

**FINAL HABITAT MITIGATION AND
MONITORING PLAN**

SUCKLE MITIGATION SITE

SUNRISE POWERLINK

**CORPS FILE NO. 2007-00704-SAS
SWRCB 401 CERTIFICATION FILE NO. SB090151N
CDFG STREAMBED ALTERATION AGREEMENT NO. 1600-2009-0365-R5**

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TABLE OF CONTENTS

1.0	INTRODUCTION AND PURPOSE	1
1.1	Responsible Parties and Easement Holders	1
1.2	Purpose and Organization	5
1.3	Relationship to the Project's Habitat Acquisition Plan/Habitat Management Plan (HAP/HMP).....	6
2.0	MITIGATION GOALS AND OBJECTIVES FOR THE SUCKLE MITIGATION SITE	8
2.1	Resource Functions, Types and Amounts	9
2.2	Basis for Request to Include Preservation as Part of Compensatory Mitigation	9
3.0	SITE SELECTION	13
3.1	Watershed Setting and Context	13
3.1.1	<i>Surrounding Land Uses and Owners</i>	13
3.2	Beneficial Uses Provided.....	13
4.0	LONG-TERM SITE PROTECTION	18
4.1	Long-Term Protection Requirements	18
4.1.1	<i>Summary of Site Protection Requirements</i>	18
	Site Documentation.....	18
	Management Decisions.....	18
	Legal Agreements/Actions	19
4.1.2	<i>Site Protection Requirements by Source Document</i>	19
	404 NWP	19
	401 Certification	20
	LSAA	20
	BO	21
	MMCRP	22
4.2	Status of Site Protection Measures for the Suckle Mitigation Site	23
5.0	BASELINE INFORMATION	24
5.1	Preliminary Jurisdictional Determination and Function-Based Assessment of Impact Sites	24
5.2	Baseline Condition and CRAM Assessment of the Suckle Mitigation Site.....	25
5.2.1	<i>Baseline CRAM of the Suckle Mitigation Site</i>	26
	Buffer & Landscape Context	29
	Hydrology	29
	Physical Structure	30
	Biotic Structure	30

5.2.2	<i>Projected CRAM Scores Following Mitigation Implementation at the Suckle Mitigation Site</i>	30
	Buffer & Landscape Context	30
	Hydrology	35
	Physical Structure	35
	Biotic Structure	35
5.2.3	<i>Conclusions of CRAM for Mitigation at the Suckle Mitigation Site</i>	35
6.0	DETERMINATION OF CREDITS	37
6.1	Mitigation Credits within the Suckle Mitigation Site	37
6.2	Summary of Mitigation Credits for Entire Mitigation Program at all Sites.....	37
7.0	MITIGATION WORK PLAN	40
7.1	Activities Planned at the Suckle Mitigation Site.....	40
7.1.1	<i>Preservation</i>	41
7.1.2	<i>Enhancement</i>	41
	Non-native, Invasive Plant Removal	41
	Sequence and Timing	41
7.2.1	<i>Implementation Methods for Control of Non-native, Invasive Plant Species</i>	43
	Weed Removal as Part of Site Preparation	43
	Removal of Priority Weed Species	44
	Herbicides.....	44
	Giant Reed Removal.....	44
	Salt Cedar Removal.....	45
7.2.2	<i>Erosion Control Measures</i>	46
8.0	HMMP MONITORING AND PERFORMANCE CRITERIA	46
8.1	As-built Conditions Reporting	46
8.2	Initial Mitigation Monitoring Activities and Performance Criteria	46
8.2.1	<i>Mapping of Desert Dry Washes and Desert Fan Palm Oasis</i>	47
8.2.2	<i>Quantitative CRAM Evaluation of Desert Dry Washes</i>	47
8.2.3	<i>Qualitative Monitoring for Non-native, Invasive Species</i>	48
8.2.4	<i>Semiannual Wildlife Surveys</i>	48
8.3	Monitoring Schedule and Reporting Requirements	48
9.0	MAINTENANCE OF HMMP WETLANDS AND STREAMS DURING THE MONITORING PERIOD	49
10.0	INITIAL MANAGEMENT OF THE CHOCOLATE CANYON MITIGATION SITE UNDER THE HAP/HMP	50
10.1	HAP/HMP Management Tasks	50
10.2	Funding Requirements	50
11.0	LONG-TERM MANAGEMENT PLAN	57
11.1	Proposed Management Tasks	57
11.2	Funding Requirements	57

12.0	ADAPTIVE MANAGEMENT PLAN	61
12.1	Incorporation within Habitat Mitigation Plan for the Suckle Mitigation Site	61
12.2	Natural Occurrences	61
12.3	Potential Remedial Actions	61
13.0	FINANCIAL ASSURANCES	62
13.1	Estimated Costs for Mitigation Measures	62
13.1.1	<i>Land Acquisition</i>	62
13.1.2	<i>Plan Implementation</i>	62
13.1.3	<i>Monitoring and Maintenance for Performance Period</i>	62
13.1.4	<i>Long-Term Maintenance</i>	62
13.1.5	<i>Remediation</i>	63
13.2	Form of Assurance	63
14.0	REFERENCES	63

List of Appendices

Appendix A.	All CRAM Scores Collected for the Sunrise Powerlink Project
Appendix B.	Grading and Landscape Plans for the Suckle Mitigation Site
Appendix C:	PAR Analysis for the Suckle Mitigation Site
Appendix D:	Cost Estimate Table for Mitigation Activities at the Suckle Mitigation Site
Appendix E.	Title Report, County Assessor's Parcel Map, Phase One Environmental Assessment Report, Plat Map, and Williams Act/Farmland Security Zone Contracts

List of Figures

Figure 1.	Project Area Location Map	2
Figure 2.	Overview of Mitigation Area Locations	3
Figure 3.	Existing Conditions at the Suckle Mitigation Site	11
Figure 4.	Suckle Mitigation Site: Coyote Wells Watershed	27
Figure 5.	CRAM Assessment Areas within the Suckle Mitigation Site	31
Figure 6.	Mitigation Activity at the Suckle Mitigation Site	33
Figure 7.	Projected Average Changes in CRAM Score at Stream Impact Sites and Stream Mitigation Sites 5 Years after Mitigation Implementation	36

List of Tables

Table 1.	Suckle Mitigation Site Location Details.	13
Table 2.	Definitions for Beneficial Uses of WOS.	14
Table 3.	Beneficial Uses of WOS That May Be Affected by the Project.	16
Table 4.	Combined Average CRAM Scores for Existing and Post-Project Conditions at Impact Sites along the Project ROW.	25
Table 5.	Jurisdictional Areas within the Suckle Mitigation Site.	26
Table 6.	Comparison of CRAM Scores for Desert Dry Washes within the Suckle Mitigation Site and Nearby Sites.	29
Table 7.	Average CRAM Attribute and Overall Scores for a Proposed Mitigation Site at the Suckle Mitigation Site.	36
Table 8.	Summary of Sunrise Powerlink Aquatic Resource Mitigation at the Suckle Mitigation Site.	37
Table 9.	Summary of Sunrise Powerlink Project Mitigation for Permanent Impacts to Waters of the U.S.	38
Table 10.	Summary of Sunrise Powerlink Project Mitigation for Temporary Impacts to Waters of the U.S.	38
Table 11.	Summary of Sunrise Powerlink Aquatic Resource Mitigation.	39
Table 12.	Summary of Mitigation at the Suckle Mitigation Site.	40
Table 13.	Priority Non-native, Invasive Plants to be Removed at the Suckle Mitigation Site.	41
Table 14.	Sequence and Timing of Mitigation Activities at the Suckle Mitigation Property.	42
Table 15.	Monitoring and Reporting Activities at the Suckle Mitigation Site.	49
Table 16.	Initial HAP/HMP Management Tasks and Interface with HMMP Measures at the Suckle Mitigation Site.	51
Table 17.	Ongoing HAP/HMP Management Tasks and Interface with HMMP Tasks at the Suckle Mitigation Site.	58

List of Acronyms

AA(s)	Assessment Area(s)
ABDSP	Anza Borrego Desert State Park
APN	Assessor Parcel Number
BBG	Barefoot Banded Gecko
BLM	Bureau of Land Management
BO	Biological Opinion
BMPs	Best Management Practices
Cal-IPC	California Invasive Plant Council
Corps	U.S. Army Corps of Engineers
CDFG	California Department of Fish and Game
CPUC	California Public Utilities Commission
CRAM	California Rapid Assessment Method
CWA	Clean Water Act
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
GIS	Geographic Information System
HA	Hydrologic Area
HAP/HMP	Habitat Acquisition Plan and Habitat Management Plan
HMMP	Habitat Mitigation and Monitoring Plan
MMCRP	Mitigation Monitoring, Compliance, and Reporting Program
MP	Mileposts
OHV	Off-highway Vehicle
PAR	Property Analysis Record
PBS	Peninsular Bighorn Sheep
PJD	Preliminary Jurisdictional Determination
ROW	Right-of-Way
RWQCB	Regional Water Quality Control Board
SCCWRP	Southern California Coastal Water Research Project
SDG&E	San Diego Gas and Electric Company
SRPL	Sunrise Powerlink
SWRCB	State Water Resources Control Board
SWPPP	Stormwater Pollution Prevention Plan
USFWS	United States Fish and Wildlife Service
WOS	Waters of the State
WOUS	Waters of the United States

1.0 INTRODUCTION AND PURPOSE

San Diego Gas and Electric Company (SDG&E) is constructing a new 500/230 kilovolt (kV) electric transmission line (Sunrise Powerlink, the Project) that will extend approximately 117 miles from the El Centro area of Imperial County to southwestern San Diego County, in southern California (Figure 1). Construction of the transmission line structures, access roads, and ancillary facilities will result in permanent and temporary impacts to “waters of the United States” (WOUS) and “waters of the State” (WOS). In compliance with federal and state regulations, SDG&E has applied for and received authorization for the impacts from the U.S. Army Corps of Engineers (Corps), the State Water Resources Control Board (SWRCB), and the California Department of Fish and Game (CDFG).

