine the water table depth and soils under the aquatic resource mitigation areas. Geologic testing will be done to determine water table depth and soil texture in the proposed root zone.

Any ground disturbing activities will be monitored by an archeologist and a native American monitor.

5.3.6 Erosion Control

During installation, straw wattles, compost sox, silt fencing, or similar materials will be installed on the down slope portions of creation areas, as needed, to restrict sediment movement. Erosion control products with plastic netting are not recommended. If products with plastic netting are used, they must

be removed prior to project sign off. Any installed temporary erosion control measures will be removed after sufficient vegetation has established to prevent erosion.

5.4 NON-NATIVE PLANT REMOVAL

Aquatic resource restoration will consist of removing non-native species within USACE, RWQCB, and CDFW/City jurisdictional areas. The success of this restoration will be measured by the successful removal of the targeted invasive plants, which will require substantial effort. Targeted removal of invasive non-native species, including tree species, must occur within the entire Hollister Quarry mitigation site. Non-native plant material removal may occur prior to or during grading (see Section 5.3.5, above). Prior to installation of plantings and seed, all non-native vegetation must be removed within the entire aquatic resource mitigation area and nearby adjacent uplands (to limit potential re-invasion by these species). Appropriate herbicide (e.g., wetland-approved herbicides) may be used during non-native plant control, if necessary. Perennial species that re-sprout from the below ground portion of the plant should be cut and herbicide applied to stems and re-sprouts. Most large woody exotics will be cut to ground level with all above-ground portions removed from the site. All non-native plant material, as well as any trash and other debris removed from the Hollister Quarry mitigation site, will be disposed of in a licensed landfill. At the approval of the restoration specialist, the City, and the Responsible Agencies, any large non-native trees that are too difficult to remove will be killed in place and left on site.

5.4.1 Non-native Tree Removal/Treatment

Peruvian pepper (*Schinus molle*) and tamarisk will be cut down, and hauled off site to an approved landfill. Once debris is removed from around the trunk, a fresh cut will be made before applying approved herbicide (i.e., Triclopyr/surfactant mix) at 20 to 25 percent solution to the cut surface. All non-native tree trunks within the proposed grading footprint will be removed via an excavator and disposed of off site. Some native trees within the aquatic resource mitigation area may be trimmed and/or removed during the non-native tree removal process; however, this will be minimized to the greatest extent practicable.

5.4.2 Giant Reed Removal

Stands of giant reed will be removed by an excavator with a grappling extension. The equipment will grab and pull out large areas of giant reed and deposit them in a dump truck with disposes of the material off site. This method removes much of the rhizomatious material, preventing resprouting. This method is more economical than the hand removal of a large biomass of giant reed (County 2006).

Throughout the five-year maintenance period, giant reed should be treated in late October or early November; however, ongoing removal will occur as needed. For best results, giant reed should be treated with a two to 10 percent solution of approved herbicide (i.e., Aquatic Glyphosate), in accordance with the herbicide label, immediately following cutting of giant reed stems to ensure tissue uptake. Giant reed, including the roots where possible, should be removed after approximately three weeks. All generated plant waste will be removed from the site and disposed at an approved landfill.

5.5 PLANTING PLAN AND SPECIFICATIONS

Once grading and non-native plant removal have been completed, a mixture of container plantings, willow wattles, cuttings, and seed will be installed in the mitigation area. Plant species characteristic of riparian scrub will be installed within the riverbed in creation and restoration areas (Table 7). Plant species characteristic of the transitional buffer between riparian and upland scrub will be installed on the graded slopes adjacent to the riverbed (Table 8). In addition, upland scrub plant species will be installed within the upland buffer (Table 9). Figure 10 provides the planting plan areas that correspond to species provided in Tables 7, 8, and 9.

5.5.1 Plant/Seed Orders

The plant species selected for installation within the Hollister Quarry mitigation site occur on site or are common in the region and are known from the Otay watershed. Seed and plant material for this project will be collected or propagated from local plant populations occurring within 25 miles from the coast in San Diego County, if available. The restoration specialist must approve all seed and container stock orders, including specific species and source locations, before it is ordered. Substitutions, other donor sites, or use of commercial material may be allowed if materials are unavailable, at the discretion of the City and restoration specialist. The restoration specialist will have the discretion to make changes to the seed mix before it is ordered.

5.5.2 Container Plants

Most container stock will be installed as one-gallon specimens, with the remainder consisting of plugs. Plants shall be sourced from within 25 miles from the coast in San Diego County, if available. All plantings should be installed in a way that mimics natural plant distribution and not in rows. Container stock should be installed in holes that are just large enough to accommodate the root ball of the plant. Holes may be dug with mechanical augers or by hand, at the discretion of the installation contractor. Each hole shall be filled with water twice and allowed to drain before installing the plant. If soil saturation is present, then no pre-watering will be necessary. A well will be constructed around each plant with a minimum inner diameter of two feet and a minimum ponding depth of three to four inches. This well will be filled with water and allowed to drain three times in the three days following installation. Ideally, planting will occur during the fall (or spring depending on the timing of project installation) to maximize survival of container stock.

Plant protectors may be used to minimize herbivory, as needed, at the restoration specialist's direction. The installation quantities provided by this Plan include 15 percent more plants than prudent design will otherwise dictate to ensure adequate establishment success. Container plants will be checked for the presence of SHB prior to installation. Any infected plant material will be rejected.

5.5.3 Cuttings

Willow and mule fat cuttings will be planted in riparian scrub restoration areas to the maximum extent practicable in lieu of container plants as cuttings can be sourced from existing plant material on site. Source material will be mature shrubs and trees found on or adjacent to the project site. Specific cutting procedures would include taking straight or nearly straight cuttings that are at least 20 inches long and 0.5 to one inch in diameter. However, cuttings placed in or near the groundwater table should be sufficiently long enough to reach the water table. To help ensure genetic diversity within the mitigation

Hollister Quarry Site

Parcel Boundary

10-foot Weed Free Buffer

Plant Palette

Riparian Scrub (0.90 acre)

Transitional Riparian Scrub (0.81 acre)

Upland Scrub (0.14 acre)

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0 60 Feet

Source: Aerial (SanGIS, 2014)

HELIX Environmental Planning

Planting Plan

Figure 10

area and limit damage to existing vegetation, no more than 10 cuttings will be collected per individual tree or shrub. The stems will be cut so that the bottom end is at an angle, to identify which end to install in the ground. All cuttings will be stripped of leaves to allow roots to develop prior to above-ground vegetation and keep the cutting from drying out, while tops will be cut flat to distinguish the top from the bottom end. Cuttings will be installed so that 50 to 60 percent of their total length is below grade. The ground should be saturated prior to installation, and cuttings should be installed immediately or stored properly to avoid desiccation.

Willow wattles are made by taking several cuttings of willows (up to five feet long) and tying them together with a biodegradable twine. Cuttings of arroyo willow and Goodding's willow will be used to make the wattles. The willow wattles are then laid in a trench that is approximately half as deep as the thickness of the willow wattle. If done properly, willow wattles will help reduce erosion and produce patches of dense willow habitat quicker than other types of revegetation methods. Willow wattles will be planted as necessary along erosion zones, such as areas receiving high water velocity. These areas may include curves or divergences in the drainage, and along banks of the drainage where erosion may be a problem. All willow wattles will be placed at the discretion of the restoration specialist with the focus on creating habitat and controlling erosion, based on appropriate site conditions. Cuttings will be inspected for the presence of SHB prior to installation. Any infected plant material will be rejected.

5.5.4 Seeding

Hydroseed will be installed containing the seed mixtures in Tables 7-9 after container stock has been installed. The areas to be seeded should be irrigated for two weeks prior to hydroseeding, after the container plants are installed.

Table 7
RIPARIAN SCRUB PLANT PALETTE
(0.92 acre)

Seed Mixture				
Scientific Name	**Common Name**	**% Purity / Germination[1]**	**Application Rate (lbs./acre)**	**Amount to be Ordered (lbs.)[2]**
Cyperus eragrostis	tall flatsedge	70/78	5	**4.6**
Erythranthe guttata	seep monkey flower	10/69	5	**4.6**
Juncus bufonius	toad rush	95/60	5	**4.6**
Pluchea odorata	salt marsh fleabane	30/40	5	**4.6**
Schoenoplectus californicus	California bulrush	98/54	5	**4.6**
		TOTAL	**25**	**23**

Container Plantings*					
Scientific Name	**Common Name**	**Spacing on Center (feet)**	**Grouping Size**	**Number Per Acre**	**Quantity Required**
Anemopsis californica	yerba mansa	5	3	480	440
Baccharis salicifolia	mule fat	10	6	260	220
Distichlis spicata†	saltgrass	2	3	240	220
Iva hayesiana	San Diego marsh elder	5	4	260	240
Pluchea sericea	arrow weed	6	6	120	110
Salix gooddingii	Goodding's willow	10	15	30	28
Salix lasiolepis	arroyo willow	10	12	100	92
Schoenoplectus californicus	California bulrush	5	5	100	92
			TOTAL	**1,590**	**1,442**

***** All container stock is one-gallon size, except where noted.

† Plugs instead of one-gallon container stock.

[1] Based on 2017 seed list from S&S Seeds.

[2] Application rate * Size of project = Amount to be ordered (lbs). Order amount shall be adjusted based on purity and germination rates at the time and location that seeds are procured.

Table 8
RIPARIAN SCRUB TRANSITIONAL AREA PLANT PALETTE
(0.79 acre)

Seed Mixture				
Scientific Name	**Common Name**	**% Purity / Germination[1]**	**Application Rate (lbs./acre)**	**Amount to be Ordered (lbs.)[2]**
Anemopsis californica	yerba mansa	85/70	5	4
Artemisia douglasiana	Douglas' mugwort	15/50	5	4
Asclepias fascicularis	narrow-leaf milkweed	90/65	5	4
Deschampsia danthonioides	annual hair grass	90/80	5	4
Pseudognaphalium biolettii	bicolor cudweed	4/45	5	4
		TOTAL	**25**	**20**

Container Plantings*					
Scientific Name	**Common Name**	**Spacing on Center (feet)**	**Grouping Size**	**Number Per Acre**	**Quantity Required**
Artemisia dracunculus	tarragon	5	6	200	160
Baccharis salicifolia	mule fat	13	6	260	208
Distichlis spicata†	salt grass	12	3	240	192
Platanus racemosa	western sycamore	2	15	20	16
Populus fremontii	Fremont cottonwood	3	15	30	24
Salix gooddingii	Goodding's willow	3	15	30	24
Salix lasiolepis	arroyo willow	5	12	100	80
Sambucus nigra ssp. *caerulea*	blue elderberry	15	4	150	120
			TOTAL	**1,030**	**824**

* All container stock is one-gallon size, except where noted.

† Plugs instead of one-gallon container stock.

[1] Based on 2017 seed list from S&S Seeds.

[2] Application rate * Size of project = Amount to be ordered (lbs). Order amount shall be adjusted based on purity and germination rates at the time and location that seeds are procured.

