CHULA VISTA BAYFRONT SWEETWATER PARK PROJECT

HABITAT MITIGATION PLAN

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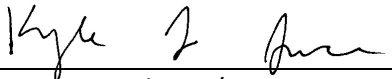

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1.0 INTRODUCTION

1.1. Purpose of the Report

Merkel & Associates, Inc. (M&A) has prepared this habitat mitigation plan (Mitigation Plan) for the proposed Chula Vista Bayfront (CVB) Sweetwater Park Project (Project). Implementation of the proposed Project would result in permanent impacts to Diegan coastal sage scrub, an upland sensitive vegetation community. Impacts to sensitive vegetation communities require implementation of a mitigation/restoration plan to offset impacts. Mitigation to offset significant impacts and preparation of this Mitigation Plan is a requirement of the Mitigation Measure (MM) BIO-1 of the *Biological Impact Analysis Report for the Sweetwater Park Project* (M&A 2023), which is consistent with MM 4.8-10 of the *Final Environmental Impact Report (FEIR) for the Chula Vista Bayfront Master Plan (CVBMP) and Port Master Plan Amendment* (Dudek 2010) as well as the controlling documents for the CVBMP (SDUPD 2010, 2012; Port 2016).

Implementation of the Project would result in permanent impacts to approximately 2.22 acres of Diegan coastal sage scrub including disturbed forms of this community. At a mitigation ratio of 3:1 and 1:1 (see Table 1 below), the total compensatory mitigation required is approximately 6.44 acres. Compensatory mitigation is proposed to occur via onsite establishment of approximately 5.14 acres of native upland scrub habitat, consisting of approximately 4.36 acres of maritime succulent scrub and 0.78 acres of Diegan coastal sage scrub. The compensatory mitigation would be established within the limits of the proposed Project, occurring predominantly along the western edge of the Project and within the 100-foot Transitional Use Buffer and 100-foot Limited Use Buffer. This Mitigation Plan provides guidelines for establishment of the upland native habitat including installation, 180-day plant establishment, and maintenance, monitoring and reporting during the minimum 5-year period with the goal of achieving the Year 5 success criteria. The remaining mitigation acreage requirement of approximately 1.30 acres would be fulfilled via allocation of available mitigation acreage at the Chula Vista Bayfront SP-1 mitigation site (i.e., the mitigation area currently being implemented by Sun Communities, Inc. on the RV Resort Project).

One alternative design footprint for Sweetwater Park comprised of three proposed additive bid alternates has been evaluated as part of the bid package (i.e., Bid Alternates). The impacts and corresponding mitigation for the Bid Alternates is also discussed within this Mitigation Plan.

This document has been developed in coordination with KTUA and serves to support the final construction bid landscape package.

1.2. Project Location

The Project is located within the boundary of the Chula Vista Bayfront Master Plan (CVBMP), within the City of Chula Vista on parcels under tidelands trust resource management by the San Diego Unified Port District (Port) and the City of Chula Vista. The Project occurs predominantly within the Sweetwater District of the CVBMP on Parcel S-2 and extends into portions of Parcel SP-1 (buffer) consisting of the 100-foot "Transitional Use Buffer" as well as the 100-foot "Limited Use Buffer"; however, it does not encroach into the 200-foot "No-Touch Buffer". The southern portion of the Project, south of the existing span bridge over the inlet channel to the F&G Street Marsh is located within the Harbor District. The Project lies within unsectioned lands, Township 18 South, Range 2

West of the San Bernardino Base and Meridian, U.S. Geological Survey 7.5' National City, California Quadrangle (Figure 1).

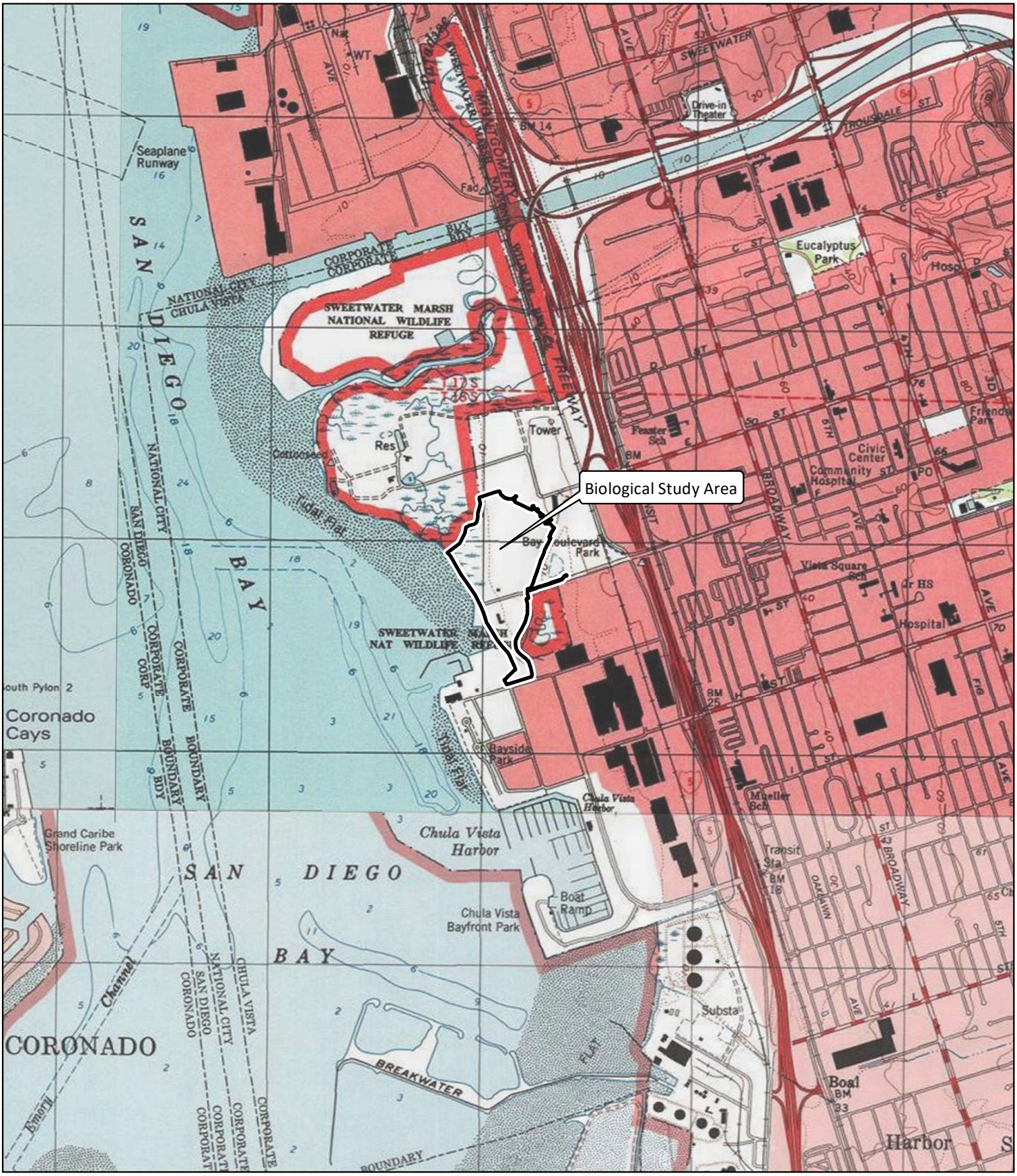
The Project site occurs between the open waters of San Diego Bay and Marina Parkway, south of Gunpowder Point Drive and north of G Street. It also occurs south of the recently constructed Sun Outdoors San Diego Bay RV Resort Project (RV Resort Project) and predominantly west of the recently constructed Sweetwater Bicycle Path and Promenade Bridge Project (Figure 2).

1.3. Project Description

The proposed Project is a new approximate 20-acre public park project focused on allowing users to explore habitats native to California via creation of the habitats within a park setting. Features include a network of pedestrian and bike-friendly trails connecting to the Bayshore Bikeway that would connect to the Sweetwater Bicycle Path and Promenade Bridge Project along with the trails around the RV Resort Project. Other key elements of the Project include a restroom, multiple parking lots and playground areas, picnic areas, and interpretive gardens and educational areas. As required, the Project includes stormwater management features including basins and dry creek drainage features, all contained within the Project area (i.e., no surface connection to the Bay or other jurisdictional water feature). Trails adjacent to project mitigation areas would be bordered by fencing (e.g., post-and-cable fencing). In addition, a chain link fence would be installed and meander along the western edge of the Project to prevent users from encroaching into the "No-Touch Buffer" zone.