- The Corps has determined that the Project complies with its Nationwide Permit (NWP) No. 12 and No. 3 under section 404 of the Clean Water Act (CWA), as specified in the notification dated January 7, 2011 (File No. 2007-00704-SAS);
- SWRCB has issued a certification that the Project is in compliance with section 401 of the CWA, as specified in the notification dated November 10, 2010 (file No. SB090151N); and
- CDFG has approved a Streambed Alteration Agreement (SAA) for the Project in accordance with section 1600 of the California Fish and Game Code, as specified in agreement no. 1600-2009-0365-R5 dated November 29, 2010.

The authorizations are conditioned on implementation of the impact avoidance, minimization, monitoring, and mitigation measures identified in the Corps NWP notification letter, SWRCB 401 certification, and CDFG SAA. For permanent impacts to WOUS and WOS, the required mitigation includes the preservation, restoration, enhancement, and management of wetlands and waters at five mitigation sites (Chocolate Canyon, Desert Cahuilla, Lightner, Long Potrero, and Suckle) at the locations shown on Figure 2. This Final Habitat Management and Monitoring Plan (Final HMMP) identifies the mitigation for permanent impacts that will be implemented at the Suckle Mitigation Site in Imperial County, California. This Final HMMP describes the specific mitigation activities and plans, performance criteria to measure success, initial monitoring and management actions, long-term management activities, and estimated costs for the implementation of HMMP mitigation. It supplements the Conceptual HMMP (WRA 2010b) that was conditionally approved when the Corps, SWRCB, and CDFG issued their authorizations. A Final HMMP also has been prepared for each of the other mitigation sites.

1.1 Responsible Parties and Easement Holders

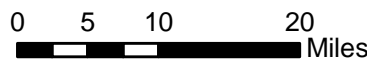
SDG&E is responsible for implementing mitigation for the (Project, including the measures identified in this Final HMMP. SDG&E also is the current owner of the Suckle Mitigation Site.

WRA, Inc. (WRA) is SDG&E's authorized agent; prepared SDG&E's applications to the Corps, SWRCB, and CDFG; and prepared this and the other four Final HMMPs. WRA also is the prime contractor for implementation of the restoration, enhancement, maintenance, and monitoring measures identified in the Final HMMPs, excluding the long-term (in perpetuity) management of the mitigation sites.

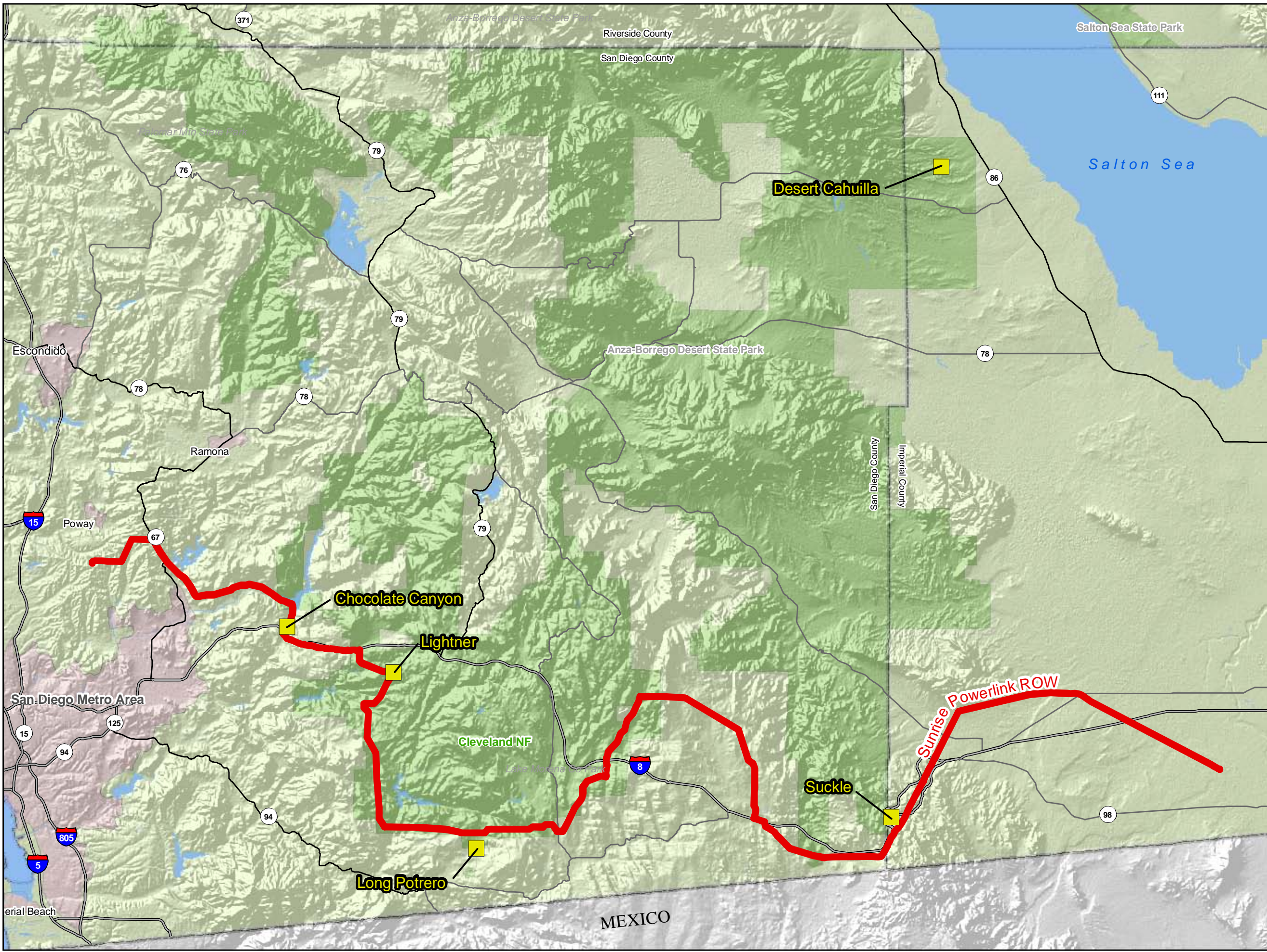


Figure 1. Project Area Location Map

Sunrise Powerlink
San Diego/Imperial County, California



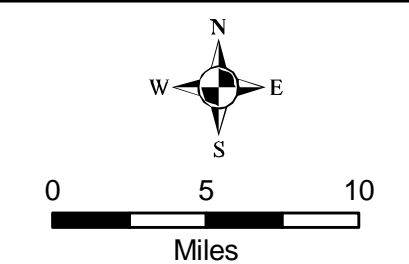
Map Date: June 2010
Map By: Derek Chan
Base Source: ESRI
Filepath: L:\Acad 2000 Files\17000\17128-3\GIS\ArcMap\Mitigation\
Fig1_LocMap_20100630.mxd



Sunrise Powerlink
 San Diego/Imperial County,
 California

Figure 2.
 Overview of Mitigation
 Area Locations

Legend
 Mitigation Area



Long-term (in perpetuity) management of the Suckle Mitigation Site will be conducted by the California Department of Parks and Recreation (State Parks) or a qualified land conservancy (see Section 4.0 for details). Ownership of the land will be conveyed to the designated land manager, who will protect and maintain the site as natural open space. The authorizations for impacts to WOUS and WOS require that the land manager, the provisions for permanent site protection, the long-term management plan for the site, and the financial commitments for management be approved by the Corps, SWRCB, and CDFG (see Sections 4, 11, and 13 for details).

Primary contact information for these parties is below:

Permittee : SDG&E
8315 Century Park Court, CP21G
San Diego, California 92123-1548
Contact: Alan Colton
Contact Phone: (858) 654-8727

Authorized Agent: WRA, Inc.
2169-G East Francisco Blvd.
San Rafael, CA 94901
Contact: Michael Josselyn, PhD, PWS
Contact Phone: (415) 454-8868

Entity Responsible for Long Term Management: Contact information will be provided when the entity has been approved by USFWS and CDFG.

1.2 Purpose and Organization

The purpose of this Final HMMP is to identify the compensatory mitigation measures that will be implemented on the Suckle Mitigation Site for the Project's impacts to WOUS and WOS. The impacts mitigated at the site include those associated with Project activities along a 4-mile segment of the 500 kV line (EP257 to EP240), extending west from Imperial County and San Diego County border to Jacumba Valley Ranch.

The document generally is organized to follow the regulations set forth in the 2008 Clean Water Act (CWA) Section 404 Final Compensatory Mitigation Rule (33 CFR Parts 325 and 332), as well as 401 certification and SAA requirements. Because regulations from multiple agencies are addressed, the terminology and order of requirements sometimes differs from that in the 2004 Los Angeles District Final Mitigation Guidelines and Monitoring Requirements. However, all Corps requirements are addressed. In addition, as requested by the Los Angeles District Corps office and the SWRCB, the HMMP includes a function-based assessment of the impact areas and mitigation sites that was prepared using the California Rapid Assessment Method (CRAM).

The required content of the HMMP is listed below, with the location of the information within this document indicated in parentheses.