Table 9
UPLAND SCRUB PLANT PALETTE
(0.14 acre)

Seed Mixture				
Scientific Name	**Common Name**	**% Purity / Germination[1]**	**Application Rate (lbs./acre)**	**Amount to be Ordered (lbs.)[2]**
Artemisia californica	California sagebrush	30/60	5	0.7
Eriogonum fasciculatum	buckwheat	55/20	4	0.6
Lasthenia coronaria	southern goldfields	55/70	5	0.7
Lupinus truncatus	collar lupine	98/85	3	0.4
Muhlenbergia microsperma	little-seed muhly	80/60	5	0.7
Plantago erecta	dot-seed plantain	30/45	3	0.4
Stipa pulchra	purple needle grass	90/71	2	0.3
		TOTAL	**27**	**3.8**

Container Plantings*					
Scientific Name	**Common Name**	**Spacing on Center** (feet)	**Grouping Size**	**Number Per Acre**	**Quantity Required**
Ambrosia monogyra	leafy burrobrush	5	6	100	15
Artemisia californica	California sagebrush	9	5	180	25
Baccharis sarothroides	broom baccharis	8	4	60	10
Eriogonum fasciculatum	California buckwheat	9	5	250	35
Heteromeles arbutifolia	toyon	10	6	100	15
Isocoma menziesii	goldenbush	5	8	150	25
Malosma laurina	laurel sumac	10	6	80	15
Sambucus nigra ssp. *caerulea*	blue elderberry	10	4	80	15
			TOTAL	**1,000**	**155**

* All container stock is one-gallon size.

[1] Based on 2017 seed list from S&S Seeds.

[2] Application rate * Size of project = Amount to be ordered (lbs). Order amount shall be adjusted based on purity and germination rates at the time and location that seeds are procured.

5.6 120-DAY ESTABLISHMENT PERIOD

Following installation completion, the 120-day establishment period will start. The 120-day establishment period is undertaken to ensure that most seed and plant material is becoming established. The restoration specialist will conduct monthly monitoring visits during this period and develop a list of action items to be immediately addressed, if necessary. Action items may include maintenance for weed control, erosion, irrigation, vandalism, replacement of container stock, removal of trash or debris, pest management, site protection or signage, and horticultural treatments (pruning, mulching, disease control). The installation contractor is responsible for performing remedial measures to fix any observed problems identified by the restoration specialist. Success at the end of the 120-day establishment period will be met if all targeted non-native species located within the mitigation areas have been eradicated (by removing to ground level and killing any remaining stumps to prevent re-sprouting), there is 90 percent survivorship of the specified (excluding additional plant material that may be planted at the contractor's discretion) container stock within planting areas, and there are no erosion-related issues. The site should be free of trash and debris. The successful completion of this

period will result in a higher probability of long-term success during the following five-year maintenance and monitoring period.

5.7 IRRIGATION

The proposed approach for irrigation is hand-watering of container plants and seed as a means of conserving water. Hand watering will be conducted initially and as needed thereafter. During the 120-day establishment period, water will be applied liberally to develop deep root growth and encourage germination. Following the 120-day establishment period, water will be applied only as needed to help ensure the viability of plants and seedlings. A water truck with hose attachment(s) will be used to bring water to the site. Alternately, a temporary above-ground system charged by a water truck may be installed to increase the efficiency of hand watering methods. If a temporary-above ground system is installed, all irrigation components will be removed prior to final acceptance of the mitigation site, at the end of the maintenance and monitoring period.

5.8 AS-BUILT CONDITIONS

The restoration specialist shall submit a brief as-built letter report to the City within 30 days of the completion of installation activities and the 120-day establishment period. This letter will describe site preparation, installation methods, activities conducted during the 120-day establishment period, and the as-built status of the overall mitigation project. To document baseline site conditions and implementation of this Plan, 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 installation.

6.0 MAINTENANCE PROGRAM

6.1 MAINTENANCE SCHEDULE

Maintenance will be performed for five years, as necessary, to prevent re-seeding by non-native plants. Maintenance activities may change depending on site conditions and seasons; the schedule outlined herein serves only as a guideline (Table 10). The installation/maintenance contractor(s) will complete maintenance requests from the restoration specialist within 14 days of any written request or monitoring memo. At a minimum, the installation contractor will conduct monthly maintenance during the 120-day establishment period. To complete the installation period, container plantings must have 90 percent survivorship, all non-native species must be removed from the mitigation area, and no erosion issues may exist in the area. Any replacement plantings added to attain the survivorship criterion must be installed for at least 30 days prior to sign-off. The maintenance contractor will be responsible for all maintenance activities during the five-year maintenance and monitoring period. During Years 1 through 3, maintenance will be conducted once per month from January through June (during the peak growing period for most non-native species) and include two additional visits during the remainder of the year. Maintenance visits will be reduced to quarterly visits in Years 4 and 5.

Table 10
MAINTENANCE SCHEDULE FOR THE FIVE-YEAR RESTORATION PERIOD[1]

Time Frame	Schedule
Installation Contractor	
120-day Establishment Period	Monthly
Maintenance Contractor	
Year 1 through Year 3 January – June July – December	***8 visits per year*** Monthly Two visits
Years 4 and 5	Quarterly

[1] This schedule is only a guideline; maintenance will be performed as necessary as directed by the restoration specialist.

6.2 MAINTENANCE ACTIVITIES

These maintenance guidelines are specifically tailored for native plant establishment. The maintenance program will include weed control, watering, erosion control, removal of trash, and any remedial measures deemed necessary for the success of the mitigation (e.g., re-seeding and re-planting). Maintenance activities will be directed by the restoration specialist. Damage to plants and other facilities occurring because of unusual weather or vandalism will be repaired as directed by the restoration specialist and the cost of such repairs will be paid for as extra work.

6.2.1 Non-native Plant Control

Within the mitigation areas, non-native species will be removed to ground level. For the duration of the maintenance period, there will be a very low tolerance for non-native species, and removal will be conducted as necessary to minimize competition that could prevent the establishment of native species. As non-native species become evident, they should be removed by hand or controlled with appropriate herbicides (e.g., only wetland-approved herbicides should be used in the aquatic resource mitigation areas). The restoration specialist will oversee non-native plant removal by the maintenance contractor; however, maintenance personnel must be able to distinguish non-native species from desirable native vegetation. In addition, a weed-free buffer of 10 feet should be maintained around the Hollister Quarry mitigation site (only on City-owned lands).

6.2.2 Invasive Plant Control

Within the mitigation area, invasive plant species make up a subset of non-native species. This includes species that are rated as either High or Moderate by the California Invasive Plant Council (Cal-IPC; 2017). These species are highly invasive pest plants that have been documented as aggressive invaders, capable of displacing natives and disrupting natural habitats. These species would be removed from the entire aquatic resource mitigation area as well as the upland buffer immediately adjacent to the riparian corridor. Examples of invasive plants that occur on site include, but are not limited to, tamarisk and giant reed. These species are targeted for eradication. Several other species, which have a lower rating by Cal-IPC, but are locally very prevalent, will also be targeted for complete eradication. These species include hottentot fig (*Carpobrotus edulis*), tree tobacco (*Nicotiana glauca*), Peruvian pepper, and castor bean.

6.2.3 Herbicides

Any herbicide used to control non-native plants as part of the mitigation effort must be on a City list of approved herbicides. In addition, only herbicides approved for aquatic use can be used in aquatic resource habitats. Lastly, herbicides must be applied by an individual with a valid applicator's license, and only individuals with an F Category on their license may use herbicides in aquatic habitats.

6.2.4 Irrigation

The goal of watering the site will be 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, only as needed to 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. Irrigation of the aquatic resource mitigation areas will be conducted by hand, or by a temporary above-ground system that is charged by a water truck, until the restoration specialist determines that supplemental water is no longer required. All irrigation will cease by the end of Year 3.

6.2.5 Trash Removal

All trash will be removed from the aquatic resource mitigation areas by the maintenance contractor during each visit throughout the maintenance period. Trash removal activities will minimize or avoid impacts to plants in the mitigation site. All trash and weed debris will be removed from the project site and disposed of at an off-site, licensed, waste-disposal facility.

6.2.6 Pests

Insects, vertebrate pests, and diseases will be monitored. Generally, pests will be tolerated unless they pose a significant threat to project success. If deemed necessary, a licensed pest control adviser will make pest control recommendations. All applicable federal and state laws and regulations will be closely followed. The restoration specialist will be consulted on any pest control matters. A pest that has been identified to potentially pose a significant threat to project success is the SHB (and associated pathogenic fungus responsible for Fusarium Dieback), an insect pest known to occur in the Otay River and Tijuana River Valleys. Known suitable reproductive host trees include willows (*Salix laevigata, Salix lasiolepis*), elderberry (*Sambucus nigra*), western sycamore (*Platanus racemosa*), cottonwood (*Populus fremontii*), coast live oak (*Quercus agrifolia*), mule fat, and also invasive castor bean. If SHB is observed, no infected plant material will be removed from the site but will be chipped to smaller than less than one inch, solarized, and left on site and/or burned. Equipment used on site will be cleaned with 5 percent bleach solution, or its equivalent, prior to use in any other location.

6.2.7 Horticultural Treatments

No pruning, mulching, fertilizer application, or disease control is necessary unless otherwise directed by the restoration specialist.

6.2.8 Erosion Control

Erosion control measures will be replaced, or additional BMPs will be installed as needed or as identified by the restoration specialist. Any installed erosion control materials will be removed from the site by the maintenance contractor once the restoration specialist determines sufficient native plant cover has established.

6.2.9 Replacement Planting and Seeding

If success criteria outlined in Section 8.0, below, are not being met, additional measures, such as installation of replacement cuttings or seeding, may be implemented.

6.2.10 Vandalism

Damage to facilities occurring because 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 inadequate maintenance or operation of facilities, as determined by the restoration specialist.

6.2.11 Sensitive Species Issues

Maintenance personnel will be trained to identify sensitive plant species and instructed to conduct maintenance activities in a manner that avoids impacting them.

7.0 MONITORING PROGRAM

7.1 MONITORING AND REPORTING SCHEDULES

Monitoring and annual assessments will be carried out under the direction of the restoration specialist. This monitoring program will begin with site preparation and habitat installation and continue for a minimum of five years following the end of the 120-day establishment period (Table 11).

Table 11
MONITORING SCHEDULE FOR THE FIVE-YEAR RESTORATION PERIOD*

Time Frame	Schedule
Installation	
Site preparation and installation	Daily
120-day Establishment Period	Monthly
Maintenance Monitoring	
Years 1 through 3 January to June July to December	8 visits per year Monthly (6 visits per year) 2 visits per year
Years 4 and 5	Quarterly (4 visits per year)
Annual Monitoring	
Years 1 through 5	August or September (1 visit per year)

* This schedule is only a guideline; maintenance will be performed as necessary as directed by the restoration specialist.

Monitoring will be conducted daily during site preparation and installation, and monthly during the 120-day establishment period. A post-installation and as-built report will be prepared following the successful completion of the 120-day establishment period. Maintenance monitoring will be conducted eight times in Years 1 through 3. Monitoring will be conducted monthly from January through June (to cover the peak establishment period of both spring and summer germinating species) and twice during the remainder of the year. During Years 4 and 5, monitoring will be conducted four times per year. Maintenance monitoring memos will be prepared following each visit to document observations, progress toward meeting mitigation goals, and any recommendations. Annual monitoring will be conducted in August or September of each year to coincide with the peak of the growing season for wetland plants. The exact timing of the visits will depend on site and weather conditions. An annual report will be prepared following each annual assessment (in August or September) and will be submitted to the City for review at the end of each monitoring year.

7.2 INSTALLATION MONITORING

The restoration specialist will be on site daily, or as needed, during installation to ensure activities are being conducted in accordance with the mitigation plan. The restoration specialist will monitor all phases of the installation process, including site preparation (initial non-native plant removal, grading, and erosion control) and the installation of plants and seed. The restoration specialist must inspect and authorize each phase of work before the next phase may begin. Pre-installation photos will be taken of existing habitats in the mitigation area from designated photo documentation stations. This information will be used to track changes in vegetation resulting from the mitigation effort.