The Project also includes creation of native upland habitat (i.e., maritime succulent scrub and Diegan coastal sage scrub) to serve as habitat mitigation to offset significant impacts to biological resources resulting from the Project (as documented within this report). The Project also includes enhancement of existing native habitats occurring onsite (i.e., Diegan coastal sage scrub) as well as creation of native habitats (e.g., Diegan coastal sage scrub and maritime succulent scrub); these areas are not classified as mitigation. M&A has worked with the KTUA Team to develop a native plant palette for both the compensatory and non-compensatory areas. While all areas are subject to a plant establishment period to be guaranteed by the Installation Contractor, the non-compensatory areas are not subject to the requirements of this Mitigation Plan.

The Project has been designed to connect with existing Bayfront elements including the Sweetwater Bicycle Path and Promenade Bridge Project, the trails around the existing RV Resort Project, and the Living Coast Discovery Center. It has also been designed with future CVBMP elements taken into consideration including the proposed Gaylord Chula Vista Resort and Convention Center Project as well as the Harbor Park Project. As applicable, Project components including chain link fencing, compensatory mitigation, non-compensatory habitat enhancement/creation, and park landscaping have been designed accordingly, while ensuring consistency with the FEIR and its associated controlling documents (listed in Section 1.5.3 of this report). The Project will not include invasive species as listed by the California Invasive Plant Council (Cal-IPC) in the California Invasive Plant Inventory.



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USGS Topography Map

Chula Vista Bayfront – Sweetwater Park Project

Source: USGS 7.5' National City, CA Quadrangle

Figure 1

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Aerial Vicinity Map

Chula Vista Bayfront – Sweetwater Park Project

Aerial Source: Maxar, March 2022

Revised on December 12, 2022

Figure 2

One design footprint for Sweetwater Park comprised of three proposed additive bid alternates has been evaluated as part of the bid package (i.e., Bid Alternates). The Bid Alternates include all of the park elements described above but expand upon the amenities including the nature and adventure playground areas, picnic areas, plazas, grading, trails, landscape and irrigation. The Bid Alternates also includes a dune area, an overlook mound and a growing grounds area for native plant propagation. The purpose of the growing grounds area is to provide a space for volunteers to learn about California native plant communities by growing supplemental native plant species to install in the Sweetwater Park as part of its ongoing maintenance. The total area associated with the Bid Alternates is approximately 24 acres.

Implementation of the Project is expected to occur following completion of the construction design documents. Construction is expected to occur over an approximate 12 month period.

1.3.1. Project Impacts and Required Mitigation

As detailed in the *Biological Impact Analysis Report for the Chula Vista Sweetwater Park Project* (M&A 2022), the following vegetation communities are considered sensitive and require mitigation to reduce impacts to less than significant: Diegan coastal sage scrub, disturbed forms of Diegan coastal sage scrub, in-progress non-compensatory restoration, (i.e., Diegan coastal sage scrub preserved/enhanced but not impacted or designated as compensatory mitigation as part of the Sweetwater Bicycle Path and Promenade Bridge Project), and in-progress compensatory mitigation. Table 1 quantifies the Project impact (base bid design) and required mitigation while Figure 3 depicts the impacts. The mitigation ratios listed in Table 1 are defined by the FEIR and the controlling documents for the CVBMP. Where conflicts occur between the documents, M&A has applied the highest ratio (i.e., 3:1).

Table 1. Impacts to Vegetation Communities and Required Mitigation

Vegetation Community	Total Significant Impact from Proposed Project (acres)	Mitigation Ratio	Acreage Mitigation Requirement
Diegan coastal sage scrub	1.18	3:1	3.54
Diegan coastal sage scrub - disturbed	0.38	3:1	1.14
Diegan coastal sage scrub (Impacted from Utility Work)[1]	0.05	3:1	0.15
Diegan coastal sage scrub - disturbed (Impacted from Utility Work)[1]	0.47	3:1	1.41
In-progress non-compensatory restoration[2]	0.03	3:1	0.09
In-progress compensatory restoration[3]	0.11	1:1	0.11
Total:	**2.22**	**---**	**6.44**

[1] Impacts from project-related utility needs. Impacts already incurred; conducted concurrent with the implementation of the Sweetwater Bicycle Path and Promenade Bridge Project.

[2] In-progress non-compensatory/native habitat restoration is mapped for areas of native Diegan coastal sage scrub that were preserved/enhanced with the Sweetwater Bicycle Path and Promenade Bridge Project but not impacted or designated as compensatory mitigation as part of the Sweetwater Bicycle Path and Promenade Bridge Project. The proposed Project will now result in minor impacts to this community.

[3] In-progress compensatory restoration is mapped for areas that serve as mitigation for the Sweetwater Bicycle Path and Promenade Bridge Project. Because the mitigation is still within the Year 5 program, the replacement ratio has been set at 1:1.

Implementation of the Bid Alternates would result in similar direct impacts as discussed above with the exception that impacts to vegetation communities would increase in acreage. Impacts are quantified in Table 2 below and depicted in Figure 4. Impacts to Diegan coastal sage scrub, disturbed Diegan coastal sage scrub, in-progress restoration, and in-progress compensatory restoration are significant per the CVBMP FEIR and would require mitigation at a 3:1 ratio (Figure 6a and Figure 7).

Table 2. Habitats/Vegetation Communities, Impacts, and Mitigation – Bid Alternates

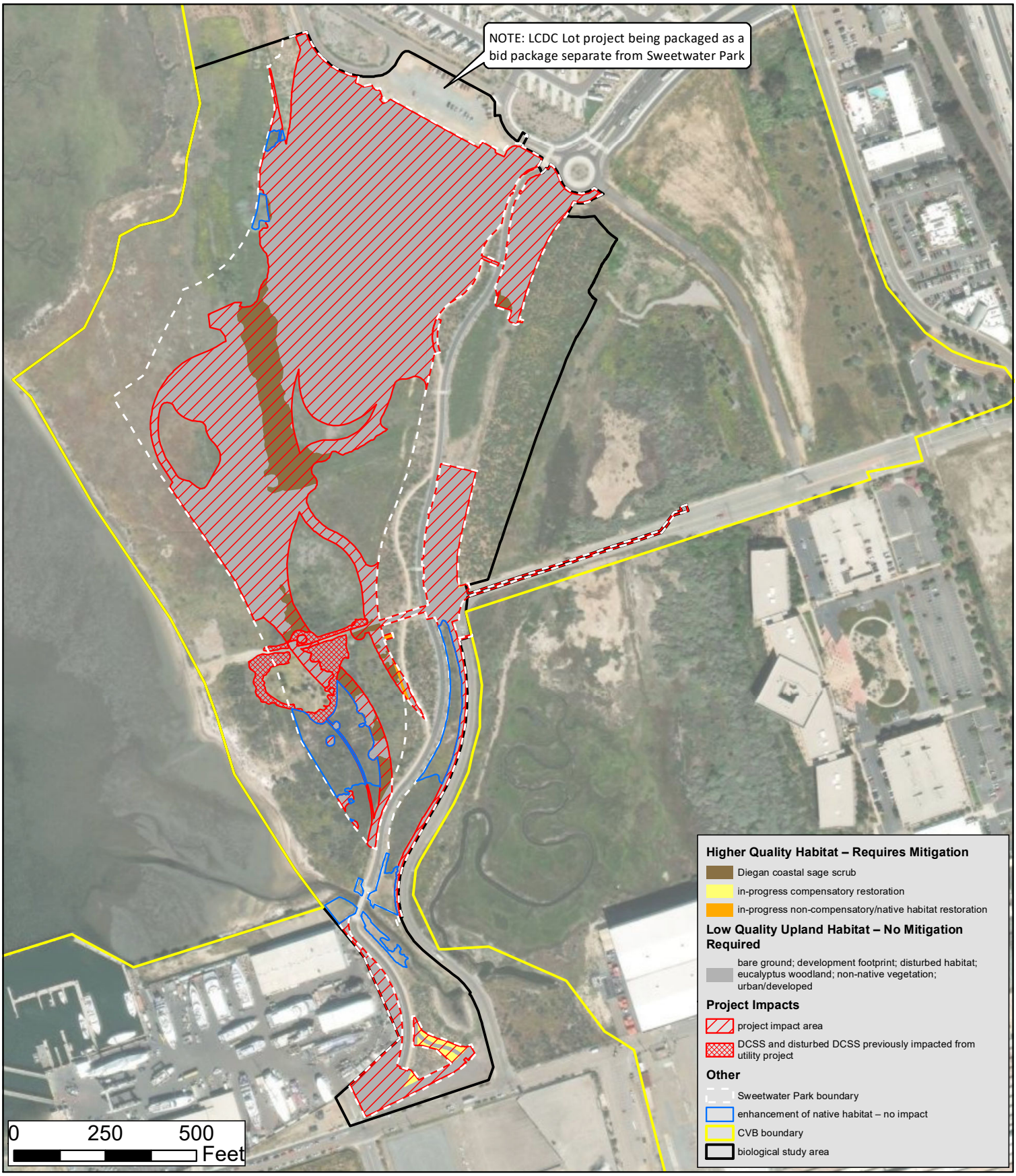
Vegetation Community	Total Significant Impact from Bid Alternates (acres)	Mitigation Ratio	Mitigation Required
Diegan coastal sage scrub	1.21	3:1	3.63
Diegan coastal sage scrub - disturbed	0.69	3:1	2.07
Diegan coastal sage scrub (Impacted from Utility Work)[1]	0.05	3:1	0.15
Diegan coastal sage scrub - disturbed (Impacted from Utility Work)[1]	0.47	3:1	1.41
In-progress non-compensatory restoration[3]	0.03	3:1	0.09
In-progress compensatory restoration[4]	0.11	1:1	0.11
Total:	**2.56**		**7.46**