- Mitigation Goals and Objectives, including resource type, amounts, and methods of compensation and justification for inclusion of preservation as part of the compensatory mitigation (see Section 2.0)

- Site Selection, including key factors for providing mitigation at a site (see Section 3.0)
- Site Protection Instrument (see Section 4.0)
- Baseline Information, including the ecological characteristics of impact areas and mitigation sites and CRAM evaluation (see Section 5.0)
- Determination of Credits, including a description of how the mitigation will provide compensatory mitigation for impacts (see Section 6.0)
- Mitigation Work Plan, including detailed descriptions of the work to be performed in implementing mitigation (see Section 7.0)
- Ecologically-based Performance Standards (see Section 8.0)
- Monitoring Requirements and Methods (see Section 8.0)
- Maintenance Plan, including maintenance activities to ensure continued viability of the mitigation site (see Sections 9.0 and 10.0)
- Long-term Management Plan, (see Section 11.0)
- Adaptive Management Plan (see Section 12.0)
- Financial Assurances to ensure project mitigation will be effectively implemented and maintained (see Section 13.0)

Supplemental information is provided in five appendices:

- Appendix A. All CRAM Scores Collected for the Sunrise Powerlink Project
- Appendix B. Grading and Landscape Plans for the Suckle Mitigation Site
- Appendix C. PAR Analysis for the Suckle Mitigation Site from the September 2010 HAP/HMP
- Appendix D. Detailed Mitigation Implementation Cost Estimate to Support Financial Assurances
- Appendix E. Title Report, County Assessor's Parcel Map, Phase One Environmental Assessment Report, Plat Map, and Williams Act/Farmland Security Zone Contracts (distributed as a separate document)

Project impacts were described in the Pre-Construction Notification prepared for the Corps, as part of the LSAA Notification Package prepared for the CDFG, as part of the Water Quality Certification Application prepared for the SWRCB, and as modified by subsequent submittals. All permit application documents contain a complete project description. Project modifications have been made throughout the permit process to further reduce environmental impacts, including those to streams, wetlands, and desert dry washes. Mitigation for temporary impacts to streams, wetlands, and desert dry washes will occur through restoration within the temporary impact areas, as described in the Conceptual HMMP (WRA 2010b) and is therefore not addressed in this document.

1.3 Relationship to the Project's Habitat Acquisition Plan/Habitat Management Plan (HAP/HMP)

The acquisition of the mitigation site, permanent site protection, management of the property as a whole, and long-term management of the areas preserved, enhanced, and restored under this HMMP will occur through the institutional and funding arrangements identified in the Project's Habitat Acquisition Plan/Habitat Management Plan (HAP/HMP). The HAP/HMP is required under the Project's Mitigation Monitoring and Comprehensive Reporting Program (MMRCP) and the 2010 Biological Opinion (BO) issued by the U.S. Fish and Wildlife Service (USFWS 2010) to

mitigate the Project's impacts on sensitive vegetation communities and special status species. It is an appropriate vehicle for implementation of parts of the HMMP because:

1. The Chocolate Canyon, Desert Cahuilla, Lightner, Long Potrero, and Suckle Mitigation Sites in the Final HMMPs and the HAP/HMP are the same properties;
2. The requirements specified in the MMCRP and BO regarding mitigation land acquisition, management, site protection assurances, and funding guarantees are fundamentally the same as those specified by the Corps, SWRCB, and CDFG in the NWP conditions, 401 certification, and SAA; and
3. The HAP/HMP includes provisions for coordinating initial and long-term management of the entire mitigation property with implementation of HMMP measures on the site.

The HAP/HMP measures in this HMMP are from the HAP/HMP dated September 22, 2010 (SDG&E 2010a), which was developed by qualified biologists and conservation planners working in close coordination with USFWS and CDFG. The September 2010 HAP/HMP includes a management plan and Property Analysis Record (PAR) or PAR equivalent for each of the mitigation sites. The management plan:

- Identifies the mitigation function of the property,
- Identifies the proposed land manager and holder of the fee title or conservation easement,
- Describes the property and its biological resources,
- Identifies the biological resource and land stewardship tasks necessary to conserve and maintain the property's mitigation values,
- Summarizes the results of the PAR for each property in terms of funding required for the first five years of management and for a non-wasting endowment for ongoing management, and
- Indicates whether the property has been acquired.

The HAP/HMP also includes a description of the PAR assumptions, the PAR spreadsheets for each property, and legal descriptions of the properties.

As required by the MMCRP and BO, the HAP/HMP was submitted for approval to the CPUC, BLM, USFWS, and CDFG as the mitigation plan for vegetation and species' impacts outside CNF. A separate HAP/HMP was prepared for and has been approved by USFS to mitigate vegetation and species impacts within CNF, independent of impacts to wetlands and waters. Consistent with their regulatory role, USFWS and CDFG took the lead in reviewing the September 2010 HAP/HMP. They issued a joint letter on December 2, 2010 (USFWS and CDFG 2010) indicating their approval for MMCRP purposes of several Project mitigation plans, including conditional approval of the HAP/HMP. Subsequently, the CPUC and BLM also approved the HAP/HMP for MMCRP purposes.

The conditional approval by the USFWS and CDFG requires that a final management plan and a final PAR be prepared for each mitigation site. As stated in the December 2, 2010, letter:

...the HMP will require further revisions once the mitigation lands have been acquired and land managers have been identified and approved by the Wildlife Agencies. Once the land managers are approved, San Diego Gas & Electric (SDG&E) will be required to provide a revised final HMP that will include revised Property Analysis Records, approved by the identified land managers, for Wildlife Agency review and approval. The final HMP must be implemented no later than 18 months from the initiation of construction activities.

To facilitate the final identification and approval of the land managers and the subsequent preparation of final management plans and PARs, USFWS and CDFG has initiated discussions with entities identified as potential land managers in the HAP/HMP. They also are preparing their recommended revisions to the individual management plans and PAR assumptions. For the five HMMP mitigation sites, the discussions with land managers and HMP/PAR revisions will be coordinated with and will include the Corps, SWRCB, and CDFG LSAA staff. SDG&E will be responsible for completing the revised final documents and submitting them back to the agencies for final review and approval. For MMCRP purposes, the CPUC and BLM also must approve the final plan and PAR.

When the revised final HMP/PAR is approved for the Suckle Mitigation Site, it will supersede the HAP/HMP tasks and estimates in Sections 10 and 11 of this Final HMMP.

2.0 MITIGATION GOALS AND OBJECTIVES FOR THE SUCKLE MITIGATION SITE

For desert ecosystems, preservation is considered to be mitigation for impacts to desert dry wash systems as desert ecosystems take centuries to recover or to have establishment of native species, prohibiting the creation or restoration of these systems. However, non-native, invasive plant species removal can enhance habitat in these systems.

The goals of mitigation at the Suckle Mitigation Site are to:

- Preserve and manage both uplands and aquatic resources on each of the five properties in perpetuity
- Preserve and enhance stream and wetland functions, and services including buffer and wildlife habitat functions and services
- Compensate for Project impacts to WOS beneficial uses
- Provide the legal structure and funding for long-term management of weeds, trash, vandalism, trespassing and any other anthropogenic disturbances in perpetuity through a non-wasting endowment

Mitigation approaches at the Suckle Mitigation Site are defined in accordance with the Corps 2008 Mitigation Rule (Corps 2008b) as follows:

- **Preservation:** The permanent protection of ecologically important wetlands or other aquatic resources through the implementation of appropriate legal and physical mechanisms (i.e. conservation easements, title transfers). Preservation may include protection of upland areas adjacent to wetlands as necessary to ensure protection or enhancement of the aquatic ecosystem. Preservation does not result in a net gain of wetland acres and may only be used in certain circumstances, including when the resources to be preserved contribute significantly to the ecological sustainability of the watershed.

- **Enhancement:** Activities conducted within existing wetlands that heighten, intensify, or improve one or more wetland functions and services. Enhancement is often undertaken for a specific purpose such as to improve water quality, flood water retention or wildlife habitat. Enhancement results in a gain in wetland functions and services but does not result in a net gain in wetland acres.

2.1 Resource Functions, Types and Amounts

The Suckle Mitigation Site supports a mixture of desert dry wash and desert fan palm oasis wetland habitat (Figure 3). The Suckle Mitigation Site supports a mixture of desert dry wash and desert fan palm oasis wetland habitat (Figure 3). Currently, the desert dry wash and wetland habitats are threatened by non-native, invasive species infestation. In addition, the potential sale of nearby private property, along with illegal public access, further threatens or has the potential to threaten the sensitive habitats on the site.

As described in more detail in Section 7.0, the mitigation activities at Suckle will:

- Preserve 3.43 acres (7,000 linear feet [lf]) and enhance 4.04 acres (4,200 lf) of desert dry washes;
- Preserve 0.48 acres and enhance 0.40 acres of desert fan palm oasis wetland habitat.

The preserved and enhanced resources occur within and will be managed in perpetuity as part of the overall Suckle Mitigation Site. As identified in September 2010 HAP/HMP, the Suckle site includes approximately 199 acres that will be permanently conserved and managed as mitigation for impacts to sensitive vegetation communities and the habitat of two listed species - barefoot banded gecko (BBG, *Coleonyx switaki*) and Peninsular bighorn sheep (PBS; *Ovis canadensis nelsoni*). In addition to the wetland and dry wash resources identified in this HMMP, the site includes approximately 198 acres of desert scrub. The Project ROW does not cross the property.