7.3 MAINTENANCE MONITORING

Following installation, a restoration specialist will monitor maintenance activities conducted by the maintenance contractor during the five-year maintenance and monitoring period, beginning immediately following the 120-day establishment period and in accordance with the schedule outlined in Table 11. This monitoring schedule is the minimum; more frequent inspections may be necessary if there are problems with contractor performance or habitat development. Monitoring memos noting any issues with plant establishment, watering, sediment control, etc., will be provided to the maintenance

contractor and the City. These maintenance monitoring memos will be included as an appendix to each annual report.

7.4 ANNUAL MONITORING

In addition to maintenance monitoring visits, the restoration specialist will conduct an annual technical monitoring visit in August or September (Table 11) each year, during the five-year monitoring period. Annual monitoring will involve the evaluation of native and non-native vegetative cover, wildlife observations, and photo documentation. In addition, annual monitoring in Year 5 will include a CRAM assessment and jurisdictional delineation. Methods of each component of the annual monitoring are described below. An annual report will be prepared each year during the five-year monitoring period and submitted to the City.

7.4.1 Vegetation Analysis

The quality of vegetation communities within the aquatic resource re-establishment and rehabilitation areas will be assessed by estimating native and non-native vegetation cover using the relevé method (California Native Plant Society [CNPS] 2007). Each contiguous re-establishment and rehabilitation vegetation community within the aquatic resource mitigation area will serve as a sampling plot to determine and assign cover classes (1: <1 percent, 2: 1-5 percent, 3a: >5-15 percent, 3b: >15-25 percent, 4: >25-50 percent, 5: >50-75 percent, 6: >75 percent) to native and non-native vegetation, as well as list dominant species present, and the presence/absence of invasive weed species. Average height of tree and shrub species, and general observations of plant health, will also be documented for each plot during each of the five years of annual monitoring. Visual estimates of container planting survivorship for the entire mitigation area will be made in Years 1 and 2 only.

7.4.2 Wildlife Observations

Observations of wildlife within the mitigation areas will be documented and included in each annual report. Incidental sightings made during maintenance monitoring visits will also be included.

7.4.3 Photo Documentation

Photos will be taken from photo locations established prior to the start of the mitigation effort. Photos will be taken from these locations as part of all five annual monitoring events and will be included in the respective year's annual report. Photo locations will be permanently marked in the field and mapped on an aerial photograph in the baseline monitoring report (as-built report following the 120-day establishment period) and all subsequent annual reports. To visually demonstrate the progress of the restoration effort, photos taken immediately before and after installation will be included in each report for comparison with the respective year's annual assessment photos.

7.4.4 California Rapid Assessment Method

A CRAM assessment will be conducted at one AA within the Hollister Quarry mitigation site at the end of Year 5. CRAM is necessary only at the end of the five-year period, as CRAM evaluates the overall function of an area and does not detect slight changes in physical and biotic structures (i.e., plant cover) or other habitat features. The AA will be the same as was sampled during the pre-installation CRAM assessment. To determine whether the project has developed target functions and services, the CRAM

score obtained during the Year 5 annual assessment will be compared with the score from the pre-installation CRAM assessment. Results from the Year 5 CRAM assessment will be included in the Year 5 annual report.

7.4.5 Jurisdictional Delineation

A jurisdictional delineation will be conducted in the aquatic resource re-establishment and rehabilitation areas in Years 3 and 5 to determine the presence of hydrophytic vegetation, hydrology, and hydric soils. Analysis will be based on standard wetland delineation methods in accordance with the 2008 Regional Supplement to the USACE Wetland Delineation Manual: Arid West Manual (USACE 2008); however, it should be noted that hydric soil indicators may take more than five years to develop. Hydrology indicators that may be documented during annual assessments include observations of water flow, drift lines, saturation, and sediment deposits.

7.4.6 Annual Reports

An annual report will be prepared each year during the five-year monitoring period. Annual reports will use qualitative data to determine the success of the mitigation effort and include recommendations necessary to ensure ultimate success of the mitigation project. Each report will evaluate the success of the mitigation effort to date, along with any recommendations for future work that may be necessary. Baseline pre-installation photos, as well as photos from the respective annual assessment, will be included in the annual reports, which will be submitted to the City at the end of each restoration year, prior to submittal to the resource agencies. The annual monitoring reports will cover all monitoring and maintenance events during a 12-month period starting in Year 1, after the completion of the 120-day establishment period, and at the start of the five-year maintenance and monitoring period.

8.0 SUCCESS CRITERIA

The following sections provide performance standards to determine the successful completion of the mitigation effort as well as measurement methods for success criteria. Attainment of these standards indicates that the mitigation area is progressing toward attaining the habitat functions and services targeted by this Plan.

8.1 120-DAY ESTABLISHMENT PERIOD

Success at the end of the 120-day establishment period will be met if all targeted non-native species located within the project site have been eradicated (by removing to ground level and killing any remaining stumps to prevent re-sprouting), there is 90 percent survivorship of container stock within planting areas, and there are no erosion-related issues.

8.2 FIVE-YEAR MAINTENANCE PERIOD

Annual performance goals have been set to track the progress of the mitigation effort. These success criteria are summarized in Table 12. The success criteria will only be applied to the aquatic resource re-establishment and rehabilitation areas.

Table 12
SUCCESS CRITERIA

Criteria	Year 1	Year 2	Year 3	Year 4	Year 5
Container plant survival (minimum percent)	80	80	--	--	--
Species richness (minimum number of species)[1]	--	--	5	6	8
Wetland native vegetation cover (minimum percent)[2]	15 (cover class 3b)	25 (cover class 4)	35 (cover class 4)	50 (cover class 5)	75 (cover class 6)
Upland native vegetation cover (minimum percent)	--	--	25 (cover class 4)	35 (cover class 4)	50 (cover class 5)
Non-native vegetation cover (maximum percent)	15 (cover class 3a)	10 (cover class 3a)	10 (cover class 3a)	5 (cover class 2)	5 (cover class 2)
Target invasive species (maximum percent)	<1 (cover class 1)	<1 (cover class 1)	<1 (cover class 1)	<1 (cover class 1)	<1 (cover class 1)
CRAM overall AA score (minimum)					71
Number of aquatic resource parameters (hydrophytic vegetation, hydrology, and hydric soils) present, as determined by jurisdictional delineation	--	--	2	--	3[3]

[1] Number of native species.
[2] Cover class will be assessed according to the CNPS Relevé Protocol (CNPS 2007).
[3] Hydric soil indicators may take more than five years to develop. Hydric soils may be assumed to be present where there are strong indicators of wetland hydrology and plant communities are dominated by obligate or facultative wetland species.

8.2.1 Container Plant Survival

Container plantings should have at least 80 percent survival for the first two years. At the first and second anniversary of plant installation, container plantings should be added to the area if mortality exceeds 20 percent of the original plantings, unless the function of these plants has been replaced by native recruitment (as determined by the restoration specialist). If plant mortality continues to be a problem, alternative measures (e.g., additional seeding) should be considered.

8.2.2 Species Richness

Species richness and recruitment are closely linked. Species richness is the number of species present in an area – the higher the number of species, the greater the richness. Recruitment is the successful, natural reproduction, and/or establishment of plants. When recruitment is achieved by many species, richness and overall diversity will increase. However, recruitment may not necessarily increase species richness if, for example, only one species is successfully reproducing. Only through the successful introduction and establishment of varied species does richness increase. While no species richness success criteria have been established for Years 1 or 2, there should be an indication that sufficient species are present to meet the Year 3 through 5 goals. Success criteria for the aquatic resource mitigation areas require that species richness makes up at least five native species by Year 3, at least six species by Year 4, and eight by Year 5. If the species richness goal for a given year is not met, corrective measures (e.g., re-seeding, planting, etc.) will be taken to ensure achievement of the Year 5 goal.

8.2.3 Native Vegetation Cover

Success criteria for native cover is based on observations of native cover within adjacent, undisturbed habitat, as well as the fact riparian habitat takes time to develop before it will look like mature, neighboring habitat. Although Year 1 and Year 2 are early in the development of the aquatic resource re-establishment and rehabilitation areas, success criteria include attainment of at least 15 and 25 percent native cover, respectively, to help evaluate if the vegetation is not on target to meet Year 3 goals and determine if corrective measures should be implemented (e.g., re-planting, re-seeding, adding cuttings, irrigation schedule adjustment, and/or increased removal of non-native species). By Year 3, the aquatic resource re-establishment and rehabilitation areas should attain at least 35 percent native cover (or a cover class of four: between 25 and 50 percent). At the end of the five-year monitoring period, native cover will be at least 75 percent (or a cover class of six: greater than or equal to 75 percent; CNPS 2007). If annual goals for vegetative cover are not met remedial measures may be implemented to ensure final success. Native vegetative cover in upland areas has the following success criteria: 25 percent in Year 3, 35 percent in Year 4, and 50 percent in Year 5 (or a cover class of 4 in Year 3 and Year 4 to Class 5 in Year 5).

8.2.4 Non-native Vegetation Cover

Non-native plants are typically a problem in habitat restoration projects, particularly at their outset. The areas designated for habitat restoration will be disturbed by grading, which favors the establishment of fast-germinating, fast-growing, non-native annual species. As the mitigation effort takes hold, non-native cover should decrease due to diligent removal of these species and expanding cover by native vegetation. In Years 1 through 3, cover by non-native species, exclusive of highly invasive species, shall account for no more than 10 percent; and no more than 5 percent in Years 4 and 5 (or a cover class of 3a: between 5 and 15 percent).

8.2.5 Target Invasive Species

Target invasive cover will include High- or Moderate-rated species as rated by the Cal-IPC and any species that are problematic regionally, as identified in Section 6.6.2, above. The acceptable cover value for invasive weed species will be less than one percent (cover class of 1) for each year of the five-year maintenance and monitoring period (Table 12). Any other noxious species that colonize the project site, in addition to the ones identified as invasive in this Plan, must also be eradicated.

8.2.6 California Rapid Assessment Method

A CRAM evaluation of the mitigation area will be included as part of the Year 5 annual assessment and report. The Year 5 CRAM score projection will be treated as a target score. As noted above in Section 3.5 and Table 2, the CRAM score is expected to be 71 or higher for AA1 by the end of the five-year monitoring period. The CRAM assessment will determine if the mitigation area meets hydrologic, physical, and biogeochemical standards described in this Plan.

8.2.7 Jurisdictional Delineation

At the end of the five-year maintenance and monitoring period, the aquatic resource re-establishment and rehabilitation areas are expected to develop hydric soils, contain adequate wetland vegetation, and exhibit wetland hydrology. A jurisdictional wetland delineation of the re-establishment and

rehabilitation areas will be included as part of the Year 3 and Year 5 monitoring reports to determine developing/final acreages and locations of wetland and non-wetland waters of the U.S./State mitigation areas. This will include digging soil pits to check for hydric soil development. The presence of all three parameters should be present by completion of Year 5; however, it should be noted that hydric soil indicators may take more than five years to develop. Hydric soils may be assumed to be present where there are strong indicators of wetland hydrology and plant communities are dominated by obligate or facultative wetland species. In some cases, there is only inundation during the growing season and the determination must be made by direct observation during that season, recorded hydrologic data, testimony of reliable persons, and/or inundation on aerial photographs.