[1] Impacts from project-related utility needs. Work already incurred; conducted concurrent with the implementation of the Sweetwater Bicycle Path and Promenade Bridge Project.

[2] In-progress development mapped for landscaped areas associated with the Sweetwater Bicycle Path and Promenade Bridge Project.

[3] In-progress non-compensatory/native habitat restoration is mapped for areas of native Diegan coastal sage scrub that were preserved/enhanced by the Sweetwater Bicycle Path and Promenade Bridge Project but not impacted or designated as compensatory mitigation as part of the Sweetwater Bicycle Path and Promenade Bridge Project. The proposed Project will now result in minor impacts to this community.

[4] In-progress compensatory restoration is mapped for areas that serve as mitigation for the Sweetwater Bicycle Path and Promenade Bridge Project. Because the mitigation is still within Year 1 of a Year 5 program, the replacement ratio has been set at 1:1 to ensure a no-net-loss.



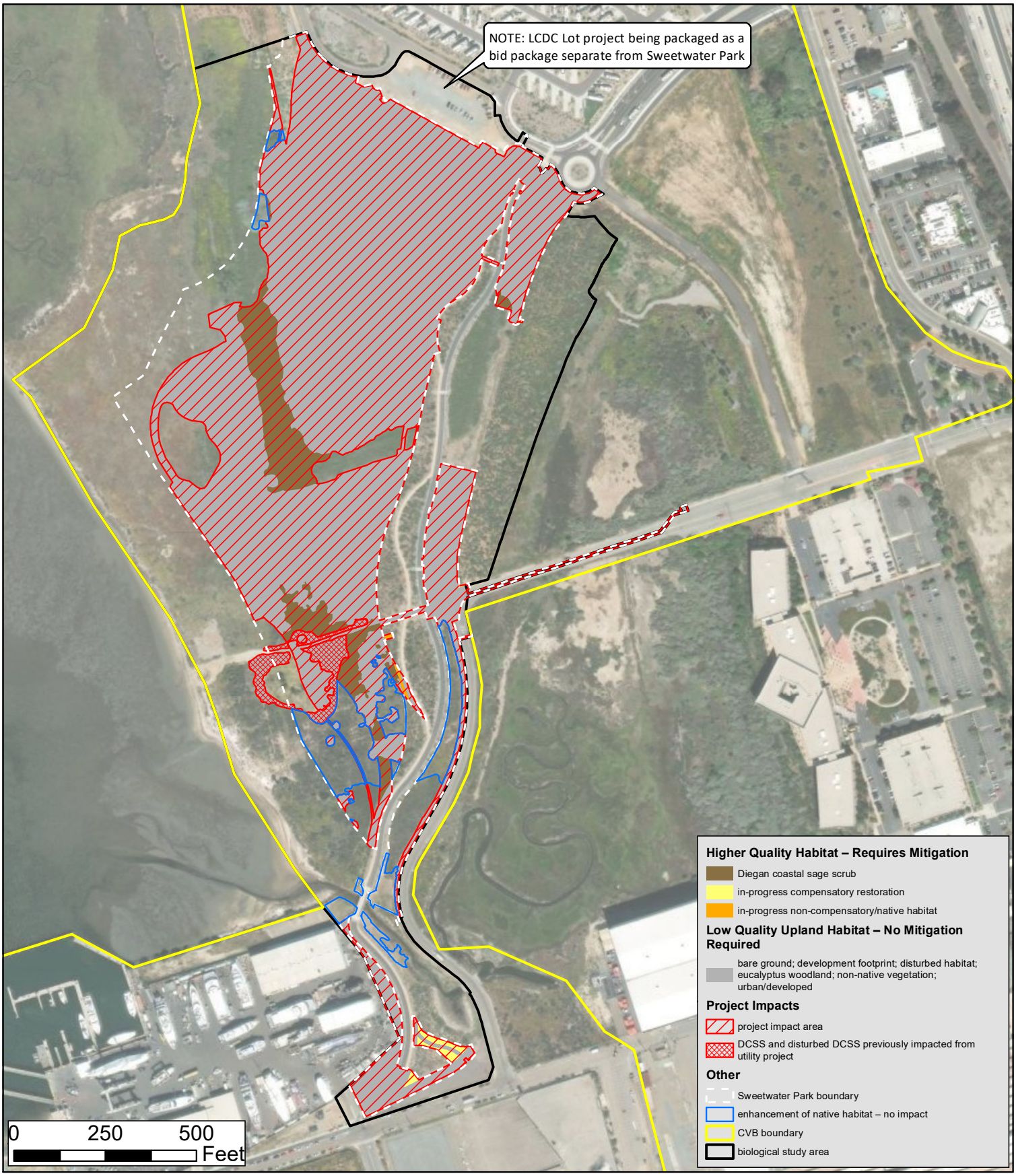
Biological Impacts Map, Areas that Require Habitat-Based Mitigation

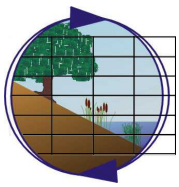
Chula Vista Bayfront – Sweetwater Park Project

Aerial Source: Maxar, March 2022

Revised on December 12, 2022

Figure 3





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Biological Impacts Map - Bid Alternates, Areas that Require Habitat-Based Mitigation

Chula Vista Bayfront – Sweetwater Park Project

Aerial Source: Maxar, March 2022

Revised on December 12, 2022

Figure 4

2.0 COMPENSATORY MITIGATION

2.1. Proposed Mitigation

The mitigation for impacts to Diegan coastal sage scrub will be accomplished through the onsite creation of maritime succulent scrub and Diegan coastal sage scrub via conversion of disturbed habitat to native scrub habitats. The mitigation associated with the proposed Project (i.e., base bid) is quantified in Table 4 and depicted in Figure 5. The mitigation for the Bid Alternates is quantified in Table 5 and depicted in Figure 6. The disturbed areas are currently dominated by non-native forbs such as crown daisy (*Glebionis coronaria*), crystalline iceplant (*Mesembryanthemum* crystallinum), short-leaved iceplant (*M. nodiflorum*), fennel (*Foeniculum vulgare*), short-pod mustard (*Hirschfeldia incana*), tocalote (*Centaurea melitensis*), Australian saltbush (*Atriplex semibacatta*), Lindley's salt bush (*Atriplex lindleyi*), five-hook bassia (*Bassia hyssopifolia*), and various non-native grasses including hare barley (*Hordeum murinum* ssp. *leoporinum*) and red brome (*Bromus madritensis* ssp. *rubens*).