2.2 Basis for Request to Include Preservation as Part of Compensatory Mitigation

As also discussed in the Conceptual HMMP, preservation of resources on the Chocolate Canyon Mitigation Site is appropriate as part of the compensatory mitigation for the Project's impacts because the preservation meets the requirements from the Corps 2008 Mitigation Rule 332.3(h): (h) Preservation (Corps 2008b). Rule 332.3h states that:

(1) Preservation may be used to provide compensatory mitigation for activities authorized by [Corps] permits when all the following criteria are met:

- (i) The resources to be preserved provide important physical, chemical, or biological functions and services for the watershed;*
- (ii) The resources to be preserved contribute significantly to the ecological sustainability of the watershed. In determining the contribution of those resources to the ecological sustainability of the watershed, the district engineer must use appropriate quantitative assessment tools, where available;*
- (iii) Preservation is determined by the district engineer to be appropriate and practicable;*
- (iv) The resources are under threat of destruction or adverse modifications; and*

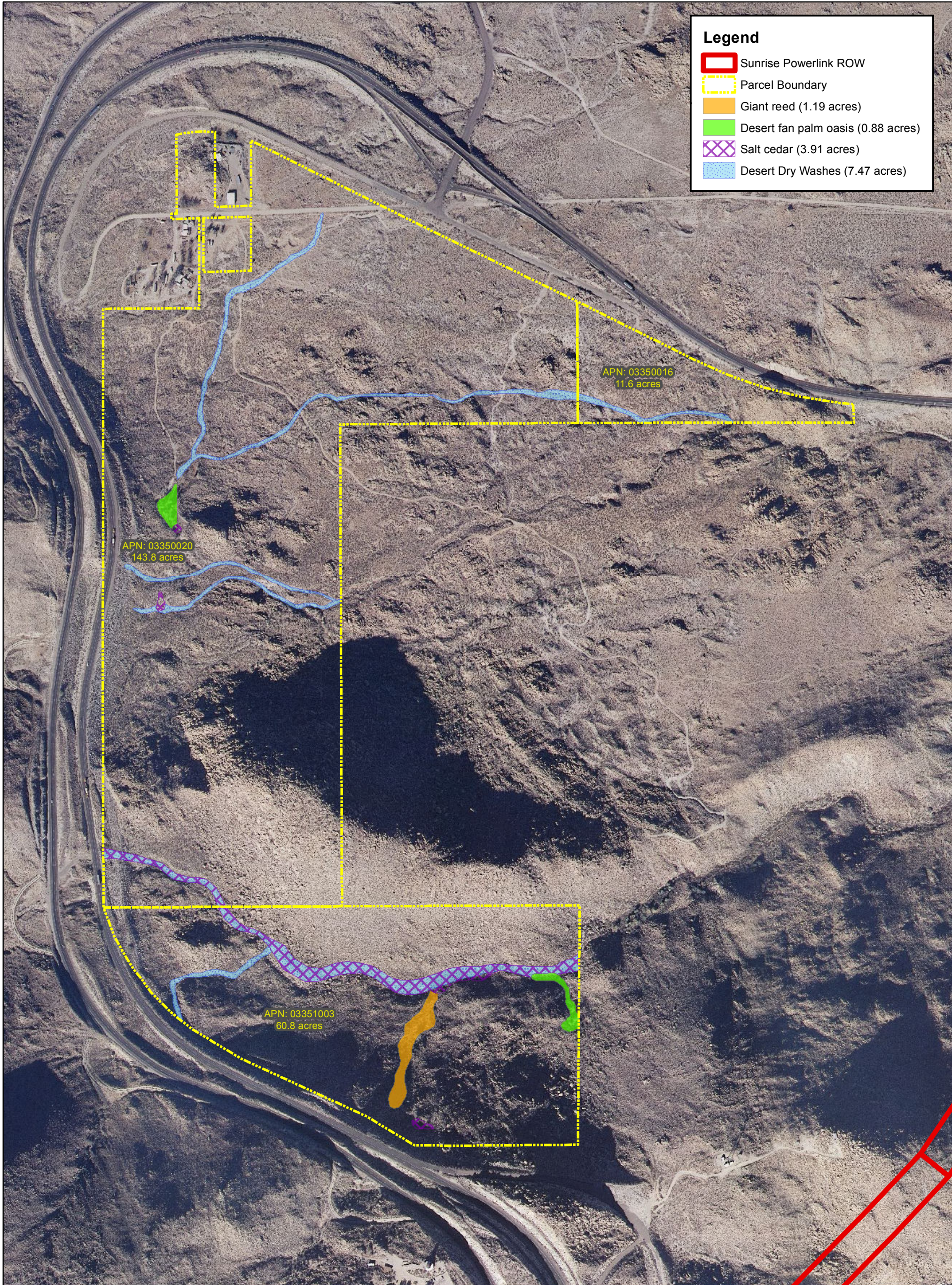
- (v) *The preserved site will be permanently protected through an appropriate real estate or other legal instrument (e.g., easement, title transfer to state resource agency or land trust).*

(2) Where preservation is used to provide compensatory mitigation, to the extent appropriate and practicable the preservation shall be done in conjunction with aquatic resource restoration, establishment, and/or enhancement activities.

The justification for including preservation at the Long Potrero site as part of the compensatory mitigation for the Project is as follows:

- *Important watershed functions are preserved.* The desert palm oasis is a unique feature within the watershed and an important component of breeding and foraging habitat for desert wildlife, including PBS and bats. The site also is part of the “Park-to-Parque” wildlife corridor -- the only montane linkage between the Jacumba Mountains in the U.S. and Sierra-Juarez Mountains in Mexico.
- *Significantly contributes to ecological sustainability.* Preservation of the site as a whole contributes to the protection and recovery of two listed species (BBG and PBS) and several sensitive plant species. Preservation and enhancement of the unique palm oasis habitat will aid all wildlife species in the area including bats. Preservation also allows for enactment of weed control measures that will benefit plant populations and the desert scrub vegetation community. The analysis in Section 5.0 provides additional detail regarding the ecological function and importance of the mitigation site.
- *Preservation is appropriate and practicable.* Preservation at the site is appropriate because the type of resources on the mitigation site are the same as, and the amount and quality exceed those being impacted. Preservation is practicable because the resources are on one property in one ownership.
- *Resources are under threat of destruction or adverse modification.* The occurrence of listed species and regulated waters on the property limit but do not preclude development of the property under the Imperial County General Plan. Illegal public access also poses the threat of continued habitat degradation from illegal dumping, target shooting, and vehicle use. Acquisition by SDG&E has eliminated the immediate potential for development to be proposed on the property; acquisition also has required the resolution of water rights issues affecting the oasis.
- *Resources will be permanently protected.* As proposed in the HAP/HMP, State Parks would provide for the permanent protection of the site by including it and managing it as part of Anza-Borrego Desert State Park. This arrangement and the funding provided for management would be subject to approval by the Corps, SWRCB, and CDFG SAA staff (see Section 1.3). CDFG also would have to approve the arrangements as per the terms and conditions of the Project’s 2081 permit for incidental take of BBG.

Preservation is coordinated with restoration, establishment, and/or enhancement. As described in detail in Section 7.0, enhancement actions are proposed for the mitigation site in addition to preservation. Preservation of the WOUS and WOS resources also will be coordinated with the management of the desert scrub habitat under the HAP/HMP.

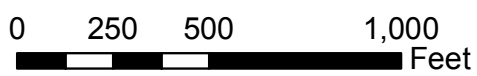
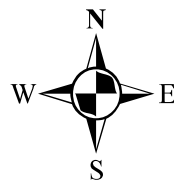


Legend

- Sunrise Powerlink ROW
- Parcel Boundary
- Giant reed (1.19 acres)
- Desert fan palm oasis (0.88 acres)
- Salt cedar (3.91 acres)
- Desert Dry Washes (7.47 acres)

Figure 3. Existing Conditions at the Suckle Mitigation Site

Sunrise Powerlink
Imperial County, California



ENVIRONMENTAL CONSULTANTS

Map Date: November 2010
 Map By: Derek Chan
 Base Source: Imperial County
 Filepath: L:\Acad 2000 Files\17000\17128-3\GIS\ArcMap\Mitigation\Suckle\Suckle_Existing_20101104.mxd

3.0 SITE SELECTION

The Suckle Mitigation site was selected based on the presence of desert dry wash systems, desert fan palm oasis habitat, opportunities for removal of non-native invasive salt cedar (*Tamarix ramosissima*) and giant reed (*Arundo donax*), habitat for BBG and PBS, and populations of special status plants. The site contains more than 7.0 acres of desert dry washes, and approximately 0.9 acre of desert fan palm oasis vegetation. Salt cedar is present in much of the desert dry wash area.

3.1 Watershed Setting and Context

3.1.1 Surrounding Land Uses and Owners

The Suckle Mitigation Site occurs within the Coyote Wells hydrologic area (HA). It is located in Imperial County, just south of the Interstate 8 split near the San Diego County and Imperial County border. There are two access roads on the property, which originate on the northern end of the property. The roads do not provide egress from the property on the south, west, or east. The property is vacant and undeveloped. It is bordered to the east by BLM land which includes the In-Ko-Pah gorge at the base of the In-Ko-Pah Mountains. The lands to the south, west, and north are owned by Caltrans with I-8 running adjacent to the southwestern, western and northern reaches of the mitigation site. Additional lands to the west are also owned by San Diego County. The Suckle family owns additional lands located to the north, and another private property is located to the south near Interstate 8. The Anza Borrego Desert State Park (ABDSP) is located to the west and north of the mitigation site. Implementation of the proposed mitigation activities at this site would protect and enhance the desert dry wash habitat within the watershed, as well as ensure the hydrological and ecological connectivity of the site with its surrounding rural landscape. Specific information on the Suckle Mitigation Site location is listed below in Table 1.

Table 1. Suckle Mitigation Site Location Details.

Mitigation Site Location	Located along Interstate 8, off Mountain Springs Road.
Mitigation Site Latitude/Longitude	116° 06' 12" W, 32° 40' 07" N
Name of Watershed and Hydrologic Unit	Coyote Wells Watershed HA (723.20) within the Salton Sea Watershed
Mitigation Site City and County	Unincorporated, Imperial County

3.2 Beneficial Uses Provided

Beneficial uses and water quality objectives are required to be established for all WOS, both surface and ground waters. Beneficial uses of the surface and ground waters of the San Diego Region are discussed in the Water Quality Control Plan for the Colorado River Basin (Colorado River RWQCB 1994). Beneficial uses for surface waters are designated under section 303 of the CWA (40 CFR 131) and under the Porter-Cologne Act (California Water Code section 13050[f]). The State is required to specify appropriate water uses to be achieved and protected. Definitions and abbreviations for beneficial uses provided by WOS are summarized in Table 2. Waters located within the Suckle Mitigation Site are part of the Coyote Wells hydrologic area watershed and are considered surface waters under the category "washes (ephemeral streams)" located in the west Colorado River Basin (Colorado River RWQCB 1994).

For washes in the watershed where the Suckle Mitigation Site occurs, the Colorado River RWQCB has designated the following beneficial uses (Table 3): Freshwater Replenishment (FRSH), Ground Water Recharge (GWR), Noncontact Water Recreation (REC2), Warm Freshwater Habitat (WARM), and Wildlife Habitat (WILD). Table 2 contains definitions of all beneficial uses, including some of which have not been designated for this watershed and mitigation site, but they are included in the table as references for Table 3.