9.0 COMPLETION OF MITIGATION

9.1 NOTIFICATION OF COMPLETION

The City will notify and coordinate with the appropriate resource agencies 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/irrigation 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 has been met prior to Year 5 and the site is accepted as complete by the USACE, RWQCB, CDFW, CCC, and the City; however, the site must be off supplemental irrigation for at least two growing seasons prior to final approval.

9.2 CONFIRMATION

If the project meets all success criteria at the end of the five-year monitoring period, then the mitigation will be considered a success; if not, the maintenance and monitoring program will be extended until the standards are met. Specific remedial measures (approved by the City and resource agencies) will be used during any such extension. Monitoring extensions will only apply to areas that fail to meet final success criteria. This process will continue until all Year 5 standards are attained or until the resource agencies determine the site to be successful by a set of alternative criteria. If requested, a site visit may be conducted with the responsible agencies to verify site conditions.

9.3 LONG-TERM MAINTENANCE

The City is the owner of the property used as mitigation. The OVRP has an approved Concept Plan (County et al. 2017), which includes the mitigation area in planned Open Space/Preserve. City Council Resolution R-303253 dedicates this City-owned land as Open Space. Additionally, the mitigation area is within the MSCP, which has development restrictions. Once the site has met the Year 5 success criteria and has been signed off by the regulatory agencies, City Parks and Recreation (P&R) Department will manage the long-term maintenance of the site. P&R Staff will review the final annual report and may visit the site prior to accepting long-term management responsibility.

In July 2006, the City Council approved Resolution R-301593 which authorized and empowered the City to execute the revised OVRP Joint Exercise of Powers Agreement (JEPA) among the cities of San Diego

and Chula Vista and the County of San Diego. Under the OVRP JEPA at its cost, the City of San Diego shall operate and maintain the public lands designated for natural open space purposes in Area A, in which the Hollister Quarry Mitigation site is located (County et al. 2006). The JEPA defines maintenance as the normal maintenance duties of an agency's ranger staff which includes but is not limited to: removal of litter and illegal dump sites; installing and repairing fencing and gates; constructing and maintaining trails; and site remediation (i.e. erosion control). The City P&R Department will manage the mitigation parcel once it is accepted by the permitting agencies. The City P&R Department would incorporate the mitigation parcel into its overall management of the OVRP. Specific management activities for the re-establishment and rehabilitation areas include providing long-term maintenance and monitoring, trash removal, non-native vegetation control, and wildlife habitat monitoring, as described below.

The City will provide long-term protection of the Hollister Quarry mitigation site through a conservation easement, restrictive covenant, or other long-term protection mechanism, as approved by the agencies. City Council Resolution R-303253 was approved on December 18, 2007, and formally dedicated 6,600 acres of City-owned land as "dedicated open space." According to the resolution, these lands are "dedicated in perpetuity for park and recreational purposes" and [the resolution] restricts "public service easements through the dedicated property" to those which "do not significantly interfere with the park and recreational use of the property." Amongst other provisions, this formal dedication commits that the lands "shall not be used for any but park and recreation purposes without a changed use or purposes being authorized by a two-thirds vote of the people."

The City is obligated to protect and manage the site for purposes of habitat and species conservation in accordance with the MSCP Implementing Agreement (City 1997) and the CP. Section 10.2 of the Implementing Agreement requires the City to preserve lands within the MHPA. Sections 10.3, 10.4, and 10.5 require the implementation of preserve guidelines, land use adjacency guidelines, planning policies, and design guidelines. These policies have been incorporated into the City's Land Development Code and serve to protect lands within the MHPA from direct and indirect habitat degradation. Section 10.6 of the Implementing Agreement defines the City's responsibilities for Preserve Management and refers to the MSCP Framework Management Plan, which is Section 1.5 of the City's Subarea Plan (City 1997).

Section 21.3 of the Implementing Agreement states that "notwithstanding the stated term as herein set forth, the Parties agree and recognize that once Take of a Covered Species has occurred and/or their habitat modified within the Subarea, such Take and habitat modification will be permanent. The Parties, therefore, agree that the preservation and maintenance of the habitat provided for under this Agreement shall likewise be permanent and extend beyond the term of this Agreement." Therefore, although the term of the MSCP is 50 years (1997 – 2047), the preservation of lands within the MHPA, especially in areas where preserved lands are specifically required due to a permanent impact/take, is explicitly permanent.

The City has established protections for lands within the MHPA, in conformance with the Implementing Agreement, through Section 143.0101 of the City's Land Development Code (ESL Regulations). This section of the Land Development Code incorporates Sections 1.4.1 and 1.4.2 of the MSCP Subarea Plan that restricts uses within the MHPA in a similar fashion as a conservation easement or deed restriction. The Land Development Code also incorporates Section 1.4.3 of the MSCP Subarea Plan that restricts land uses adjacent to the MHPA, including potential adverse drainage conditions, toxic chemical uses, lighting, noise, and invasive species. These restrictions provide greater site protection and ensure more long-term sustainability than typical conservation easements and/or deed restrictions.

9.3.1 Site Access

City biologists, park rangers, and designated maintenance staff shall have access to the site for maintenance and monitoring related activities, or as otherwise authorized.

9.3.2 Maintenance and Monitoring Parameters

City biologists will be responsible for directing and/or conducting all long-term monitoring efforts and remedial measures. City biologists and designated maintenance staff will ensure any remedial and management actions are consistent with MSCP and MHPA guidelines and regulations.

9.3.3 Trash

Anthropogenic trash, as well as non-native plant species biomass, shall be removed from the site, and disposed of in a legal and appropriate manner. Biomass originating from native plant species shall remain on site for carbon cycling, and is not considered “trash.”

9.3.4 Non-Native Vegetation Control

Non-native plant species, particularly perennial species that have historically shown to be highly invasive, shall be controlled. Control may involve hand pulling prior to seed-set (for species where the entire root mass must be removed to prevent resprouting), herbicide application, cutting, mechanical removal, or any combination thereof. Herbicide use shall follow the manufactures recommendations, and applied in a manner compatible with applicable federal, state, and local regulations, and consistent with MSCP management guidelines. Biomass of non-native vegetation shall be removed from the site, and disposed of in a legal and appropriate manner. Care should be taken to avoid spreading root, shoot, or seed material around the site or in the river, which would provide opportunity for dissemination or additional colonization. No non-native plant material shall be stored on site or within the floodplain where it is in danger of being washed downstream.

Treatment and/or removal of non-native vegetation with significant structure capable of providing habitat for special status wildlife should be evaluated for species absence/presence prior to treatment/control, particularly during the raptor/nesting bird season (generally January 15 through September 15). All federal, state, and local work restrictions for native wildlife habitat shall be followed.

9.3.5 Potential Environmental Stressors

Stressors that have the potential to negatively affect the habitat quality of the site include, but are not limited to: fire, flood, excessive erosion or aggradation, significant streambed migration, or effects from adjacent or upstream land uses.

Should affects from environmental stressors or events be observed, City biologists shall perform an analysis to identify the effects of the stressor(s) and formulate remedial action(s) intended to support formation of a dynamic native habitat and wildlife use of the site. Depending on the nature of the stressor, consultation with additional regulatory agencies and/or specialists may be warranted. Any adaptive management, remedial action, or regular management activity performed shall be implemented in accordance with applicable regulatory guidelines.

9.3.6 Wildlife Habitat Monitoring

Ongoing and collaborative biological monitoring between City staff, CDFW, and USFWS may or may not include specific species monitoring on this site, but may include monitoring of species within the general segment of Otay River, as part of the MSCP.

9.3.7 Funding

The mitigation site is located within City-owned dedicated Open Space. The City's General Fund, Environmental Growth Fund, and Special Funds in the P&R Department long-term accounts provide for maintenance and management of City-owned Open Space with approval from the City Council. Following acceptance of the mitigation site by the Responsible Agencies, after the five-year maintenance and monitoring period, ongoing management will be provided by the Open Space Division of the P&R Department.

In the City's adopted Fiscal Year 2018 budget, the P&R Department developed goals and Key Performance Indicators (KPIs) related to and supporting the preservation the natural environment in Open Space areas. Goal 1 is to "Protect and enhance natural and developed assets". KPI no. 5 tracks the "number of acres where habitat restoration occurred". The Otay Reed site would contribute to the both the enhancement of existing natural assets and increase the acreage of restored habitat.

In accordance with a City memo (City 2014) by the directors of T&SW and P&R dated October 3, 2014, "Asset responsibility is assigned to the City Department responsible for the primary level of service the asset supports." While the Storm Water Division is responsible for Storm Drain Assets located on P&R land, the memo states, "Channels, streams, and wetlands used for compensatory wetlands mitigation are excluded from this category." Therefore, P&R Department is responsible for long-term maintenance after signoff by the regulatory agencies.

The P&R Department's annual budget for Open Space in FY 2018 includes approximately $12.4 million for management of approximately 27,000 acres of open space and preserve lands, averaging about $460 per acre per year. This annual allocation provides for developing public facilities within the City's resource-based open space parks, including Black Mountain Open Space Natural Park, Los Penasquitos Canyon Preserve, Mission Trails Regional Park, Marian Bear Memorial Park, Tecolote Canyon Natural Park, OVRP, and Rose Canyon. Other open space systems may be included as additional acquisitions are completed. The City T&SW is preparing an estimated cost to complete long-term maintenance responsibilities described above and will be coordinating with the P&R on the funding necessary.

10.0 REMEDIATION MEASURES

10.1 INITIATING PROCEDURES

If the mitigation effort is not meeting success standards for the project, the City shall notify the responsible agencies and propose corrective measures, as needed and a soon as possible once a problematic situation has been identified. If any of the agencies determine, upon receipt of any of the annual monitoring reports, that the mitigation effort is not meeting success standards, the agencies shall notify the project proponent in writing that the aquatic resource re-establishment and

rehabilitation effort may require augmentation for successful completion. The project proponent shall then have 30 days to respond to the correspondence, confirming that contingency measures will be required. The project proponent shall be responsible for all costs associated with contingency monitoring and remedial measures.

10.2 ALTERNATIVE LOCATIONS FOR CONTINGENCY MITIGATION

An alternative location for contingency mitigation includes a wetland mitigation bank, known as Pond 20, which is in development. Pond 20 is a 95-acre parcel of land, located to the west of the Hollister Quarry Mitigation site, between Palm Avenue and the San Diego National Wildlife Refuge in south San Diego Bay. There is a 2012 Memorandum of Understanding between the Port of San Diego (Port), the City of San Diego, and the City of Imperial Beach to explore uses for Pond 20, and a 2015 Port resolution to issue the Request for Proposals for mitigation banking. Final design of the mitigation bank is to be completed in first quarter 2019 with construction anticipated to occur in the third quarter 2020.

The Hollister Quarry mitigation site, however, is considered an ideal location due to its proximity to the Nestor Creek channel maintenance activities and its location within a regional park. If necessary, the City will work with the responsible agencies to identify a mutually acceptable alternative location, such as Pond 20, for the mitigation if this location were to fail.

10.3 NATURAL DISASTER

Should the restoration area fail due to a natural disaster such as fire or flood, the project proponent will not be held responsible for replanting of any aquatic resource habitat.