Table 3. Proposed On-site Mitigation

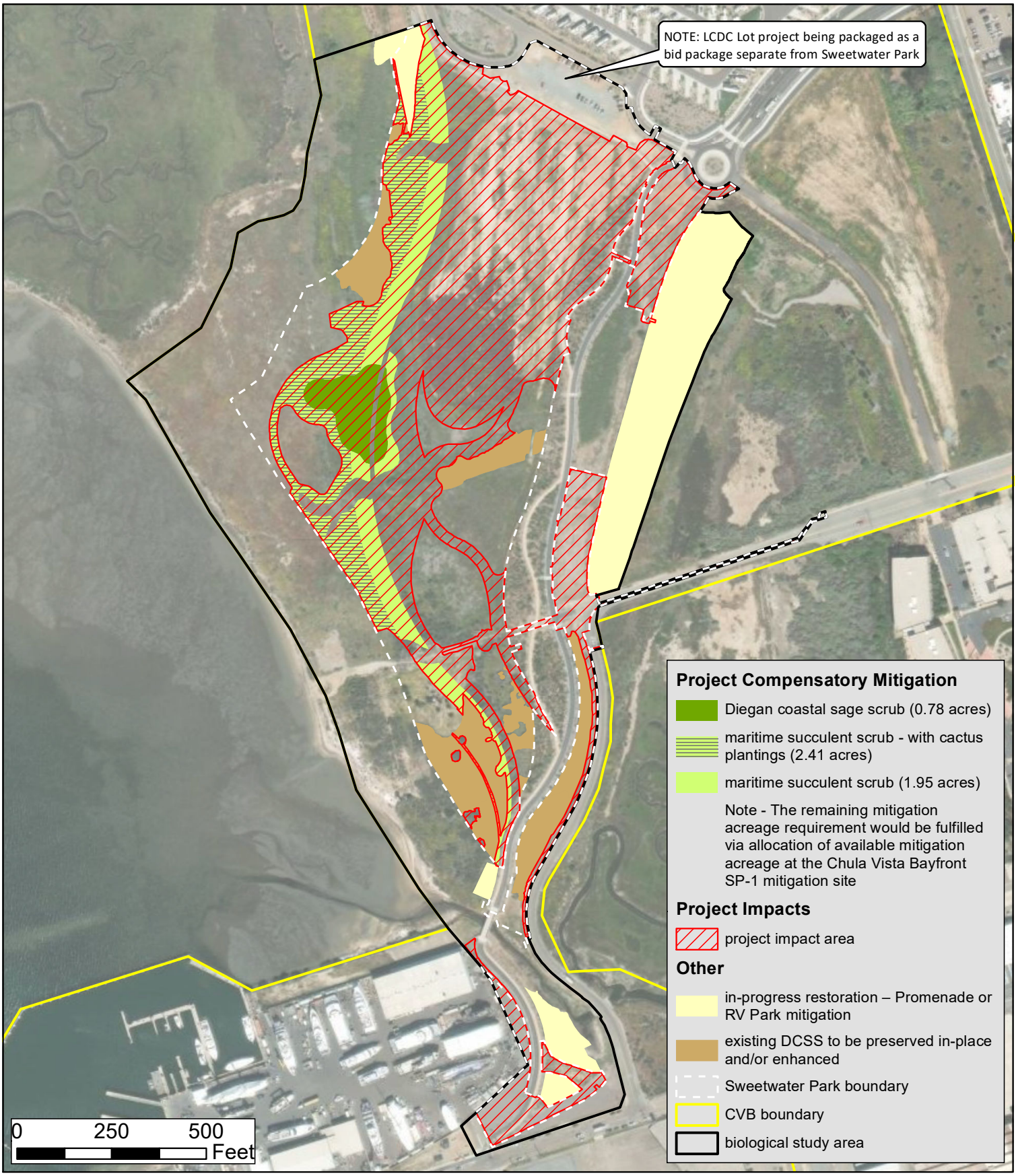
Vegetation Community	Proposed Mitigation Acreage
Maritime succulent scrub	4.36
Diegan coastal sage scrub	0.78
Total:	**5.14**

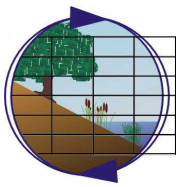
Table 4. Proposed On-site Mitigation – Bid Alternates

Vegetation Community	Proposed Mitigation Acreage
Maritime succulent scrub	4.26
Diegan coastal sage scrub	1.04
Total:	**5.30**

Maritime succulent scrub would include native drought deciduous shrubs such as coastal sagebrush (*Artemisia calfornica*), California encelia (*Encelia californica*), San Diego sunflower (*Bahiopsis laciniata*), California desert thorn (*Lycium californicum*), and common desert thorn (*Lycium brevipes* var. *brevipes*). Evergreen shrubs such as jojoba (*Simmondsia chinensis*) and lemonadeberry (*Rhus integrifolia*) would also be included as well as various stem succulents such as cliff spruge (*Euphorbia misera*) and sea dahlia (*Leptosyne maritima*) along with a limited inclusion of cacti species which are found in local maritime succulent scrub habitat.

In addition to the maritime succulent scrub, Diegan coastal sage scrub would be created onsite. The coastal sage scrub habitat would include drought deciduous species such as coastal sagebrush, California buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*), white sage (*Salvia apiana*), and black sage (*Salvia mellifera*). Lower growing sub-shrubs such as wishbone bush (*Mirabilis laevis* var. *crassifolia*) and golden yarrow (*Eriophyllum confertiforum* var. *confertiflorum*) will also be planted in this habitat.





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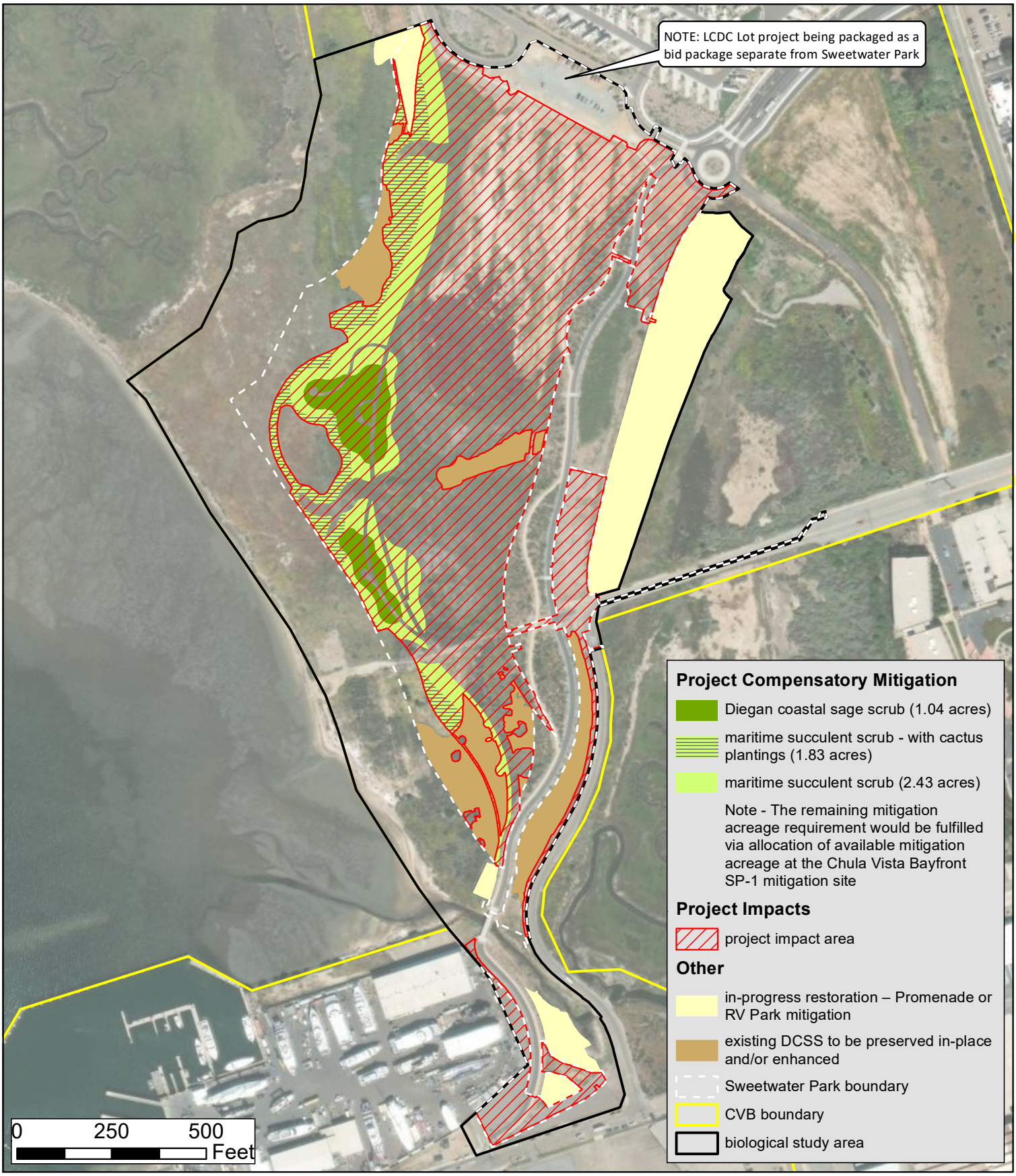
Compensatory Mitigation Map