Table 2. Definitions for Beneficial Uses of WOS.

State Recognized Beneficial Uses	Description
Municipal and Domestic Supply (MUN)	Uses of water for community, military, or individual water supply systems, including, but not limited to, drinking water supply.
Agricultural Supply (AGR)	Uses of water for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.
Industrial Service Supply (IND)	Includes uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.
Industrial Process Supply (PROC)	Uses of water for industrial activities that depend primarily on water quality.
Hydropower Generation (POW)	Uses of water for hydropower generation.
Freshwater Replenishment (FRSH)	Uses of water for natural or artificial maintenance of surface water quantity or quality.
Ground Water Recharge (GWR)	Uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting salt water intrusion into fresh water aquifers.
Water Contact Recreation (REC1)	Uses of water for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and uses of natural hot springs.
Noncontact Water Recreation (REC2)	Uses of water for recreational activities involving proximity to water, but not normally involving contact with water where water ingestion is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
Preservation of Biological Habitats of Special Significance (BIOL)	Includes uses of water that support designated areas or habitats, such as established refuges, parks, sanctuaries, ecological reserves, or Areas of Special Biological Significance (ASBS), where the preservation or enhancement of natural resources requires special protection.
Wildlife Habitat (WILD)	Uses of waters that support wildlife habitats, including, but not limited to, the preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl.
Cold Freshwater Habitat (COLD)	Uses of water that support cold water ecosystems, including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
Warm Freshwater Habitat (WARM)	Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
Aquaculture (AQUA)	Includes the uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption or bait purposes.

Table 2. Definitions for Beneficial Uses of WOS.

State Recognized Beneficial Uses	Description
Inland Saline Water Habitat (SAL)	Includes uses of water that support inland saline water ecosystems including, but not limited to, preservation or enhancement of aquatic saline habitats, vegetation, fish, or wildlife, including invertebrates.
Estuarine Habitat (EST)	Includes uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds).
Marine Habitat (MAR)	Includes uses of water that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).
Rare, Threatened, or Endangered Species (RARE)	Includes uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered.
Migration of Aquatic Organisms (MIGR)	Includes uses of water that support habitats necessary for migration, acclimatization between fresh and salt water, or other temporary activities by aquatic organisms, such as anadromous fish.
Spawning, Reproduction, and/or Early Development (SPWN)	Includes uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish. This use is applicable only for the protection of anadromous fish.
Shellfish Harvesting (SHELL)	Includes uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters and mussels) for human consumption, commercial, or sport purposes.

One goal of the Final HMMP for the Suckle Mitigation Site is to compensate for Project-related impacts to WOS and their beneficial uses. Beneficial uses of WOS within the Suckle Mitigation Site will be preserved and enhanced to mitigate a portion of the beneficial uses affected by Project activities. The enhancement and preservation activities of wetlands, waters, and riparian habitat the Suckle Mitigation Site will contribute to beneficial uses within the Coyote Wells HA and the Salton Sea watershed. Mitigation activities on the other four mitigation sites are intended to compensate for any remaining beneficial uses not provided by the Suckle site (i.e., there will be no net loss of beneficial use from any project activity).

The Project is expected to impact a total of 2.45 acres of desert dry wash and 0.08 acre of wetland habitat. Though the impact sites do not directly support many of the beneficial uses listed for the Salton Sea watershed due to their small size, some beneficial uses are expected to be impacted based on the contributions of impact sites to beneficial uses within the Salton Sea watershed. These beneficial uses include: REC2, BIOL, WARM, WILD, and RARE. The Suckle Mitigation Site will provide 7.47 acres of desert dry wash habitat and 0.88 acre of wetland habitat to mitigate for permanent impacts to desert dry washes and wetland habitats along with the beneficial uses associated with these systems. Preservation and enhancement activities of these habitats will adequately compensate for the impacted beneficial uses described above by contributing to the improvement and preservation of beneficial uses within the Salton Sea watershed. The Suckle Mitigation Site will provide a 3:1 mitigation to impact ratio for dry washes and an 11:1 mitigation to impact ratio for wetland habitats therefore resulting in an overall gain in beneficial uses. In addition, all 6.53 acres of temporary impact will be restored to pre-impact condition. The full restoration of temporary impacts plus the Suckle Mitigation Site and the remaining four sites will fully compensate for all beneficial uses impacted within the same regional watershed so that there is no net loss in overall beneficial uses associated with the Project.

Table 3. Beneficial Uses of WOS That May Be Affected by the Project.

SAN DIEGO REGION INLAND SURFACE WATERS	Hydrologic Unit Basin Number	M U N	A R R	I N D	P R O C	G W R	F R S H	P O W	R E C 1	R E C 2	B I O L	W A R M	C O L D	W I L D	R A R E	S P W N
San Diego River Watershed	907.31	X	X	X	X				X	X		X	X	X		
Conejos Creek 7.31	907.31	X	X	X	X				X	X		X	X	X		
Alpine Creek	907.31	X	X	X	X				X	X		X	X	X		
Chocolate Canyon	907.33	X	X	X	X				X	X		X	X	X		
Chocolate Canyon	907.31	X	X	X	X				X	X		X	X	X		
Sweetwater River	909.31	X	X	X	X				X	X		X	X	X		X
Viejas Creek	909.31	X	X	X	X				X	X		X	X	X		
Viejas Creek	909.33	X	X	X	X				X	X		X	X	X		
Taylor Creek	909.31	X	X	X	X				X	X		X	X	X		
Tijuana Hydrologic Unit	911															
Cottonwood Creek	911.23	+							X	X		X		X		
Dry Valley	911.23	+							X	X		X		X		
Bob Owens Canyon	911.23	+							X	X		X		X		
McAlmond Canyon	911.24	+							X	X		X		X		
McAlmond Canyon	911.23	+							X	X		X		X		
Rattlesnake Canyon	911.23	+							X	X		X		X		
Potrero Creek	911.25	+							X	X		X		X		
Potrero Creek	911.23	+							X	X		X		X		
Bee Creek	911.23	+							X	X		X		X		
Cottonwood Creek	911.30	X	X	X	X		X		X	X		X	X	X	X	X
Hauser Creek	911.30	X	X	X	X		X		X	X		X	X	X	X	X
Pine Valley Creek	911.30	X	X	X	X		X		X	X		X	X	X	X	X
Wilson Creek	911.30															
Pats Canyon	911.30															
La Posta Creek	911.70	X	X	X	X		X		O	X		X	X	X		
Simmons Canyon	911.70	X	X	X	X		X		O	X		X	X	X		
Diablo Canyon	911.84	+														
Reservoirs & Lakes																
El Capitan Reservoir	907.31	X	X	X	X			X ¹	X	X	X	X				
Loveland Reservoir	909.31	X	X	X	X		X	X	X	X	X	X				
Barrett Lake	911.30	X	X	X	X		X	X	X	X	X	X	X			
San Vicente Reservoir	907.20	X	X	X	X		X	X	X	X	X	X				

COLORADO RIVER BASIN REGION	Water Board Hydrologic Unit Code	MUN	AGU	AQH	FRS	IND	GRW	RECE	RECE	WAR	COLL	WOLL	POR	RARE
Tule Creek	22.71, 22.72	P	X				X	X	X	X		X		
Unlisted Perennial and Intermittent Streams		P ₁₁			I ₁₂		I	X	I	I	X	I		I ₁₃
Washes (Ephemeral Streams)					I ₁₂		I		I	see note 7		I		

Key:
 X = Existing Beneficial Use
 0 = Potential Beneficial Use
 I = Intermittent Uses
 + = Exempted from MUN. The water body has been exempted by the Regional Board from the municipal use designation under the terms and conditions of State Board Resolution No. 88-63, *Sources of Drinking Water Policy*.)

Note 1: Waterbodies are listed multiple times if they cross hydrologic area or sub area boundaries.)
 Note 2: Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

FOOTNOTES: Footnotes are numbered as found in the Basin Plan.
 7. Use, if any, to be determined on a case-by-case basis.
 11. Potential use designations will be determined on a case-by-case basis as necessary in accordance with the "Sources of Drinking Water Policy" in this chapter.
 12. Applies only to tributaries to Salton Sea.
 13. Rare, endangered, or threatened wildlife exists in or utilizes some of these waterway(s). If the RARE beneficial use may be affected by a water quality control decision, responsibility for substantiation of the existence of rare, endangered, or threatened species on a case-by-case basis is upon the CDFG on its own initiative and/or at the request of the Regional Board; and such substantiation must be provided within a reasonable time frame as approved by the Regional Board.

4.0 LONG-TERM SITE PROTECTION

This section summarizes the requirements for long-term protection of the mitigation site as per the 404 NWP terms and conditions, 401 certification, LSAA, BO, and MMCRP and indicates the status of establishing the protection measures for the Suckle site as of May 2010.

4.1 Long-Term Protection Requirements

The 404 NWP, 401 certification, LSAA, MMCRP, and BO specify the type and timing of the measures required to assure the long-term protection of the mitigation sites. Generally the requirements are the same in these documents, but there are differences in terminology used and/or the timeline for actions. Key requirements stated in all of the documents are summarized below, followed by the specific provisions in separate documents.

4.1.1 *Summary of Site Protection Requirements*

Long-term protection of each mitigation site will occur through a combination of site documentation, management decisions, and legal agreements/actions involving the Corps, SWRCB, CDFG, USFWS, the entities selected to manage the sites, and SDG&E.

Site Documentation

The site documentation relevant to long-term protection includes a title report, County Assessor's parcel map, Phase One Environmental Assessment Report, plat map, and any Williams Act/Farmland Security Zone contracts for the site. These materials are compiled during the acquisition process and identify any existing easements, ROWs, agricultural contracts, mineral rights, and other conditions/constraints that come with the property. The information is directly or indirectly required by all of the agencies that must approve the long-term protection measures for the site. SDG&E also requires the information for company authorization to proceed with an acquisition.