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Appendix A

Jurisdictional Delineation Results

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hollister Quarry (SDD-24.46) City/County: San Diego/San Diego Sampling Date: 21Nov2017

Applicant/Owner: City of San Diego State: CA Sampling Point: 1

Investigator(s): Larry Sward, Laura Moreton Section, Township, Range: S 22, T 18S, R 2W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): C, Mediterranean California Lat: 32.590347 Long: -117.082256 Datum: NAD1983

Soil Map Unit Name: Riverwash NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

PFOC: Palustrine Forested Seasonally Flooded

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=15)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: r=5)			
1. Arundo donax	90	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: r=10)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Dense stand of Arundo donax, a wetland species

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/4							silty clay loam
4-10	10 YR 3/3							silty clay
10-16	10 YR 3/4							silty clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Dense roots 0-11
No hydric soil indicators
Soil does not appear to be riverwash. Historical aerial photos show this location has been mined and subsequently filled.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

FAC-neutral Test; w:u = 1:0
Insufficient wetland hydrology indicators

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hollister Quarry (SDD-24.46) City/County: San Diego/San Diego Sampling Date: 21Nov2017

Applicant/Owner: City of San Diego State: CA Sampling Point: 2

Investigator(s): Larry Sward, Laura Moreton Section, Township, Range: S22, T 18S, 2W

Landform (hillslope, terrace, etc.): river bottom Local relief (concave, convex, none): slightly concave Slope (%): 0

Subregion (LRR): C, Mediterranean California Lat: 32.59047 Long: -117.082474 Datum: NAD1983

Soil Map Unit Name: Riverwash NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes ✔ No _____
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:

Sample point 8 feet lower than sample point 1. SP in river bottom with banks to the north and south.
PFOC: Palustrine Forested Seasonally Flooded

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix goodingii	25	yes	FACW
2.			
3.			
4.			
	25 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: r=5)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: r=10)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Salix trees rooted at west end of sample point. Otherwise unvegetated.

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 2/2							silty clay
5-16	10 YR 3/1.5	80%	7.5 YR 4/4	20%	C	M		silty clay

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

Layer of cobble at bottom of pit (at 14 inches)
Soil does not appear to be riverwash. Historical aerial photos show this location has been mined and subsequently filled.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ✔ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

FAC-neutral Test; w:u = 1:0

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hollister Quarry (SDD-24.46) City/County: San Diego/San Diego Sampling Date: 21Nov2017

Applicant/Owner: City of San Diego State: CA Sampling Point: 3

Investigator(s): Larry Sward, Laura Moreton Section, Township, Range: S 22, T 18S, R 2W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): C, Mediterranean California Lat: 32.590475 Long: -117.080501 Datum: NAD1983

Soil Map Unit Name: Riverwash NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

Upland location

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: r=15)			
1. Baccharis sarothroides	20	yes	FACU
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: r=5)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: r=10)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	20 (A)		80 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Upland vegetation

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10 YR 4/3							fill, sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

fill with 25% gravel
Soil does not appear to be riverwash. Historical aerial photos show this location has been mined and subsequently filled.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hollister Quarry (SDD-24.46) City/County: San Diego/San Diego Sampling Date: 21Nov2017

Applicant/Owner: City of San Diego State: CA Sampling Point: 4

Investigator(s): Larry Sward, Laura Moreton Section, Township, Range: S 22, T 18S, R 2W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): C, Mediterranean California Lat: 32.5905 Long: -117.08057 Datum: NAD1983

Soil Map Unit Name: Riverwash NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: r=30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: r=15)			
1. Baccharis salicifolia	2	no	FAC
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: r=5)			
1. Arundo donax	90	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	92	= Total Cover	
Woody Vine Stratum (Plot size: r=10)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 6/3							
4-8	10 YR 6/3	60	5YR 6/6	40	C	M		silty loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ **No** ✔

Remarks:

Consolidated layer at 8 inches; no soil in this horizon. Colors in this horizon included 10YR 6/3, 10YR 4/1 and 10YR 3/1. Soil does not appear to be riverwash. Historical aerial photos show this location has been mined and subsequently filled.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

FAC-neutral Test; w:u = 1:0

Insufficient wetland hydrology indicators

Appendix B

Compensatory Mitigation Site Evaluation Checklist

Attachment 12512-1 – Compensatory mitigation site evaluation checklist.

1	Date: December 20, 2017	Corps file no.: NA	Project name: Hollister Quarry Mitigation	Project Manager: Anne Jarque
		Column A:	Column B:	Column C:
2.a	Mitigation site name:	Hollister Quarry	Hollister Quarry Alternative	
	Location figure(s):	See Attached.	See Attached.	
2.b	Mitigation objective(s) to improve:	Habitat quality and increase acreage of wetland habitat on site.	Improve habitat quality provide greater mitigation acreage that Hollister Quarry	
2.c	Proposed Mitigation method:	Re-establishment and rehabilitation.	Re-establishment and rehabilitation.	
	If enhancement, list function(s) to be increased: Function 1: Function 2 (if applicable): Function 3 (if applicable):	NA	NA	
2.d	Primary type(s) of site treatment:	Removal of *Arundo donax*, grading.	Removal of *Arundo donax*, grading.	
2.e	Aquatic resource type (Cowardin system):	Riverine	Riverine	
2.f	Hydrology:	Otay River	Otay River	
2.g	FCAM classification used: FCAM Subclass(es):			
2.h	Vegetation classification system used: Vegetation class(es)/subclass(s):	Oberbauer, Thomas. 2008. Terrestrial Vegetation Communities in San Diego County Based on Holland's Descriptions. Revised from 1996 and 2005. July.	Oberbauer, Thomas. 2008. Terrestrial Vegetation Communities in San Diego County Based on Holland's Descriptions. Revised from 1996 and 2005. July.	
2.i	Vernacular/common name of proposed type of aquatic resource, if appropriate:	Riparian Scrub Re-establishment/rehabilitation	Riparian Scrub Re-establishment/rehabilitation	

3	**Watershed Planning and Prioritization** a. Are mitigation proposal objectives aligned with the objective(s) of one or more appropriate watershed plans?	Enter: ☒ yes / ☐ no/ ☐ N/A Relevant watershed plan objective(s): _____ _____ _____ Cite watershed plan(s), including title, preparer, and date: _____ _____ _____ Cite applicable parts of plan(s) (by page number): _____ _____ _____	Enter: ☒ yes / ☐ no/ ☐ N/A Relevant watershed plan objective(s): _____ _____ _____ Cite watershed plan(s), including title, preparer, and date: _____ _____ _____ Cite applicable parts of plan(s) (by page number): _____ _____ _____	Enter: ☐ yes / ☐ no/ ☐ N/A Relevant watershed plan objective(s): _____ _____ _____ Cite watershed plan(s), including title, preparer, and date: _____ _____ _____ Cite applicable parts of plan(s) (by page number): _____ _____ _____

4	**Watershed Analysis, Landscape Connectivity**	Enter:	Enter:	Enter:
	a. Would the type of aquatic resource proposed for mitigation help sustain and improve the overall watershed profile of the watershed?	☒ yes / ☐ no	☒ yes / ☐ no	☐ yes / ☐ no
	b. Following project completion, would the site connect to existing stream network and/or wetlands complex such that the site would not be ecologically isolated?	☒ yes / ☐ no	☒ yes / ☐ no	☐ yes / ☐ no
	c. Would the site reduce gap(s) in stream network and/or wetlands complex?	☒ yes / ☐ no	☒ yes / ☐ no	☐ yes / ☐ no
		Overall step acceptable? ☒ yes / ☐ no	Overall step acceptable? ☒ yes / ☐ no	Overall step acceptable? ☐ yes / ☐ no
		PM justification: The mitigation would increase wetland habitat in the Otay Valley Regional Park and be directly adjacent (south) to the Otay River.	PM justification: The mitigation would increase wetland habitat in the Otay Valley Regional Park and be directly adjacent (south) to the Otay River.	PM justification:

5a	**Site Potential for Proposed Method of Mitigation**			
	<u>Is establishment or re-establishment proposed? If yes, complete 5a(a-d). If not, skip to step 5b.</u>	☒ yes / ☐ no	☒ yes / ☐ no	☐ yes / ☐ no
	a. The site is not an aquatic resource.	☒ yes / ☐ no	☒ yes / ☐ no	☐ yes / ☐ no
	b. The site is not high quality terrestrial habitat *(e.g., natural land cover with few observed stressors)*	☒ yes / ☐ no	☒ yes / ☐ no	☐ yes / ☐ no
	c. The site is in close proximity to an aquatic resource in good functional condition. *For proximal site, consider FCAM scores.*	☒ yes / ☐ no	☒ yes / ☐ no	☐ yes / ☐ no
	d. For re-establishment, is there evidence the type of proposed aquatic resource was present historically on site?	☒ yes / ☐ no	☒ yes / ☐ no	☐ yes / ☐ no
		Overall step acceptable? ☒ yes / ☐ no	Overall step acceptable? ☒ yes / ☐ no	Overall step acceptable? ☐ yes / ☐ no
		PM justification:	PM justification:	PM justification:
		The site is partially within disturbed uplands. The site is south of the Otay River. Historical aerials indicate the presence of fill in the proposed mitigation site.	The site is partially within disturbed uplands. The site is south of the Otay River. Historical aerials indicate the presence of fill in the proposed mitigation site.	

5b	**Site Potential for Proposed Method of Mitigation** <u>Is rehabilitation or enhancement proposed? If yes, complete 5b(a-d). If not, skip to step 5c.</u> a. The site is a degraded aquatic resource. b. For rehabilitation, would increase most, if not all, functions. c. The site has stressors/impacts that can be remedied in a practicable manner via proposed actions (see 2.d). *Complete **Table 1** below.* d. For enhancement, mitigation work at the site will not change the type of aquatic resource or degrade its functioning and condition.	☒ yes / ☐ no ☒ yes / ☐ no ☒ yes / ☐ no ☒ yes / ☐ no ☐ yes / ☐ no Overall step acceptable? ☒ yes / ☐ no PM justification: Rehabilitation is proposed. The site currently supports extensive stands of giant reed (*Arundo donax*). The site will undergo grading and invasive species removal.	☒ yes / ☐ no ☒ yes / ☐ no ☒ yes / ☐ no ☒ yes / ☐ no ☐ yes / ☐ no Overall step acceptable? ☒ yes / ☐ no PM justification: Rehabilitation is proposed. The site currently supports extensive stands of giant reed (*Arundo donax*). The site will undergo grading and invasive species removal.	☐ yes / ☐ no ☐ yes / ☐ no ☐ yes / ☐ no ☐ yes / ☐ no ☐ yes / ☐ no Overall step acceptable? ☐ yes / ☐ no PM justification:

5c	**Site Potential for Proposed Method of Mitigation**			
	Is preservation proposed? If yes, complete 5c(a-f). If not, skip to step 6.	☐ yes / ☒ no	☐ yes / ☒ no	☐ yes / ☐ no
	a. Does preservation of the proposed aquatic resources provide important physical, chemical, or biological functions for the watershed? *Attach FCAM scores, if available.*	☐ yes / ☐ no	☐ yes / ☐ no	☐ yes / ☐ no
	b. The aquatic resources to be preserved contribute significantly to the ecological sustainability of the watershed.	☐ yes / ☐ no	☐ yes / ☐ no	☐ yes / ☐ no
	c. Preservation is determined by the district engineer to be appropriate and practicable.	☐ yes / ☐ no	☐ yes / ☐ no	☐ yes / ☐ no
	d. The resources are under threat of destruction or adverse modifications.	☐ yes / ☐ no	☐ yes / ☐ no	☐ yes / ☐ no
	e. Proposed preservation would be done in conjunction with aquatic resource restoration, establishment, and/or enhancement activities.	☐ yes / ☐ no	☐ yes / ☐ no	☐ yes / ☐ no
	f. The preserved site will be permanently protected through an appropriate real estate or other legal instrument (e.g., easement, title transfer to state resource agency or land trust).	☐ yes / ☐ no	☐ yes / ☐ no	☐ yes / ☐ no
		Overall step acceptable? ☐ yes / ☐ no	Overall step acceptable? ☐ yes / ☐ no	Overall step acceptable? ☐ yes / ☐ no
		PM justification:	PM justification:	PM justification:

6	**Site Potential for Sustained Ecological Performance over Time** a. Does site have natural buffer of suitable width to attain mitigation objectives listed in step 2.b above? b. Does site have appropriate hydrology (as demonstrated by a water budget) to meet proposed mitigation site criteria listed in step 2 above? c. Does site have appropriate soils to meet proposed mitigation site criteria listed in step 2 above? d. Is site free of known contaminants?	Enter: ☒ yes / ☐ no ☒ yes / ☐ no ☐ yes / ☐ no ☒ yes / ☐ no Overall step acceptable? ☒ yes / ☐ no PM justification: A native upland buffer will be installed as part of the mitigation. Grading its proposed to tie the site into the hydrology of the Otay River. Soils testing will be undertaken prior to the mitigation. No contaminants are known from the site.	Enter: ☒ yes / ☐ no ☒ yes / ☐ no ☐ yes / ☐ no ☒ yes / ☐ no Overall step acceptable? ☒ yes / ☐ no PM justification: A native upland buffer will be installed as part of the mitigation. Grading its proposed to tie the site into the hydrology of the Otay River. Soils testing will be undertaken prior to the mitigation. No contaminants are known from the site.	Enter: ☐ yes / ☐ no ☐ yes / ☐ no ☐ yes / ☐ no ☐ yes / ☐ no Overall step acceptable? ☐ yes / ☐ no PM justification:

7	**Risk and Uncertainty** a. Would all existing and anticipated stressors from Table 1 be resolved and therefore unlikely to jeopardize the mitigation proposal?	Enter: ☒ yes / ☐ no List *unresolved* existing and/or anticipated stressor(s) and describe magnitude of effect: _____ _____ _____	Enter: ☒ yes / ☐ no List *unresolved* existing and/or anticipated stressor(s) and describe magnitude of effect: _____ _____ _____	Enter: ☐ yes / ☐ no List *unresolved* existing and/or anticipated stressor(s) and describe magnitude of effect: _____ _____ _____
	b. Does proposed site include necessary water rights, as necessary, to ensure hydrology?	☐ yes / ☐ no / ☒ N/A	☐ yes / ☐ no / ☒ N/A	☐ yes / ☐ no / ☐ N/A
	c. Would the proposed mitigation be free of structures which would require on-going maintenance and incompatible uses (for example, on-going requirement to maintain channel capacity)?	☒ yes / ☐ no	☒ yes / ☐ no	☐ yes / ☐ no
	d. Do local planning documents/policies envision the surrounding natural landscape as open space such that landscape-scale connectivity would be maintained or improved (in other words, no zoning changes or planned development are anticipated which would pose a barrier to natural drainage and the movement of wildlife)?	☒ yes / ☐ no Overall step acceptable? ☒ yes / ☐ no PM justification: No ongoing maintenance is anticipated. Mitigation site is situated with the Multi-Habitat Planning Area and the Otay Valley Regional Park in Dedicated Open Space.	☒ yes / ☐ no Overall step acceptable? ☒ yes / ☐ no PM justification: No ongoing maintenance is anticipated. Mitigation site is situated with the Multi-Habitat Planning Area and the Otay Valley Regional Park in Dedicated Open Space.	☐ yes / ☐ no Overall step acceptable? ☐ yes / ☐ no PM justification:

8	**Final Evaluation** a. List number of final overall "yes" and "no" answers above (acceptable or not). Total answers should be five (5) unless a watershed plan is not available (in that case 4). Most steps must be acceptable for a mitigation proposal to be found environmentally acceptable; however, in some cases, a single "no" may render a proposal unacceptable.	Number of steps that would be acceptable ("yes" answers at bottom of each step): 6___ Number of steps that would **not** be acceptable ("no" answers at bottom of each step): 0____ In summary, are activities in column A appropriate for this site?: ☒ yes / ☐ no PM Justification:	Number of steps that would be acceptable ("yes" answers at bottom of each step): 6____ Number of steps that would **not** be acceptable ("no" answers at bottom of each step): 0____ In summary, are activities in column B appropriate for this site?: ☒ yes / ☐ no PM Justification:	Number of steps that would be acceptable ("yes" answers at bottom of each step): ____ Number of steps that would **not** be acceptable ("no" answers at bottom of each step): ____ In summary, are activities in column C appropriate for this site?: ☐ yes / ☐ no PM Justification:
9	**Overall conclusions:**			

Table 1. Stressor List for step 5b above. Review proposed mitigation site and mitigation project design. Check observed stressors in column 1. Check stressors in column 2 that can be reduced or eliminated via proposed mitigation actions in step 2.d. Describe the magnitude of each observed stressor and explain whether it can be reduced or eliminated. *Note: project design features are intended to reduce or eliminate existing and future onsite disturbance (stressors), and improve aquatic resource functions. Also note: Project design features that reduce or eliminate site disturbance (stressors) will improve the ecological condition of the site. A site in good condition functions at levels comparable to its aquatic resource type at reference sites.*

Example water quality stressors:	**1. Observed**	**2. To be reduced/ eliminated**	**3. PM explanation (if appropriate)**
Point source discharges features (outfall, discharge pipes)	☐	☐	
Obvious unnatural concentrations of salts (salt encrustation)	☐	☐	
Unnatural odors, foam, oil sheen	☐	☐	
Formation of heavy algal mats	☐	☐	
Turbidity in water column	☐	☐	
Other:	☐	☐	
Example hydrologic regime stressors:			
Agricultural tiles, siphons or pumps	☐	☐	
Ditches, dikes, levees or berms	☒	☒	Berms to be removed by grading.
Other water control structures	☐	☐	
Other:	☐	☐	
Example physical structure stressors:			
Evidence livestock or feral animals trampling and substrate compaction	☐	☐	
Past dredging and fill activity	☐	☐	
Off road vehicle use	☐	☐	
Plowing and disking	☐	☐	
Dumping of trash	☒	☒	Homeless encampments will be removed prior to installation.
Other:	☐	☐	
Example vegetation stressors:			
Invasive species	☒	☒	*Arundo donax* will be removed.
Mechanical plant removal or mowing	☐	☐	
Intensive grazing by livestock or feral animals	☐	☐	
Chemical vegetation control	☐	☐	
Intentional burning	☐	☐	
Other:	☐	☐	

Appendix C

CRAM Worksheet and Results

Basic Information Sheet: Riverine Wetlands

Assessment Area Name: Hollister Quarry Mitigation Site

Project Name: Nestor Creek MMP Map 134 Channel Maintenance

Assessment Area ID #: AA-1

Project ID #: SDD-24.46 (Task Order #46) **Date:** 12/1/17

Assessment Team Members for This AA:

Jasmine Bakker (HELIX Environmental Planning)

Shanti Santulli (Rocks Biological)

Average Bankfull Width: 12.8m

Approximate Length of AA (10 times bankfull width, min 100 m, max 200 m): 100 m

Upstream Point Latitude: N 32° 35.435 **Longitude:** W 117° 04.792

Downstream Point Latitude: N 32° 35.433 **Longitude:** W 117° 04.859

Wetland Sub-type:

☒ Confined ☐ Non-confined

AA Category:

☐ Restoration ☒ Mitigation ☐ Impacted ☐ Ambient ☐ Reference ☐ Training

☐ Other: (baseline prior to mitigation activities)

Did the river/stream have flowing water at the time of the assessment? ☐ yes ☒ no

What is the apparent hydrologic flow regime of the reach you are assessing?

The hydrologic flow regime of a stream describes the frequency with which the channel conducts water. *Perennial* streams conduct water all year long, whereas *ephemeral* streams conduct water only during and immediately following precipitation events. *Intermittent* streams are dry for part of the year, but conduct water for periods longer than ephemeral streams, as a function of watershed size and water source.

☐ perennial ☒ intermittent ☐ ephemeral

Photo Identification Numbers and Description:

	Photo ID No.	Description	Latitude	Longitude	Datum
1		Upstream			
2		Middle Left			
3		Middle Right			
4		Downstream			
5					
6					
7					
8					
9					
10					

Site Location Description:

compensatory mitigation site, pre-mitigation baseline, located along Otay River; however, the AA is along an Arundo-infested channel berned off from the main Otay River corridor

Comments:

AA located in primary area proposed for rehabilitation with Arundo-dominated segment of the channel.

Scoring Sheet: Riverine Wetlands

AA Name: Hollister Quarry Mitigation Site				Date: 12/01/17	
Attribute 1: Buffer and Landscape Context (pp. 11-19)				**Comments**	
Stream Corridor Continuity (D)			Alpha. A	Numeric 12	
Buffer:					
Buffer submetric A: Percent of AA with Buffer	Alpha. B	Numeric 9			66%
Buffer submetric B: Average Buffer Width	C	6			126.25 m
Buffer submetric C: Buffer Condition	C	6			
Raw Attribute Score = $D+[C \times (A \times B)^{1/2}]^{1/2}$				19	**Final Attribute Score = (Raw Score/24) x 100** 77
Attribute 2: Hydrology (pp. 20-26)					
			Alpha.	Numeric	
Water Source			C	6	
Channel Stability			A	12	
Hydrologic Connectivity			C	6	entrenchment ratio = 1.4
Raw Attribute Score = sum of numeric scores				24	**Final Attribute Score = (Raw Score/36) x 100** 67
Attribute 3: Physical Structure (pp. 27-33)					
			Alpha.	Numeric	
Structural Patch Richness			C	6	
Topographic Complexity			C	6	
Raw Attribute Score = sum of numeric scores				12	**Final Attribute Score = (Raw Score/24) x 100** 50
Attribute 4: Biotic Structure (pp. 34-41)					
Plant Community Composition (based on sub-metrics A-C)					
	Alpha.	Numeric			
Plant Community submetric A: Number of plant layers	C	6			2 plant layers
Plant Community submetric B: Number of Co-dominant species	D	3			3 co-dominant layers
Plant Community submetric C: Percent Invasion	C	6			1 of 3 species invasive
Plant Community Composition Metric *(numeric average of submetrics A-C)*				5	
Horizontal Interspersion			D	3	
Vertical Biotic Structure			D	3	
Raw Attribute Score = sum of numeric scores				11	**Final Attribute Score = (Raw Score/36) x 100** 31
Overall AA Score (average of four final Attribute Scores)					56

Worksheet for Stream Corridor Continuity Metric for Riverine Wetlands

Lengths of Non-buffer Segments For Distance of 500 m Upstream of AA		Lengths of Non-buffer Segments For Distance of 500 m Downstream of AA	
Segment No.	Length (m)	Segment No.	Length (m)
1	0	1	40
2	0	2	40
3	0	3	0
4	0	4	0
5	0	5	0
Upstream Total Length	0	Downstream Total Length	80

Percent of AA with Buffer Worksheet

In the space provided below make a quick sketch of the AA, or perform the assessment directly on the aerial imagery; indicate where buffer is present, estimate the percentage of the AA perimeter providing buffer functions, and record the estimate amount in the space provided.