Chula Vista Bayfront – Sweetwater Park Project

Aerial Source: Maxar, March 2022

Revised on December 12, 2022

Figure 5



Compensatory Mitigation Map - Bid Alternates

Chula Vista Bayfront – Sweetwater Park Project

Aerial Source: Maxar, March 2022

Revised on December 12, 2022

Figure 6

In accordance with MM BIO-3 of the *Biological Impact Analysis Report for the Sweetwater Park Project* (M&A 2021), which is consistent with MM 4.8-1, 4.8-2, and 4.8-3 of the FEIR, if implementation of the proposed mitigation occurs during the migratory bird breeding season (January 15 – August 31), a pre-construction survey for active migratory bird nests (including raptors, burrowing owl, or other migratory birds) shall be conducted no more than 10 calendar days prior to the start of construction, the results of which must be submitted to the Port, for review and approval. If an active migratory bird nest were found, then all construction activities undertaken for the project would comply with regulatory requirements of the federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Codes §3503 and §3513. A buffer zone would be established around any identified nests and no construction activities would occur within this buffer zone while the nest is active.

In accordance with MM BIO-4 of the *Biological Impact Analysis Report for the Sweetwater Park Project* (M&A 2021), consistent with MM 4.8-6 of the FEIR, when adjacent to the Sweetwater Marsh National Wildlife Refuge, construction-related noise could affect special status species within the marsh habitat, if present. As a result, construction-related noise shall be limited when adjacent to the Sweetwater Marsh National Wildlife Refuge during the general avian breeding season of January 15 to August 31. During the avian breeding season, noise levels from construction activities must not exceed 60 dB(A) Leq., or ambient noise levels if higher than 60 dB(A). The project developer(s) should prepare and submit to the Port for review and approval an acoustical analysis and nesting bird survey to demonstrate that the 60 dB(A) Leq. Noise level is maintained at the location of any active nest within the marsh. If noise attenuation measures or modifications to construction activities are unable to reduce the noise level below 60 dB(A), either the developer(s) must immediately consult with the USFWS to develop a noise attenuation plan or construction in the affected areas must cease until the end of the breeding season.

2.2. Purpose and Goals

The goal of the compensatory mitigation program is to offset Project impacts to sensitive vegetation communities by converting areas that occur on the west side of the Project and that are contiguous with the No-Touch Buffer Zone/future location for additional native habitat restoration. These restoration areas are comprised of land that is mapped as disturbed habitat. As feasible, special status plant species within this area (e.g., California desert/box thorn and woolly seablite (*Suaeda taxifolia*) would be protected in place.

Plant palettes and densities provided in this Mitigation Plan were designed to mimic local maritime succulent scrub and Diegan coastal sage scrub habitats. Restoration proposed in this Mitigation Plan will provide higher quality habitat, foraging opportunities, and cover for a variety of native wildlife species. Additionally, the proposed mitigation will substantially reduce non-native vegetative weed cover and propagules (i.e., seed) to deter expansion of weed growth in the area.

3.0 IMPLEMENTATION PLAN FOR THE COMPENSATORY MITIGATION

3.1. Responsible Parties

The Port is financially responsible for the implementation, maintenance, monitoring, and success of this Mitigation Plan and is the vested owner of the land underlying the mitigation. The Port is also financially responsible for the long-term management of the compensatory mitigation area.

The Port is responsible for retaining a qualified Landscape Architect to prepare construction plans as well as a Restoration Specialist and Revegetation Contractor to implement the installation, maintenance, and monitoring programs.

The Port has retained KTUA, a qualified Landscape Architect to prepare the construction plan set. The plan set includes sheets specific to site preparation, installation of a temporary irrigation system, installation of plant material, along with all associated notes for these tasks. M&A is working closely with the KTUA team to ensure that this Mitigation Plan and the construction documents are consistent.

The Restoration Specialist refers to someone with at least 5 years of experience performing successful habitat restoration in Southern California including Port Environmental Conservation staff and Port-approved biological consultants. The Restoration Specialist shall be familiar with both native and weed species and be trained and experienced in control of exotics. The Restoration Specialist shall have a Bachelor of Science degree in either ecology, biology, botany, natural resources management, or a closely related field and will ensure the restoration effort is installed in accordance with this Mitigation Plan, the environmental approvals and controlling documents, and the final approved construction drawings. As outlined below, the Restoration Specialist will oversee restoration installation and maintenance, and would complete five years of monitoring and reporting duties. The Restoration Specialist would be under contract with the Port or its designated representative.

The Restoration Contractor refers to a person or entity that has a valid California landscape contractor's license, Class C-27, and at least 5 years of experience performing native habitat restoration services in the Southern California region. The contractor shall be familiar with weeds and invasive species and have in-depth experience and training in controlling wildland weeds within sensitive habitat areas. The Restoration Contractor shall have a Qualified Pesticide Applicator's License or Pesticide Applicators' Certificate issued by the California Department of Pesticide Regulation. The contractor shall provide verification of experience and provide copies of licenses upon request. The Restoration Contractor would provide installation and maintenance services throughout the minimum 5-year period and be under contract with the Port or its designated representative.

3.2. Schedule

Implementation of this Mitigation Plan shall occur during the late fall/ early winter months to take advantage of the rainy season and the proper time of year in which native plants establish and grow. Table 5 identifies the anticipated implementation schedule of this revegetation plan.

Table 5. Anticipated Implementation Schedule

Task	Dates
Site Preparation[1]	Within 30 days of permit issuance or notice to proceed
Irrigation System Installation[1]	Within 14 days of completion of site preparation
Plant Installation	Within 14 days of completion of irrigation installation and final grow-kill
As-Built Conditions Letter	Within 30 days of final planting
Annual Monitoring Reports	Yearly prior to December 31 of each year post-implementation

[1] Grow-kill cycles would be completed during the Site Preparation and Irrigation System Installation phases of the mitigation project with the intent of conducting all grow-kill cycles prior to the Plant Installation phase. More information about the grow-kill cycles is provided in Section 3.3 of this Mitigation Plan.

3.3. Site Preparation

Following site grading, soil samples shall be collected to ten inches, at a rate of approximately one sample per acre at the direction of the Restoration Specialist. The soil samples shall be submitted to a qualified soil testing laboratory and tested for pH, salinity, sodium absorption ratio (SAR), and nutrient levels, including micro-nutrients, texture analysis, and organic content. The soil laboratory would make recommendations for soil amending, if needed. The project Restoration Specialist shall review these recommendations and would make a final determination as to soil amendments or provide substitutions for appropriate habitat specific native species that are better adapted to existing soil conditions.