Management Decisions

There are three key management decisions required for long-term site protection:

- Selection of a land manager qualified to own the property and manage it in accordance with the goals, objectives, and measures identified in the Final HMMP and in the final revised HMP with funding provided by SDG&E;
- Approval of the Final HMMP, revised final HMP, and revised final PAR for the site; and
- Approval of the funding arrangements for long-term management.

These decisions will be made by and/or with the approval of the Corps, SWRCB, CDFG, and USFWS for the HMMP mitigation sites. For MMCRP purposes, the CPUC and BLM also must approve the land manager, final HMP/PAR, and funding arrangement. The agencies also directly or indirectly require that the final PAR be approved by the selected land manager.

All of the agencies require that these decisions be made within a specific timeframe.

Legal Agreements/Actions

There are three legal agreements/actions relevant to the long-term protection of the mitigation sites:

1. Acquisition of the mitigation site;
2. Execution of a conservation easement agreement or its equivalent for the mitigation site. The agreement must be approved in advance by the agencies and also must be accepted by the land manager.
3. Conveyance of fee title and/or the conservation easement or its equivalent to one of the agencies or an entity approved by them (such as the land manager).

All of the agencies require that this step be complete prior to the line being energized. The agencies also acknowledge that federal and state agencies cannot accept fee title for lands subject to conservation easements.

4.1.2 Site Protection Requirements by Source Document

404 NWP

1. SDG&E will assure the five mitigation sites are protected as natural open space in perpetuity. SDG&E shall submit draft site-protection mechanisms to the Corps for approval in advance of or concurrent with impacts within waters of the U.S (Condition #10)
2. Permittee shall also submit a detailed timeframe and action plan addressing the progress for achieving site protection (e.g., steps in the land acquisition/transfer process, identification of land managers and site protection mechanisms, agency planning documentation) for each mitigation site within 30 days of the date of issuance of this permit verification letter (Condition #10)
3. The Permittee shall receive written notification from the Corps of the draft site-protection mechanism prior to them being executed and recorded (Condition #10)
4. The Corps shall require a Conservation Easement (CE) as site protection instrument for each mitigation site. Draft CE must include a 3rd party easement holder. The CE must provide that the 3rd party easement holder may enter upon and do any and all work to comply with special condition #1 in the event the permittee has failed to do so (Condition #10)
5. Corps must approve the use of alternative site-protection mechanism if a CE is not available or feasible (Condition #10)
6. Monthly progress reports for each mitigation site will be submitted to the Corps until the Corps approves the draft site-protection mechanism (Condition #10)

7. For any mitigation site where the Corps-approved third party land manager is a state or Federal agency, a qualified land specialist shall be retained by SDG&E to shepherd the transfer of the mitigation property to the designated agency. SDG&E shall include in the monthly progress reports required per Special Condition #10 the progress of the land transfer and document compliance. (Condition #11)
8. SDG&E must provide monies in the form of a non-wasting endowment (endowment amount to be determined by a revised PAR) to fulfill the land manager's long-term responsibilities, including maintenance activities, etc. (Condition #13)
9. The revised PAR must be submitted by Oct 31st of Year 2 of the mitigation and monitoring period for each mitigation site (Condition #13).
10. SDG&E will provide the endowment within 30 days of the Corps' approval of the revised PAR of the five mitigation sites (Condition #13).

401 Certification

1. Conduct, document, and report compensatory mitigation in compliance with the Final HMMPs. (Condition #7)
2. Full title and ownership or land transfer agreements for all compensatory mitigation properties shall be finalized before energization of the transmission line. (Condition #8)

LSAA

1. DFG has tentatively agreed to the mitigation activities described in the HMMP. Final approval of these sites will occur following DFG's receipt and review of the following, for each site: (1) current Preliminary Title Report, (2) County Assessor's Parcel Map, (3) Phase One Environmental Site Assessment Report, (4) Plat map showing pre-existing easements encumbering the mitigation areas, (5) copies of any Williamson Act contracts and Farmland Security Zone contracts that exist on the mitigation areas, and (6) identification of the long-term property owners and their written commitment to manage consistent with the conservation purposes of the mitigation sites. (Condition #3.7)
2. Within 120 days of signing this SAA agreement (i.e. March 29, 2011), provide to DFG the following for the proposed mitigation sites: (1) Preliminary Title Report, (2) Phase One Environmental Site Assessment Report, (3) Final Mitigation Plan, and (4) any required technical reports (e.g., hydrology studies) (Condition #3.8).
3. Prepare a Habitat Management Plan (HMP) for each mitigation property that follows the criteria in Biological Opinion Measure G-CM-17. (Condition #3.21)
4. Prepare a wildlife conservation easement or its equivalent on each mitigation site to protect existing fish and wildlife resources in perpetuity. Complete the easement or its equivalent prior to energizing the transmission line (Condition #3.22)
5. If a conservation easement is not possible due to a transfer of the property to federal, state, or local jurisdiction, notify DFG of the entity the property is being transferred to and the manner under which it will be held by that entity. Receive written approval from DFG (Condition #3.23).

6. SDG&E shall cause the conservation easement or its equivalent to be conveyed such that the easement's position in title shall not be inferior to any existing monetary liens on the land (e.g., deeds of trust are to be subordinate to the conservation easement). A plat drawn to scale that depicts the conservation easement and delineates the metes and bounds easement description shall be prepared by a professional certified land surveyor or civil engineer and the plat shall be attached as an exhibit. (Condition #3.24)
7. SDG&E shall include with the submission of the conservation easement for its equivalent: (1) a completed Proposed Land for Acquisition Form, (2) a County Assessor's Parcel Map for the subject property, (3) a site location map, (4) a Phase One Environmental Site Assessment Report (no more than 6 months old), (5) a current (no more than 6 months old) Preliminary Title Report, together with (5a) copies of documents supporting the title exceptions, (5b) copies of documents regarding title encumbrances and/or analysis of those encumbrances, and (5c) include a plat showing pre-existing easements encumbering the conservation easement area, (6) copies of any Williamson Act contracts and Farmland Security Zone contracts that exist on the parcels and a copy of all Notification of Public Acquisition of Williamson Act Land memos, if applicable, (7) digital spatial data compatible with ESRI software or geo-referenced CAD files depicting the boundaries of the conservation easement area, and (8) the SAA permit number 1600-2009-0365-R5. (Condition #3.25)
8. DFG has the right to deny the proposed mitigation site/conservation easement if DFG determines the site does not have suitable conservation value. (Condition #3.26)
9. SDG&E is responsible for all land/easement acquisition costs, including title document cost, escrow fees, recording fees, title insurance premiums, Phase One Environmental Site Assessment Report, and any other escrow-related fees. If DFG becomes the grantee then DFG staff time will be charged to SDG&E. (Condition #3.27)

BO

General Conservation Measure (G-CM) #17 in the 2010 BO includes the long-term protection requirements specified by both USFWS and CDFG for the HAP/HMP. G-CM-17 also is the measure cited in the LSAA. It reads in its entirety as follows:

G-CM-17: *This conservation measure has been changed to reflect updated information and progress made in acquiring off-site conservation.*

(a) Prior to initiating ground- or vegetation-disturbing project activities, SDG&E will provide and implement the following assurance:

- *Unless already acquired, SDG&E will provide assurances (e.g., performance bond, letter of credit, or escrow account) to fund the acquisitions listed below in (c).*

(b) SDG&E will fully fund an endowment for in-perpetuity management of all parcels acquired in (c) within 3 months of the Wildlife Agencies' approval of the final endowment amounts.

(c) Unless otherwise authorized by the Wildlife Agencies, no later than 18 months from the date of the revised 2010 biological and conference opinion, SDG&E will acquire and permanently preserve the nine (9) parcels identified in the September 2010 Habitat Acquisition Plan and Habitat Management Plan (HAP/HMP; referenced by name as Nabi, Lakeside Ranch, Hamlet, El Capitan, Chocolate Canyon, Lightner, Long Potrero, Suckle, and Desert Cahuilla) in a manner consistent with the HAP/HMP and the following provisions:

- *The land-owner, land management entity, conservation easement grantee, and endowment fund manager for each property will be approved by the Wildlife Agencies. SDG&E will coordinate efforts with the Wildlife Agencies to identify potential candidates and review their qualifications to hold and manage lands and/or endowment funds. This task will be completed within 6 months of issuance of the 2010 revised biological and conference opinion.*
- *SDG&E will conduct a revised Property Analysis Record (PAR) or PAR-like analysis for each property once the land management entity for individual properties has been identified and approved by the Wildlife Agencies. This revised PAR will be used to determine the final endowment amount SDG&E will provide for in-perpetuity habitat management of each property.*
- *Conservation easement language, or its equivalent where an easement is not allowed by the land manager (State Parks), for all properties will be approved by the Wildlife Agencies prior to easement recordation; and*
- *SDG&E will complete the required acquisition, protection, and transfer of all properties and record the required conservation easements in favor of DFG, or other entity approved by the Wildlife Agencies, no later than 18 months after the start of the ground- or vegetation-disturbing activities.*

MMCRP

The MMCRP requirements regarding site protection are as follows:

1. A HAP/HMP must be prepared for offsite mitigation parcels (for impacts to sensitive vegetation and special status species), must be approved by the CPUC, BLM, USFWS, CDFG, and – for mitigation parcel for impacts to CNF – by USFS; and must include (among other items):
 - a. Legal descriptions of the parcels
 - b. Designation of a land management entity approved by the CPUC, BLM, USFWS, CDFG, and – for mitigation for impacts to CNF – USFS.
 - c. A PAR prepared by the designated land management entity that explains the amount of funding required to implement the HMP;
 - d. Designation of responsible parties and their roles (e.g., provision of endowment by the Applicant to fund the Habitat Management Plan and implementation of the Habitat Management Plan by the designated land management entity)
 - e. Management specifications including, but not limited to, regular biological surveys; exotic, non-native species control; fence/sign replacement or repair, public education; trash removal; and annual reports (measures B-1a and elsewhere)

2. The HAP/HMP must be approved by CPUC, BLM, USFWS, CDFG, and – for mitigation parcel for impacts to CNF – by USFS prior to vegetation clearing activities
3. All offsite mitigation parcels shall be approved by the CPUC, BLM, USFWS, CDFG, and – for mitigation parcel for impacts to CNF – by USFS and must be acquired or their acquisition assured prior to the line being energized (measure B-1a and elsewhere)

The MMCRP also includes an earlier version of BO G-CM-17 on a table that summarizes USFWS measures. The G-CM-17 measure in the 2010 BO supersedes that in the April 2010 MMCRP.