Percent of AA with Buffer: 66 %

Worksheet for calculating average buffer width of AA

Line	Buffer Width (m)
A	120
B	130
C	160
D	170
E	175
F	175
G	65
H	15
Average Buffer Width *Round to the nearest integer*	126 m

Worksheet for Assessing Channel Stability for Riverine Wetlands

Condition	Field Indicators (check all existing conditions)
Indicators of Channel Equilibrium	☒ The channel (or multiple channels in braided systems) has a well-defined bankfull contour that clearly demarcates an obvious active floodplain in the cross-sectional profile of the channel throughout most of the AA.
	☐ Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.
	☐ There is leaf litter, thatch, or wrack in most pools (if pools are present).
	☒ The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.
	☒ There is little or no active undercutting or burial of riparian vegetation.
	☐ If mid-channel bars and/or point bars are present, they are not densely vegetated with perennial vegetation.
	☐ Channel bars consist of well-sorted bed material (smaller grain size on the top and downstream end of the bar, larger grain size along the margins and upstream end of the bar).
	☐ There are channel pools, the spacing between pools tends to be regular and the bed is not planar throughout the AA
	☐ The larger bed material supports abundant mosses or periphyton.
Indicators of Active Degradation	☐ The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.
	☐ There are abundant bank slides or slumps.
	☐ The lower banks are uniformly scoured and not vegetated.
	☐ Riparian vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.
	☐ An obvious historical floodplain has recently (→ NOT RECENT) been abandoned, as indicated by the age structure of its riparian vegetation.
	☐ The channel bed appears scoured to bedrock or dense clay.
	☐ Recently (→ NOT RECENT) active flow pathways appear to have coalesced into one channel (i.e. a previously braided system is no longer braided).
	☐ The channel has one or more knickpoints indicating headward erosion of the bed.
Indicators of Active Aggradation	☐ There is an active floodplain with fresh splays of coarse sediment (sand and larger that is not vegetated) deposited in the current or previous year.
	☐ There are partially buried living tree trunks or shrubs along the banks.
	☐ The bed is planar (flat or uniform gradient) overall; it lacks well-defined channel pools, or they are uncommon and irregularly spaced.
	☐ There are partially buried, or sediment-choked, culverts.
	☒ Perennial terrestrial or riparian vegetation is encroaching into the channel or onto channel bars below the bankfull contour.
	☐ There are avulsion channels on the floodplain or adjacent valley floor.
Overall	☒ **Equilibrium** ☐ **Degradation** ☐ **Aggradation**

Riverine Wetland Entrenchment Ratio Calculation Worksheet

The following 5 steps should be conducted for each of 3 cross-sections located in the AA at the approximate midpoints along straight riffles or glides, away from deep pools or meander bends. An attempt should be made to place them at the top, middle, and bottom of the AA. in meters

Steps	Replicate Cross-sections ⟶	TOP	MID	BOT
1 Estimate bankfull width.	This is a critical step requiring familiarity with field indicators of the bankfull contour. Estimate or measure the distance between the right and left bankfull contours.	16	11.8	10.5
2: Estimate max. bankfull depth.	Imagine a level line between the right and left bankfull contours; estimate or measure the height of the line above the thalweg (the deepest part of the channel).	0.5	0.5	0.5
3: Estimate flood prone depth.	Double the estimate of maximum bankfull depth from Step 2.	1.0	1.0	1.0
4: Estimate flood prone width.	Imagine a level line having a height equal to the flood prone depth from Step 3; note where the line intercepts the right and left banks; estimate or measure the length of this line.	32	13	12
5: Calculate entrenchment ratio.	Divide the flood prone width (Step 4) by the bankfull width (Step 1).	2.0	1.10	1.14
6: Calculate average entrenchment ratio.	Calculate the average results for Step 5 for all 3 replicate cross-sections. Enter the average result here and use it in Table 13a or 13b.			1.4

Structural Patch Type Worksheet for Riverine wetlands

Circle each type of patch that is observed in the AA and enter the total number of observed patches in Table below. In the case of riverine wetlands, their status as confined or non-confined must first be determined (see page 6) to determine with patches are expected in the system (indicated by a "1" in the table below). Any feature onsite should only be counted once as a patch type. If a feature appears to meet the definition of more than one patch type (i.e. swale and secondary channel) the practitioner should choose which patch type best illustrates the feature. Not all features at a site will be patch types.

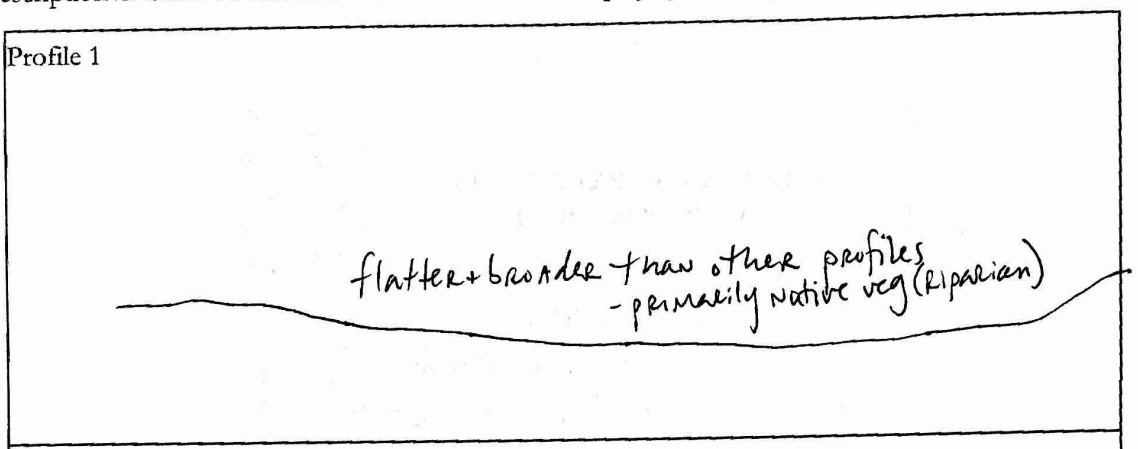
Please refer to the CRAM Photo Dictionary at** www.cramwetlands.org **for photos of each of the following patch types.

STRUCTURAL PATCH TYPE (circle for presence)	**Riverine (Non-confined)**	**Riverine (Confined)** ✓
Minimum Patch Size	**3 m^2**	**3 m^2**
Abundant wrackline or organic debris in channel, on floodplain	1	(1)
Bank slumps or undercut banks in channels or along shoreline	1	1
Cobbles and/or Boulders	1	1
Debris jams	1	1
Filamentous macroalgae or algal mats	1	1
Large woody debris	1	(1)
Pannes or pools on floodplain	1	N/A
Plant hummocks and/or sediment mounds	1	1
Point bars and in-channel bars	1	(1)
Pools or depressions in channels (wet or dry channels)	1	1
Riffles or rapids (wet or dry channels)	1	1
Secondary channels on floodplains or along shorelines	1	N/A
Standing snags (at least 3 m tall)	1	(1) several
Submerged vegetation	1	N/A
Swales on floodplain or along shoreline	1	N/A
Variegated, convoluted, or crenulated foreshore (instead of broadly arcuate or mostly straight)	1	1
Vegetated islands (mostly above high-water)	1	N/A
Total Possible	17	12
No. Observed Patch Types (enter here and use in Table 14 below)		4

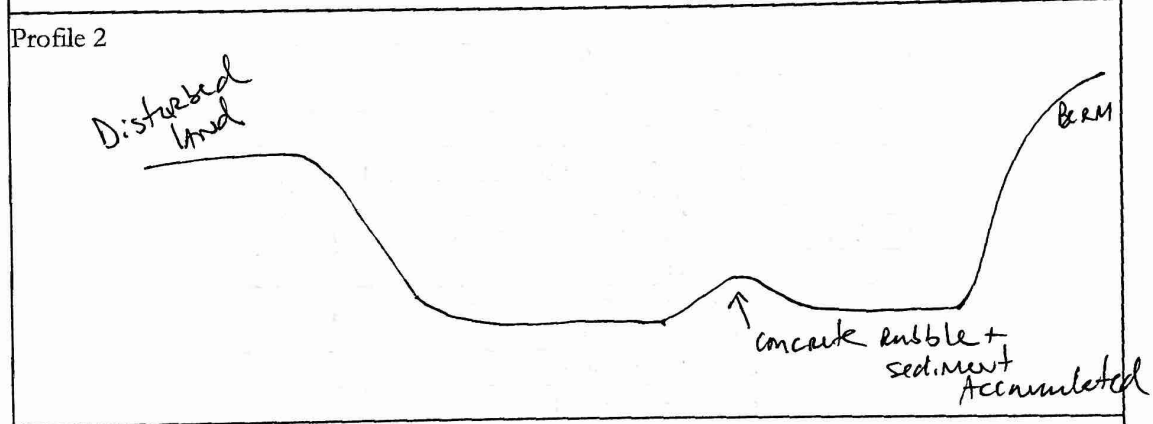
Worksheet for AA Topographic Complexity

At three locations along the AA, make a sketch of the profile of the stream from the AA boundary down to its deepest area then back out to the other AA boundary. Try to capture the benches and the intervening micro-topographic relief. To maintain consistency, make drawings at each of the stream hydrologic connectivity measurements, always facing downstream. Include the water level, an arrow at the bankfull contour, and label the benches. Based on these sketches and the profiles in Figure 10, choose a description in Table 16 that best describes the overall topographic complexity of the AA.

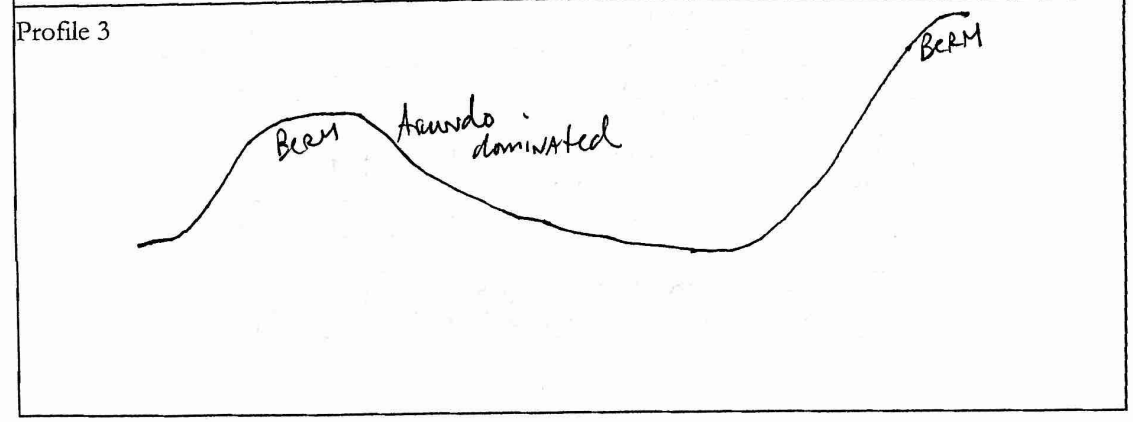
DS



MID



US



Plant Community Metric Worksheet: Co-dominant species richness for Riverine wetlands
(A dominant species represents ≥10% *relative* cover)

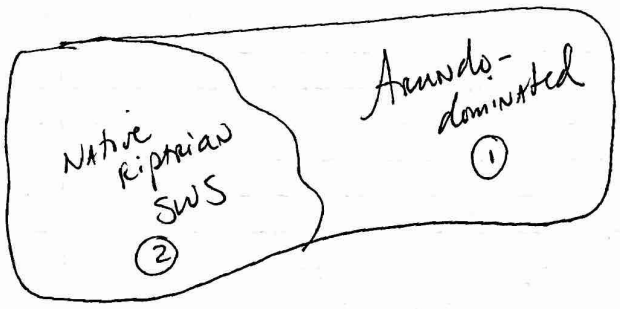
Special Note:

* *Combine the counts of co-dominant species from all layers to identify the total species count. Each plant species is only counted once when calculating the Number of Co-dominant Species and Percent Invasion submetric scores, regardless of the numbers of layers in which it occurs.*

Floating or Canopy-forming (non-confined only)	Invasive?	Short (<0.5 m)	Invasive?
Medium (0.5-1.5 m)	**Invasive?**	**Tall (1.5-3.0 m)**	**Invasive?**
		Arundo donax	YES
Very Tall (>3.0 m)	**Invasive?**	**Total number of co-dominant species for all layers combined (enter here and use in Table 18)**	3
Arundo donax	YES		
Baccharis salicifolia	NO		
Salix lasiolepis	NO	**Percent Invasion *Round to the nearest integer* (enter here and use in Table 18)**	33%

Horizontal Interspersion Worksheet.