Initial site preparation includes removal of all trash, debris, and weeds, including invasive trees and shrubs, from the soil surface. Seed heads from especially invasive species including pampas grass (*Cortaderia* spp.), tree tobacco (*Nicotiana glauca*), and castorbean (*Ricinus communis*) will be removed and properly disposed of prior to mechanical clearing and grubbing activities so as to avoid spreading of seed. All vegetative weed growth will be cleared and removed from the site. This includes all iceplant species such as crystalline iceplant and short-leaved iceplant which leach accumulated salt from their leaves and create hyper-saline soil conditions.

After the site has been cleared and grubbed, the site shall be graded as per plan and then ripped to a depth of 12 inches to reduce compaction. Based on the laboratory testing results and recommendations from the Restoration Specialist, soil amendment (if necessary) would be conducted following site clearing, weeding, and ripping work.

A total of five grow-kill cycles shall be conducted prior to planting in order to reduce the seed bank of non-native species within the soil. The cycles will occur as follows but may be adjusted to ensure accomplishing 5 cycles within the construction schedule:

- Grow-Kill Cycle #1: Following winter rains and initial germination of weeds (December/January),
- Grow-Kill Cycle #2: Should occur during early spring (March),
- Grow-Kill Cycle #3: During mid spring (April),

- Grow-Kill Cycle #4: During late spring (May/June), and
- Grow-Kill Cycle #5: During early summer following growth of summer annual weeds (July).

Whenever possible, the site's irrigation system shall be used to initiate weed germination. The Restoration Specialist would work with the Restoration Contractor to determine the appropriate time for herbicide application following weed germination.

3.4. Planting Plan

The mitigation planting plan has been designed to establish maritime succulent scrub and Diegan coastal sage scrub in areas that were previously disturbed habitat. Plant species to be utilized onsite are provided in Tables 4 and 5. Species were selected based upon existing maritime succulent scrub and Diegan coastal sage scrub habitats in the local area including those species that have been successful in establishing at the adjacent mitigation sites for the RV Resort and the Sweetwater Bicycle Path and Promenade Bridge Projects. Plant layout shall follow templates provided in the landscape constructions drawings that will accompany this Mitigation Plan. Whenever feasible, container plants shall be propagated from local plants (i.e., within the same sub-watershed) found within the coastal region of San Diego County, as approved by the Restoration Specialist. The Restoration Specialist shall approve the plant material at the nursery during the contract grow period and upon delivery at the site to ensure proper container root development.

3.5. Soil Preparation

Prior to planting, soils shall be evaluated for compaction with a target of not greater than 75% compaction within the top 18 inches of the soils surface. Soil shall be free of trash, debris, or large rocks that would effectively interfere with plantings.

3.6. Planting Palettes

The proposed planting palette for the mitigation areas (regardless of which design, the base bid or Bid Alternates is selected) are provided in Table 6 and Table 7. Planting quantities and locations shall follow the landscape construction drawings with final layout approval by the Restoration Specialist. Any required modifications to planting layouts or plant materials based on the site conditions revealed during the installation would be made at this time. All cacti will be planted a minimum of 50 feet west of the site's proposed western lodge-pole fence and/or public path in this location. After installation, the site would be maintained by the Restoration Contractor for a 180-day plant establishment period. An additional maintenance and monitoring program would extend for a period of at minimum 5-years from the time of installation in order to foster establishment and verify habitat development in accordance with progress milestones.

The standard procedure for planting container stock shall be to dig a hole, which is equal to the depth and approximately twice the width of the rootball. Immediately prior to planting, the hole shall be filled with water and allowed to drain. The plant shall then be positioned so that the surface of the rootball is slightly above ground level. The hole shall then be backfilled with the native soil. An earthen watering basin shall be created in a two-foot diameter around each rootball. Soil within the watering basin shall slope away from the root ball crown to ensure that water does not pond over the rootball. The plant shall then be deep watered by hand immediately following planting.

Table 6a. Maritime Succulent Scrub Plant Palette Within Accepted Area of Cacti

Species	Common Name	Unit Size	Spacing	% Cover
Agave shawii	Coastal Sagebrush	1-gallon	4' O.C.	3.5
Artemisia californica	Coastal Sagebrush	1-gallon	3' O.C.	25.0
Bahiopsis laciniata	San Diego Sunflower	1-gallon	3' O.C.	8.0
[1]*Bergerocactus emoryi*	Velvet Cactus	1-gallon	4' O.C.	5.0
Dudleya edulis	Lady-fingers Dudleya	1-gallon	1' O.C.	1.0
Dudleya lanceolata	Lance-leaf Dudleya	1-gallon	1' O.C.	1.0
Dudleya pulverulenta	Chalk Dudleya	1-gallon	1' O.C.	1.0
Encelia californica	California Encelia	1-gallon	3' O.C.	5.0
Eriogonum parvifolium	Sea Cliff Buckwheat	1-gallon	3' O.C.	5.0
Euphorbia misera	Cliff Spurge	1-gallon	3' O.C.	10.5
[1]*Ferocactus viridescens*	Coast Barrel Cactus	1-gallon	2' O.C.	3.0
Isocoma menziesii var. *decumbens*	Decumbent Goldenbush	1-gallon	3' O.C.	2.0
Isomeris arborea	Bladderpod	1-gallon	3' O.C.	2.0
Leptosyne maritima	Sea Dahlia	1-gallon	3' O.C.	2.0
Lycium brevipes var. *brevipes*	Common Desert Thorn	1-gallon	6' O.C.	2.0
Lycium californicum	California Desert Thorn	1-gallon	3' O.C.	10.0
Simmondsia chinensis	Jojoba	1-gallon	3' O.C.	10.0
Yucca schidigera	Mojave Yucca	1-gallon	3' O.C.	4.0
Total:				**100**

[1] Cacti species are to be planted a minimum of 50 feet to the west of the site's western lodge-pole fence and/or public path.

Table 6b. Maritime Succulent Scrub Plant Palette Outside Accepted Area of Cacti

Species	Common Name	Unit Size	Spacing	% Cover
Agave shawii	Coastal Sagebrush	1-gallon	4' O.C.	3.5
Artemisia californica	Coastal Sagebrush	1-gallon	3' O.C.	30.0
Bahiopsis laciniata	San Diego Sunflower	1-gallon	3' O.C.	8.0
Dudleya edulis	Lady-fingers Dudleya	1-gallon	1' O.C.	1.0
Dudleya lanceolata	Lance-leaf Dudleya	1-gallon	1' O.C.	1.0
Dudleya pulverulenta	Chalk Dudleya	1-gallon	1' O.C.	1.0
Encelia californica	California Encelia	1-gallon	3' O.C.	5.0
Eriogonum parvifolium	Sea Cliff Buckwheat	1-gallon	3' O.C.	5.0
Euphorbia misera	Cliff Spurge	1-gallon	3' O.C.	10.5
Isocoma menziesii var. *decumbens*	Decumbent Goldenbush	1-gallon	3' O.C.	2.0
Isomeris arborea	Bladderpod	1-gallon	3' O.C.	2.0
Leptosyne maritima	Sea Dahlia	1-gallon	3' O.C.	2.0
Lycium brevipes var. *brevipes*	Common Desert Thorn	1-gallon	6' O.C.	2.0
Lycium californicum	California Desert Thorn	1-gallon	3' O.C.	10.0
Simmondsia chinensis	Jojoba	1-gallon	3' O.C.	13.0
Yucca schidigera	Mojave Yucca	1-gallon	3' O.C.	4.0
Total:				**100**

Table 7. Diegan Coastal Sage Scrub Palette

Species	Common Name	Unit Size	Spacing	% Cover
Artemisia californica	California Sagebrush	1-gallon	3' O.C.	45
Encelia californica	California Encelia	1-gallon	3' O.C.	15
Eriogonum fasciculatum var. fasciculatum	California Buckwheat	1-gallon	3' O.C.	15
Eriophyllum confertifolium	Golden Yarrow	1-gallon	2' O.C.	2
Heteromeles arbutifolia	Toyon	5-gallon	6' O.C.	3
Mirabilis laevis var. *crassifolia*	California Four-O-Clock	1-gallon	2' O.C.	2
Rhus integrifolia	Lemonade Berry	5-gallon	7' O.C.	3
Salvia apiana	White Sage	1-gallon	40" O.C.	10
Salvia mellifera	Black Sage	1-gallon	48" O.C.	5
Total:				**100**

3.7. Irrigation Plan

The irrigation shall be limited to a buried mainline with above ground lateral lines and overhead rotor sprinklers. Quick coupler valves will be installed at each valve manifold to allow for deep watering during installation and to supplement overhead irrigation, if needed. Plants will be planted during the early winter months to take advantage of seasonal precipitation and the season in which native plants establish best. Deep soaking of each plant basin will occur on an as-needed basis during the first one to two years to ensure plant establishment. Watering will supplement rainfall during the winter and spring months and will only occur if needed during the summer months, when native plants are naturally dormant and susceptible to root rot. Coastal air moisture is expected to benefit establishing the native plants, reducing the need for frequent watering.