4.2 Status of Site Protection Measures for the Suckle Mitigation Site

As of May 2011, the status of site protection measures for the Suckle Mitigation Site is as follows:

- Acquisition. The mitigation site has been acquired by SDG&E.
- Site Documentation. The title report, County Assessor's parcel map, Phase One Environmental Assessment Report, plat map, and any Williams Act/Farmland Security Zone contracts have been completed and are included as Appendix E to this Final HMMP.
- HMP/PAR. A management plan and PAR were prepared for the site as part of the September 2010 HAP/HMP, were conditionally approved by USFWS, CDFG, BLM, and the CPUC for MMCRP purposes, and are being revised in coordination with the Corps, SWRCB, CDFG, and USFWS. The September 2010 HAP/HMP management measures and PAR are included in Sections 10 and 11 of this Final HMMP and will be superseded by the revised final HMP/PAR approved by the agencies. The revised final HMP/PAR will be completed by May 2012 (18 months after the date of the BO).
- Selection of Land Manager. Land managers under consideration include State Parks, BLM, or a land conservancy. CDFG was contacted regarding its possible interest in owning and managing site when the Project's 2081 incidental take permit for BBG was prepared in 2010. At that time, CDFG indicated it was not interested in the property. State Parks was contacted because the relative adjacency of ABDSP lands west of Suckle and expressed an interest in the site. BLM was contacted because the adjacency to other BLM land to the east. If none of the public agencies is selected or if the proposed agency declines, a land conservancy will be identified. No decision has been made. Approval of the land manager must occur prior to or concurrent with approval of the final HMP/PAR. SDG&E has requested that the agencies make their recommendation regarding the land manager by the end of May 2011 to allow adequate time to involve the manager in the revisions to the HMP and PAR and the planning for other long-term site protection measures.

- Conservation Easement or Equivalent Agreement. Preparation of a draft conservation easement or equivalent agreement will depend on who is selected as the land manager. If the manager is State Parks or BLM, the “equivalent” option will be necessary. If a land conservancy is selected, a conservation easement agreement will be prepared. Pending the selection of the manager, SDG&E is preparing draft templates for both types of agreements.
- Funding Arrangements. If State Parks or BLM is selected as the land manager, SDG&E would provide funding for long-term management directly to the agency. The funds would be placed in a designated account for management of the property. If a conservancy is selected as the land manager, a non-wasting endowment would be established. USFWS and CDFG have indicated their interest in having the endowment managed by a third-party (versus having the land manager set up and manage the endowment). SDG&E has met with the San Diego Foundation and the California Wildlife Foundation to discuss their potential role as third-party managers of endowments. No decisions have been made on the endowment arrangements. The amount of the funding for long-term management will be determined in the final PAR based on the measures in the final HMP.
- Other. As required by the Corps, SDG&E has prepared and is implementing an action plan and schedule for ensuring progress on the long-term site protection requirements. The Corps, SWRCB, CDFG, USFWS, and State Parks have conducted site visits at Suckle.

5.0 BASELINE INFORMATION

5.1 Preliminary Jurisdictional Determination and Function-Based Assessment of Impact Sites

A preliminary jurisdictional determination (PJD) of the extent of wetlands and waters along the Project Right-of-Way (ROW) has been approved by the Corps (WRA 2010a) and is included in permit application packages for the Project. The PJD was used during Project planning to avoid unnecessary impacts to WOUS and WOS and to quantify unavoidable impacts to wetlands and waters. Impacts to unvegetated waters included perennial, intermittent, and ephemeral streams. Ephemeral streams were described using two subcategories, including desert dry washes and mountain ephemeral streams. Vegetated wetlands delineated using the Corps three-parameter approach as outlined in the Corps Wetland Delineation Manual and the Regional Supplement to the Corps Wetland Delineation Manual: Arid West Region (Environmental Laboratory 1987, Corps 2008a) also occur at two impact sites along the margins of intermittent streams.

A function-based assessment of 30 impact sites along the Project ROW was performed using CRAM methodology, covering both existing conditions and projected post-project conditions. The Conceptual HMMP describes the results of the CRAM function-based assessment of impact sites in full detail; results are only summarized herein. CRAM scores for existing conditions will be used as baseline data, while CRAM scores for post-project conditions were estimated as a means to predict the effects of impacts to wetland functions and services. Combined average CRAM scores are presented in Table 4, while raw scores for all CRAM assessments at impact and mitigation sites can be found in Appendix A. Further detail on the assessments can be found in the Conceptual HMMP (WRA 2010b).

Table 4. Combined Average CRAM Scores for Existing and Post-Project Conditions at Impact Sites along the Project ROW.

CRAM Index and Attributes	Existing (Baseline) Mean Scores	Projected Post-Project Mean Scores	Decrease Between Existing and Projected Post-Project Conditions (percentage points)
Overall Index Score	72.3%	69.3%	3.0
Landscape Context	93.4%	89.0%	4.4
Hydrology	88.6%	82.8%	5.8
Physical Structure	47.5%	46.3%	1.2
Biotic Structure	59.7%	59.3%	0.4

An estimate of effects of project impacts on functions and services in impacted WOUS and WOS was generated by comparing existing and projected post-project CRAM scores at impacted sites. As outlined in the Conceptual HMMP, the combined average CRAM score of representative impact sites for the Project is expected to decrease by an average of 3 percentage points from project implementation. This represents the average decrease in functions and services resulting from Project impacts to WOUS and WOS. The CRAM score for the one perennial stream within the ROW is not expected to measurably decrease. The majority of individual projected impacts would result from aggradation/degradation of stream channels and degradation of wetland buffer areas.

While impacts to Buffer Condition and Channel Stability are likely to be common among desert dry washes and mountain ephemeral impact locations, these combined stream categories saw a decline of less than 2 percentage points in overall projected CRAM scores. The largest decline in CRAM score came from one intermittent stream at the Lightner Mitigation Site where the Suncrest Substation is proposed, causing a loss of both stream channel and adjacent riparian habitat. The drop in overall CRAM score of 38.7 percentage points for this assessment area (AA) (accounting for the majority of an 11.6-point drop for all intermittent streams combined) is the most substantial single impact of the Project as reflected in projected CRAM scores. Enhancement activities at the Suckle Mitigation Site, in combination with mitigation at other sites included in the overall mitigation package, are intended to offset these impacts to functions and services.

5.2 Baseline Condition and CRAM Assessment of the Suckle Mitigation Site

The Suckle Mitigation Site includes 200 acres on three parcels. It is located along Interstate 8 within the southern portion of the Coyote Wells Watershed (HUC 12), which is situated within the southwestern reach of the Salton Sea Watershed (HUC 8) (Figure 4). Lands with the Suckle Mitigation Site are not open to the public; however, there are no fences or gates that restrict access. Several out-buildings and a residence are located adjacent to the northwest corner of the site. A PVC pipe originating at the northernmost desert fan palm oasis appears to run to one of these buildings. Interstate 8 runs along the northern portion of the site, curving along the western boundary to the south. The geology and landscape of this site is characterized by sloping, granitic hills and outcroppings typical of the Jacumba Mountains. There is an abundance of medium to large boulders throughout the site, likely a deterrent for OHV use and public use. The site ranges from 2,200 to 2,357 feet in elevation and supports PBS habitat. The Project ROW does not run through the Suckle Mitigation Site and therefore the site will not be impacted by any construction activities associated with ROW. A summary of jurisdictional areas within the Suckle Mitigation Site is outlined in Table 5.

Table 5. Jurisdictional Areas within the Suckle Mitigation Site

	Area (acres)	Length (linear feet)
Desert Dry Wash	7.47	11,200
Desert Fan Palm Oasis (wetland)	0.88	-
TOTAL:	8.35	11,200

Soils: Soils at the site are mapped as Rock Outcrop-Lithic Torriorthents-Omsott. Omsott soils are characterized as well drained with rapid to medium runoff and moderate to moderately rapid permeability (USDA 2010a). Soils do not appear on the hydric soils list (USDA 2010b).

Vegetation: Vegetation within the Suckle Mitigation Site includes Sonoran mixed woody and succulent scrub habitat. Dominant plant species observed within Sonoran mixed wood scrub include white bursage (*Ambrosia dumosa*), desert peach (*Prunus andersonii*), Bigelow's nolina (*Nolina bigelovii*), desert agave (*Agave deserti*), prickly pear (*Cylindropuntia* spp.), and Parish's goldeneye (*Viguiera parishii*). Desert fan palm oasis habitat is also present within this site. Dominant native plant species found in this community include California fan palm (*Washingtonia filifera*), yerba mansa (*Anemopsis californica*), and sandbar willow (*Salix exigua*). The southern desert fan palm oasis was dominated by California fan palm and Fremont cottonwood (*Populus fremontii*). In addition, salt cedar is present throughout most of the southern desert dry wash, which runs west to east, and within one of the centrally located desert dry washes, which also runs west to east. A small area located in the southwestern border of the mitigation site, south of Interstate 8, is classified as freshwater marsh. This area is small and comprises approximately one percent of the total land within this mitigation site (SDG&E 2010a).

Hydrology: Precipitation is the main source of hydrology for this site. This site typically receives approximately 3.21 inches of rainfall per year (USDA 2010c). Interstate 8 intersects with an area of desert dry washes at the southern end of the site. The largest desert dry wash at the southern end of the site flows from the west through a culvert under Interstate 8 and onto the Suckle Mitigation Site. Natural hydrology in this desert dry wash system may be somewhat impeded by the non-native, invasive plant species infestations of giant reed and salt cedar which are concentrated in middle of the on-site portion of this wash, though relatively sparse patches also occur upstream.