Use the spaces below to make a quick sketch of the AA in plan view, outlining the major plant zones (this should take no longer than 10 minutes). Assign the zones names and record them on the right. Based on the sketch, choose a single profile from Figure 12 that best represents the AA overall.



Assigned zones:

1) Arundo
2) SWS
3)
4)
5)
6)

Worksheet for Wetland disturbances and conversions

Has a major disturbance occurred at this wetland?	Yes	(No)		
If yes, was it a flood, fire, landslide, or other?	flood	fire	landslide	other
If yes, then how severe is the disturbance?	likely to affect site next 5 or more years	likely to affect site next 3-5 years	likely to affect site next 1-2 years	
Has this wetland been converted from another type? If yes, then what was the previous type?	depressional	vernal pool	vernal pool system	
	non-confined riverine	confined riverine	seasonal estuarine	
	perennial saline estuarine	perennial non-saline estuarine	wet meadow	
	lacustrine	seep or spring	playa	

Stressor Checklist Worksheet

HYDROLOGY ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Point Source (PS) discharges (POTW, other non-stormwater discharge)		
Non-point Source (Non-PS) discharges (urban runoff, farm drainage)		
Flow diversions or unnatural inflows		
Dams (reservoirs, detention basins, recharge basins)		
Flow obstructions (culverts, paved stream crossings)		
Weir/drop structure, tide gates		
Dredged inlet/channel		
Engineered channel (riprap, armored channel bank, bed)		
Dike/levees	✓	✓
Groundwater extraction		
Ditches (borrow, agricultural drainage, mosquito control, etc.)		
Actively managed hydrology		
Comments		
Bermed section of Otay River - separated from main channel		

PHYSICAL STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Filling or dumping of sediment or soils **(N/A for restoration areas)**		
Grading/ compaction **(N/A for restoration areas)**		
Plowing/Discing **(N/A for restoration areas)**		
Resource extraction (sediment, gravel, oil and/or gas)	✓	✓
Vegetation management		
Excessive sediment or organic debris from watershed		
Excessive runoff from watershed		
Nutrient impaired (PS or Non-PS pollution)		
Heavy metal impaired (PS or Non-PS pollution)		
Pesticides or trace organics impaired (PS or Non-PS pollution)		
Bacteria and pathogens impaired (PS or Non-PS pollution)		
Trash or refuse		
Comments		
Mining operation w/i 50 ft of south side of channel (left bank)		

BIOTIC STRUCTURE ATTRIBUTE (WITHIN 50 M OF AA)	Present	Significant negative effect on AA
Mowing, grazing, excessive herbivory (within AA)		
Excessive human visitation	✓	
Predation and habitat destruction by non-native vertebrates (e.g., *Virginia opossum* and domestic predators, such as feral pets)		
Tree cutting/sapling removal		
Removal of woody debris		
Treatment of non-native and nuisance plant species		
Pesticide application or vector control		
Biological resource extraction or stocking (fisheries, aquaculture)		
Excessive organic debris in matrix (for vernal pools)		
Lack of vegetation management to conserve natural resources		
Lack of treatment of invasive plants adjacent to AA or buffer	✓	✓
Comments		
- Transient population/activity present; however, doesn't have significant effect		
- Arundo chokes most of the AA		

BUFFER AND LANDSCAPE CONTEXT ATTRIBUTE (WITHIN 500 M OF AA)	Present	Significant negative effect on AA
Urban residential		
Industrial/commercial	✓	
Military training/Air traffic		
Dams (or other major flow regulation or disruption)	✓	
Dryland farming		
Intensive row-crop agriculture		
Orchards/nurseries		
Commercial feedlots		
Dairies		
Ranching (enclosed livestock grazing or horse paddock or feedlot)		
Transportation corridor	✓	
Rangeland (livestock rangeland also managed for native vegetation)		
Sports fields and urban parklands/golf courses, soccer fields, etc.)	✓	
Passive recreation (bird-watching, hiking, etc.)	✓	
Active recreation (off-road vehicles, mountain biking, hunting, fishing)	✓	
Physical resource extraction (rock, sediment, oil/gas)		
Biological resource extraction (aquaculture, commercial fisheries)		
Comments		

Appendix D

Alternative Conceptual Mitigation Plan

Appendix D
Alternative Conceptual Mitigation Plan

Alternative Mitigation Summary and Concept

An alternative conceptual mitigation plan is being considered by the City. The alternative contains essentially the same design elements as are proposed in the Conceptual Aquatic Resource Habitat Mitigation and Monitoring Plan for the Hollister Quarry Mitigation Site; however, the alternative would create a larger area of wetland mitigation totaling 2.20 acres, by involving a larger grading footprint (Figure 9). The alternative conceptual approach includes a total of 1.06 acre of USACE mitigation, 2.20 acre of CDFW mitigation, and 2.20 acre of City wetland mitigation; Table 3 below corresponds with the Table 3 provided for the proposed mitigation plan. Challenges with implementing the alternative include a higher cost and cooperation with the adjacent property owner (Hanson Aggregates [Hanson]) for purposes of access and staging. The Alternative Conceptual Mitigation Plan shall be implemented subject to the approval of the property owner and acceptance of all right of entry conditions by the City of San Diego.

Table3
PROPOSED AQUATIC RESOURCES MITIGATION – HOLLISTER QUARRY
ALTERNATIVE MITIGATION SITE[1]

Jurisdictional Resource/ Habitat	Re-establishment[3] (Restoration[4])	Rehabilitation[5] (Restoration[5])	Total
USACE/RWQCB			
Riparian scrub[2]	0.52	0.54	1.06
Total USACE/RWQCB Credit	**0.52**	**0.54**	**1.06**
CDFW			
Riparian Scrub	0.65	1.55	2.20
Total CDFW Credit	**0.65**	**1.55**	**2.20**
City			
Riparian Scrub	0.65	1.55	2.20
Total City Credit	**0.65**	1.55	**2.20**

[1] Rounded to the nearest 0.01 acre.
[2] Wetland waters of the U.S./State.
[3] Re-establishment as defined by USACE that meets no-net loss policy because of gains in function and value.
[4] Meets City 1:1 restoration or creation component because of gains in both function and value.
[5] Rehabilitation as defined by USACE which meets City 1:1 restoration or creation component on a case by case basis.

Alternative Advanced Permittee Responsible Mitigation

The excess or remaining mitigation for the alternative conceptual approach, as shown in Table 5, would be used to mitigate for future impacts associated with the City's programs. Table 5 below corresponds with the Table 5 provided for the proposed mitigation plan.

Appendix D (cont.)
Alternative Conceptual Mitigation Plan

Table 5
EXCESS AQUATIC RESOURCE MITIGATION CREDITS FOR ADVANCED PERMITTEE RESPONSIBLE MITIGATION (APRM) AT HOLLISTER QUARRY ALTERNATIVE MITIGATION SITE

Summary	Restoration (Re-establishment) (acre)	Restoration (Rehabilitation) (acre)
City Mitigation Provided	0.65	1.55
- Map 134 Mitigation Requirements	0.24	0.67
City Excess Credits Available	**0.41**	**0.88**
CDFW Mitigation Provided	0.65	1.55
- Map 134 Mitigation Requirements	0.01	0.01
CDFW Excess Credits Available	**0.64**	**1.54**
USACE Mitigation Provided	0.52	0.54
- Map 134 Mitigation Requirements (USACE)	0.03	0.02
USACE Excess Credits Available	**0.49**	**0.52**
RWQCB Mitigation Provided	0.52	0.54
- Map 134 Mitigation Requirements (RWQCB)	0.03	0.05
RWQCB Excess Credits Available	**0.49**	**0.49**

Site Preparation: Grading

Grading for the alternative will involve lowering topography to increase frequency and length of surface inundation, and decrease the proximity of the ground surface to the water table. This modification will entail the excavation of quarry spoils along the south side of Otay River. The area planned for excavation includes two stands of disturbed wetland (Arundo-dominated) and disturbed land.

Two types of wetlands are planned for this project: riparian and depressional. The riparian section will be immediately adjacent to the existing low-flow channel. The existing low-flow channel of the river is currently confined to a straight alignment. The planned grading will expand the area subject to frequent flooding and allow the river to meander.

The depressional wetland will occur south of a low berm, and will separate the main channel from a basin. The basin will be excavated to be at the same level above groundwater as the main river channel, which is approximately 16 feet above mean sea level (AMSL). The berm between the depressional wetland and main river channel will be at approximately 20 feet AMSL. This separation is important to prevent sedimentation in the basin that would render the ground water too deep to sustain wetlands there. The reasoning behind this relates to flowing water's relationship with sedimentation. The faster the water flows, the greater its capacity for carrying sedimentation. When water slows down, its capacity to carry sediment decreases, and it drops sediment. In natural and restored river systems, when the river enters a wider floodplain, it slows down and releases sediment. By placing a low berm between the river and depressional wetland, over 99 percent of the sediment will stay in the river. That is because most of the sediment carried by a river bumps along the bottom (Chang, pers. comm.). The berm, however, must not be constructed too high either. It is important that the basin flood periodically to ensure soil surface hydrology conducive to wetland seedling establishment, which is essential for sustaining reproducible populations of wetland species.

Appendix D (cont.)
Alternative Conceptual Mitigation Plan

The wetland re-establishment area is currently characterized by a manmade pad. The wetland rehabilitation area is characterized by unnatural slopes, hummocks, and depressions, which are remnants of past quarry operations. Grading will involve lowering existing elevations up to 14 feet and will result in an area near the elevation of the adjacent riverbed. The slopes extending south from the reclaimed riverbed will be no steeper than 3:1.

All grading will be completed in fall (October 1 through December 1), which is outside the riparian bird breeding season, and a time with a low probability of flooding. This is necessary to avoid impacts to nesting bird species and, by not grading when precipitation is most likely, to minimize erosion. Proper best management practices (BMPs) will be installed to protect the river from unnatural levels of sedimentation. If grading is necessary during the breeding season, a pre-construction survey for nesting birds and raptors must be completed in accordance with the mitigation measures included in the MMP. Grading will occur with front-end loaders, back hoes, excavators, small bulldozers, and/or dump trucks, at the discretion of the installation contractor.

The installation contractor, under the direct supervision of the restoration specialist, will conduct grading at the Hollister Quarry mitigation site. Grading may be done concurrently with or after non-native plant removal.

The subsurface hydrology must be suitable for the riparian habitat. To that end, borings should be conducted to determine the water table depth and soils under the wetland mitigation areas. Geologic testing will be done to determine water table depth and soil texture in the proposed root zone. Ideally, piezometers should be installed, and groundwater depth should be monitored over the course of a year, prior to installation of the project. These should also be installed in the proposed depth root zone of the mitigation areas and compared to groundwater observations in extant habitat.

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