Watering will cease a minimum of two years prior to the termination of the monitoring program. Upon signoff, the system will be abandoned and the mainline will be disconnected and capped at its point of connection and left buried below grade. All above grade components (i.e., pvc laterals and sprinklers) and subsurface valves/boxes will be removed and properly disposed of after the 5-year maintenance and monitoring period.

3.8. Erosion Control

The container plants will provide erosion control for the mitigation areas, which are generally flat. Biodegradable fiber rolls will be installed for sediment control throughout the site. Fiber rolls should not contain plastic netting and should be certified free of noxious weeds. The locations of the Best Management Practices (BMPs) will be shown on the final construction plans and the Project Stormwater Pollution Prevention Program (SWPPP) or similar document. All temporary erosion control BMPs shall be removed once the area has been determined to be stabilized by native vegetation.

3.9. Construction Plans

A set of landscape restoration construction documents (i.e., plans and specifications) have been prepared by KTUA, a California registered landscape architect. This Mitigation Plan has been

developed in conjunction with these required plans. Plans and specifications shall be prepared in accordance with the CVBMP FEIR, all applicable project approvals including the controlling documents. A detailed construction cost estimate will be provided with the final submittal of the landscape construction documents.

3.10. Cost Estimate

Preliminary estimated costs for the mitigation effort are provided in the following table.

Table 8. Preliminary Estimated Installation and 5-Year Program Costs

Task	Estimated Cost
Site Preparation[1]	$134,095
Site Irrigation System	$245,288
Site Planting	$523,143
5-Years Maintenance	$97,004
Mitigation Monitoring[2]	$84,000
Total:	**$1,083,530**

[1] Includes five grow-kill cycles.

[2] Includes installation, 180-day plant establishment, and 5-Year Monitoring.

4.0 MAINTENANCE ACTIVITIES DURING THE MONITORING PLAN

4.1. Maintenance Activities

Maintenance activities shall occur within the mitigation area throughout the 180-day plant establishment period and the subsequent 5-year maintenance and monitoring period under the direction of the Restoration Specialist.

4.2. Site Protection - Fencing/Signage

A lodge-pole type fence is proposed along the trail systems that are located immediately adjacent to the compensatory mitigation areas. The fencing is intended to discourage trail users from unauthorized access into the mitigation areas. In addition, a permanent chain link fence would be installed as part of the proposed Project which will meander along the western edge of the Project (throughout the Transitional Use Buffer and Limited Use Buffer) to prevent users from encroaching into the No-Touch Buffer Zone. The chain link fencing shall connect with the existing fencing similarly installed for the adjacent RV Resort. Fencing costs (lodge-pole and chain link) are not included in the restoration cost estimate. Gate access shall be installed at various distances within the chain link fence to provide access for maintenance crews to maintain compensatory mitigation areas west of the chain link fence.

Signage shall be posted and maintained along the trail, to discourage entry into the mitigation area.

4.3. Trash and Debris Removal

The mitigation area will remain trash and debris free throughout the establishment period and 5-year monitoring period. All trash and debris shall be removed and disposed of properly at a certified landfill site.

4.4. Weed Control

Weed abatement shall occur throughout the mitigation area on an as-needed basis during site establishment. Most weeding occurs during the winter and spring months following rainfall when the target plants are actively growing. At a minimum, weeding is expected to occur biweekly during the initial 180-days, monthly for the remainder of Year 1, bi-monthly in Year 2, quarterly in Year 3, and quarterly in Year 4. Prescriptive spot weeding is anticipated to be required in Year 5.

Weed abatement will be performed with the intent to remove all non-native plants with a High invasive rating by Cal-IPC and to control particularly noxious or competitive species that may inhibit the growth of desirable native vegetation. Other weedy plants that invade the mitigation site in prohibitive numbers shall be removed if they pose a significant threat to the growth or survival of target vegetation. Weed control will emphasize removal of noxious plant species such as stinkwort (*Dittrichia graveolens*) and stinknet (*Oncosiphon pilulifer*) which are two invasive species recently introduced to the South Bay area. All seed heads shall be cut, removed and bagged prior to complete removal of the species. All weed propagules will be disposed of at an approved landfill site.

Application of herbicide shall only be used if approved by Port Environmental Conservation and Guest Experiences staff. Port staff and/or the Restoration Specialist must be present when

herbicide is applied to monitor wind conditions. Any herbicide used must align with Proposition 65 and Port Integrated Pest Management Policy so Port staff must approve herbicide use and type. Herbicide should only be applied in the early morning to prevent wind-aided impacts of herbicide to nearby natives. Any herbicide treatment must be applied under the supervision of a licensed pest-control applicator.

4.5. Horticultural Treatments

The purpose of the mitigation effort is to re-establish native southern maritime chaparral and Diegan coastal sage scrub in an area that was likely once occupied by this plant community. Horticultural treatments (*e.g.,* pruning, fertilizing, staking) are typically not conducive to establishment of native habitats. The Restoration Specialist must approve any special treatments.

4.6. Irrigation Maintenance

The irrigation system shall be maintained in a fully operable condition throughout the duration of the plant establishment period during which time the system is operated. Initially, watering is anticipated 2 to 3 times per week to provide adequate soil moisture for establishing plants. The Restoration Specialist and Port Guest Experiences staff shall determine revised irrigation schedules during qualitative site visits made during the establishment period. Watering schedules will vary to correspond to seasonal weather, changing site conditions, and plant growth. Watering during the summer months when native plants are dormant will only occur if necessary for plant establishment. Watering will completely cease after Year 3 to promote plant acclimation to native conditions. Inspections will be conducted routinely, and all necessary repairs will occur promptly to ensure establishment of the target vegetation.

4.7. Replacement Plantings

Dead plants shall be replaced with container grown plants of similar type and size in accordance with need. Where micro-habitat conditions are more favorable for growth of a different native species of similar character (i.e., tree, shrub), plant substitutions, as directed by the Restoration Specialist, may be made from the list of plants originally selected for onsite planting. No substitutions shall be made in plant species or material size without concurrence of the Restoration Specialist.

4.8. Pest Management

Pest management of native habitats is typically limited to controlling herbivory from native wildlife including rabbits, deer, ground squirrels, and gophers. Pest Management may include installing foliage cages to protect above and/or below ground plant growth until plants have become fully established. Browsing by desert cottontail (*Sylvilagus audubonii sanctidiegi*) has been evident at mitigation areas of both the RV Resort and the Sweetwater Bicycle Path and Promenade Bridge Projects. The young leaves and stems of California sagebrush, boxthorn (*Lycium* spp.) and coast prickly pear (*Opuntia littoralis*) had been most affected by browsing at these sites. Many of the browsed plants were able to regrow from their basal stems and survive the browsing. As the plants matured at these sites, the leaves became unpalatable by cottontails. If needed, the Restoration Specialist and Port Guest Experiences staff will provide all necessary recommendations regarding pest management.

4.9. Schedule

As mentioned previously, weeding is expected to occur biweekly during the initial 180-days of establishment, and at a minimum monthly for the remainder of Year 1, bi-monthly in Year 2, quarterly in Year 3, and quarterly in Year 4. Unscheduled targeted weed control may be required in Year 5. The weeding effort shall be concentrated during the late winter and spring months when rainfall promotes non-native growth. Weed growth is expected to be relatively less than typical landscape areas that require greater amounts of water.

The irrigation system shall be maintained in a fully operable condition throughout the duration of its use. The irrigation system should be inspected during each weeding event.

Initially, watering is anticipated to occur 2 to 3 times per week to provide adequate soil moisture for plant establishment. The Restoration Specialist shall determine watering schedules during qualitative site visits made during the establishment period. Watering will vary to correspond to seasonal weather, changing site conditions, and plant growth. Watering is expected to completely cease after year three years to further promote plant acclimation to native hydrological conditions.

5.0 MONITORING PLAN FOR THE COMPENSATORY MITIGATION

5.1. Performance Standards for Target Dates and Success Criteria

Progress milestones have been established to track the Project's status and to facilitate a successful compensatory mitigation project (Table 9). Each milestone is accompanied by the maintenance required if the Project fails to reach the goals. Monitoring shall be completed for a minimum of five years or longer until success criteria are met or until alternative compensatory mitigation is agreed upon.

5.2. Target Functions and Values

This Mitigation Plan focuses on creating maritime succulent scrub and Diegan coastal sage scrub habitats in proposed graded areas that were previously mapped as disturbed habitat. This Mitigation Plan targets creating foraging opportunities and cover for native wildlife species in restored areas.

5.3. Monitoring Methods

Monitoring shall include both qualitative and quantitative surveys. The purpose of the qualitative surveys is to ensure that the proper maintenance and establishment procedures are followed. The purpose of the quantitative surveys is to measure the vegetative cover and development of the site to determine its compliance with the success milestones.

5.4. Qualitative Surveys

Qualitative surveys, consisting of a general site walkover and habitat characterization shall be completed during each monitoring visit. These visits shall be conducted monthly during the 180-day Plant Establishment Period and quarterly for the five years of maintenance and monitoring. Surveys shall be conducted by the Restoration Specialist. General observations such as fitness and health of the planted species, pest problems, weed establishment, irrigation performance, mortality and drought stress will be noted during each site review. The Restoration Specialist shall determine remedial measures necessary to facilitate compliance with performance standards. A written memorandum shall be prepared after each monitoring visit, listing native plant health, and any problems and recommended remedial measures. These memoranda will be provided to the Restoration Contractor and the Port.

5.5. Quantitative Surveys

Quantitative surveys shall be conducted 12, 24, 36, 48, and 60 months following acceptance of the installation by the Restoration Specialist and notification is provided to the Port. This period may be shortened if final success milestones are achieved early (if authorized by the Port).

Table 9. Habitat Success Milestones

Milestone	Assessment Criteria	Maintenance Action
180-Day Plant Establishment/ 0 Month	• Post-implementation baseline information; no aerial coverage criteria; all planting densities achieved. 100% survival of all container plant material.	Plant densities brought up to meet requirements.
12 Months	• 100% survival overall of all container plant materials, unless function and value has been replaced by natural recruitment. • Target native vegetative cover 30%, and non-native cover no more than 20% (with no more than 5% invasives), obtained from 50-meter transects.	If cover or survival criteria fail to achieve minimum standards, plant densities will be brought up to 100% of the original planting density, unless function and value has been replaced by natural recruitment.
24 Months	• 90% survival overall of all container plant materials, unless function and value has been replaced by natural recruitment. • Target native vegetative cover 40%, and non-native cover no more than 15% (with no more than 5% invasives), obtained from 50-meter transects established during year 1.	If cover criteria is not met, additional planting will be performed to bring all areas up to initial planting densities.
36 Months	• Survival of individual units dropped as criteria. Natural recruitment of target vegetation exhibited along transects. • Target native vegetative cover 50%, and non-native cover no more than 15% (with no invasives detected), obtained from 50-meter transects established during year 1. • Natural recruitment of target species noted onsite. • Supplemental irrigation must be shut off by year-end.	If cover criteria is not met, additional planting will be performed to bring all areas up to initial planting densities.
48 Months	• Target native vegetative cover 60%, and non-native cover no more than 10% (with no invasives detected) obtained from 50-meter transects established during year 1. • Natural recruitment of target species noted on transects. • Survival without irrigation.	If cover criteria is not met, additional planting will be performed to bring all areas up to initial planting densities.
60 Months	• Target vegetative cover totals 70% and non-native cover no more than 10% (with no invasives detected), obtained from 50-meter transects established during year 1. • Natural recruitment of target species noted on-site. • Above ground components of irrigation system removed.	If parts of the revegetation fail to achieve the outline goals, an analysis will be made by the regulatory agencies to determine reasonable alternatives, which could be exercised to satisfy mitigation requirements.

The monitoring program shall include the use of fixed transects and photo points to assess total vegetative cover within each habitat type. Collection of fixed transect data within the habitat mitigation areas shall result in the calculation of percent cover for each species present, percent cover of target vegetation, percent cover of non-native vegetation, and percent cover of bare ground and litter, for each monitoring period. A minimum of 10, 50-meter transects shall be established and monitored. The point intercept method that records data every 0.5-meter will be employed. Container plants shall be counted in order to calculate percent survivorship. In addition to transect and container plant counts, a general overview of each site will be made to assess the overall compliance with success criteria and areas requiring special modifications to the maintenance program. Photos will be taken at the beginning of each transect and at established photo points which best depict an overview of the site. These photos will be provided with each monitoring report with the purpose of exhibiting the progress of the restoration effort throughout the 5-year monitoring period.

5.6. Monitoring and Maintenance Schedule

The compensatory mitigation maintenance and monitoring would follow the anticipated schedule as listed within Table 10. Maintenance requirements may vary depending on climatic conditions and may be adjusted by the Restoration Specialist upon quarterly qualitative reviews of the site. These activities will be completed over five years to ensure the success of the mitigation site.

Table 10. Five-Year Maintenance and Monitoring Schedule

Tasks	180-Day Plant Establishment	Year 1	Year 2	Year 3	Year 4	Year 5
Maintenance Activities [1]	Biweekly	Monthly	Bimonthly	Quarterly	Quarterly	Semi-annually
Qualitative Monitoring	Monthly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly
Quantitative Monitoring	---	Spring	Spring	Spring	Spring	Spring

[1] The schedule represents the anticipated minimum maintenance effort.

5.7. Monitoring Reports

Quarterly reports shall be prepared and submitted to the contractor and the Port following each qualitative site review. Annual monitoring reports will be prepared to document the progress of the restoration effort, include tabulated transect data, compare results with performance standards, provide representative photographs, and make remedial recommendations, if necessary. The annual reports will be prepared by the Restoration Specialist and submitted to the Port.

6.0 COMPLETION OF COMPENSATORY MITIGATION

6.1. Notification of Completion

Upon achievement of the fifth-year success standards and completion of the five-year maintenance period, the Restoration Specialist shall prepare a Final Monitoring and Notice of Completion Report. This notification may occur before five years if the site meets the fifth-year criteria, the irrigation has been terminated for a period of at least two years, and the Port approves request for early sign-off. The Final Monitoring and Notice of Completion Report shall be submitted to the Port for evaluation and final acceptance. The Final Monitoring and Notice of Completion Report will decide whether the requirements of the mitigation plan have been met. If at the end of the five years, any of the created areas fail to meet the project's final success standards, the Port (and applicable resource agencies) will be consulted. This consultation will take place to determine whether the mitigation effort is acceptable. The Port understands that failure of any significant portion of the mitigation area may result in a requirement to replace or revegetate that portion of the site and/or extend the monitoring and maintenance period until all success standards are met.

6.2. Contingency Measures

The mitigation proposed with this Mitigation Plan is approximately 0.94 acres greater than the Project's mitigation requirement. The additional 0.94 acres of surplus mitigation shall serve as either contingency for failed areas or may serve to provide mitigation for future CVBMP development needs. Determination for this use would be determined by the Port at the end of the 5-year period.

If success criteria have not been met to the satisfaction of the Port, additional monitoring and/or augmentation to the planting may be required at that time.

6.3. Long-term Management

Long-term management of the mitigation site shall commence upon final acceptance by the resource and regulatory agencies. The Port is responsible for the long-term management of the site.

Long-term management is expected to be needed bi-annually for trash and debris control and potential weed abatement. Management will also ensure that signage is maintained and that the site is protected from vandalism, homeless encampments, erosion and other potential threats.

7.0 REFERENCES

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