5.2.1 Baseline CRAM of the Suckle Mitigation Site

Function-based assessments were performed at four of the five proposed mitigation sites for the Project using CRAM methodology, covering both existing conditions and projected conditions following the implementation of mitigation activities. The assessments provide scores which quantify the existing conditions and functions and services of streams and wetlands being used as mitigation for impacts to WOUS and WOS along the Project ROW. The seven total mitigation CRAM assessments are representative of all proposed mitigation activities for the Project, and also provide insight on conditions at proposed mitigation sites where activities other than preservation will take place. One CRAM assessment was performed at the Suckle Mitigation Site and is the focus of this report. The assessment was performed on a desert dry wash and was completed in September 2010.



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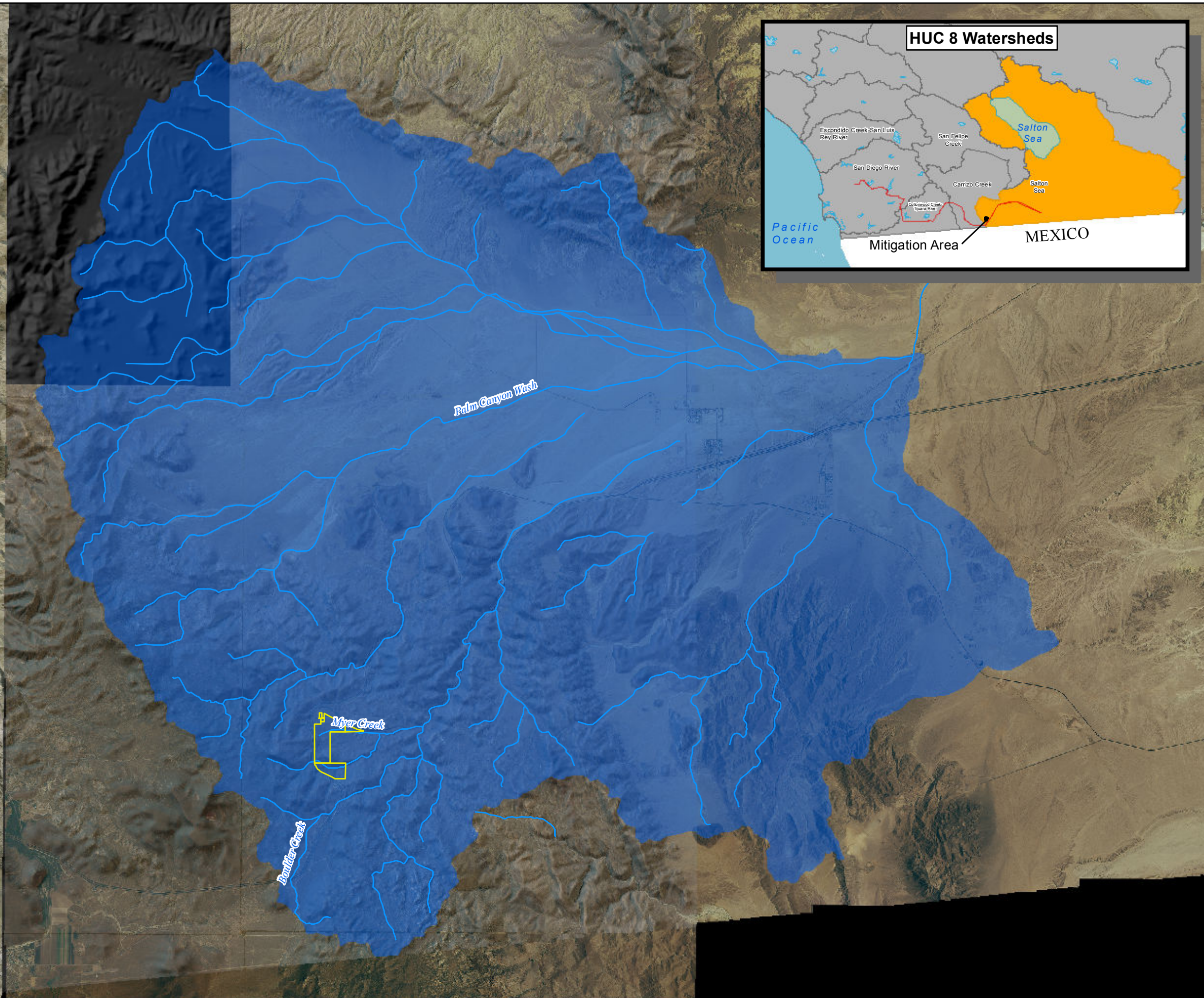
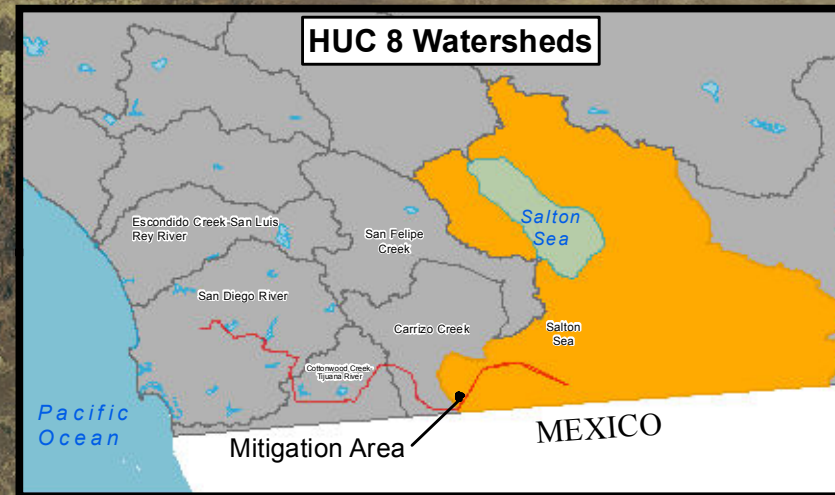
Sunrise Powerlink

San Diego County,
California

Figure 4

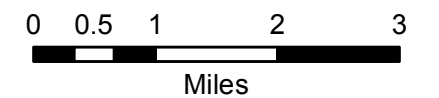
Suckle
Mitigation Site:

Coyote Wells
Watershed



Legend

- Parcel Boundary
- Coyote Wells Watershed (HUC 12)
- USGS Blueline Streams



Map Date: January 2011
Map By: Derek Chan
Base Source: San Diego County; NAIP, 2005

Of the six desert dry washes present within the Suckle Mitigation Site, the southernmost wash, which runs west to east, was chosen as a representative feature for this site to be assessed using CRAM (Figure 5). The AA was established roughly in the center of the desert dry wash, between two hydrologic breaks. This AA had an overall score of 68 percent.

Desert dry wash CRAM scores for the Suckle Mitigation Site are low, but are comparable to other desert dry wash CRAM scores in the vicinity. As described in the CRAM Technical Bulletin (CWMW 2009), seasonal wetlands and headwater streams often have naturally lower complexity [than higher-order streams or perennial wetlands] and may inherently produce lower scores under the current CRAM methodology. Or, as described in the CRAM User’s Manual (Collins *et al.* 2008), there may be a limit to the applicability of CRAM in low order (i.e., headwater) streams in very arid environments that tend not to support species-rich plant communities with complex horizontal and vertical structure. Table 6 provides CRAM scores for the Suckle Mitigation Site alongside average CRAM scores for other desert dry wash systems in the vicinity. This data includes the average scores for 25 desert dry wash impact AAs along the Project ROW (detailed in the Conceptual HMMP), and average scores for 84 desert dry wash AAs at a solar power generation project site approximately 14 miles northeast of the Suckle Mitigation Site in the Imperial Valley (SCCWRP 2010). The similarity of these scores suggests that it is normal for desert dry washes in this region to score low in such areas as Physical and Biotic Structure.

Table 6. Comparison of CRAM Scores for Desert Dry Washes within the Suckle Mitigation Site and Nearby Sites.

CRAM Index and Attributes	Suckle Existing Scores	Suckle Projected Scores	Mean Scores from Project Impact Sites	Mean Scores from a Nearby Site (SCCWRP 2010)
Overall Index Score	68%	71%	68%	68%
Buffer and Landscape Context	93%	100%	94%	95%
Hydrology	92%	92%	91%	91%
Physical Structure	38%	38%	43%	41%
Biotic Structure	50%	56%	43%	46%

Buffer & Landscape Context

The desert dry wash assessed at the Suckle Mitigation Site scored a 93.3 percent for the Buffer & Landscape Context attribute. The wash received a “B” for the Buffer Condition submetric, because the AA buffer borders Highway 8 and nonnative plants were observed throughout this area. The wash received an “A” for all other Buffer & Landscape Connectivity metrics and submetrics, due to the AA’s location in a fairly remote, undisturbed area.

Hydrology

The Suckle desert dry wash scored a 91.7 percent for the Hydrology attribute. This feature received a “B” for channel stability due to signs of aggradation and degradation within the channel. The wash received an “A” for all other Hydrology metrics.

Physical Structure

The desert dry wash received a 37.5 percent for the Physical Structure attribute. The wash received a “D” for Structural Patch Richness, containing only three of 16 possible patch types. The wash received a “C” for Topographic Complexity, having only one obvious break in slope as opposed to multiple “benches” that would allow the AA to receive a higher score. As shown in Table 6 and discussed above, low-order streams such as those at the Suckle Mitigation Site have a higher likelihood of scoring low on structure attributes. Low scores for these attributes appear to be normal for desert dry washes in the vicinity.

Biotic Structure

The Suckle desert dry wash scored a 50.0 percent for the Biotic Structure attribute. It received a “C” for the Number of Co-dominant Species submetric and the Horizontal Interspersion and Vertical Biotic Structure metrics. The AA received a “B” for the Number of Plant Layers submetric, and a “D” for Percent Invasion due to the presence of many invasive species such as salt cedar, Saharan mustard (*Brassica tournefortii*), and oats (*Avena spp.*).

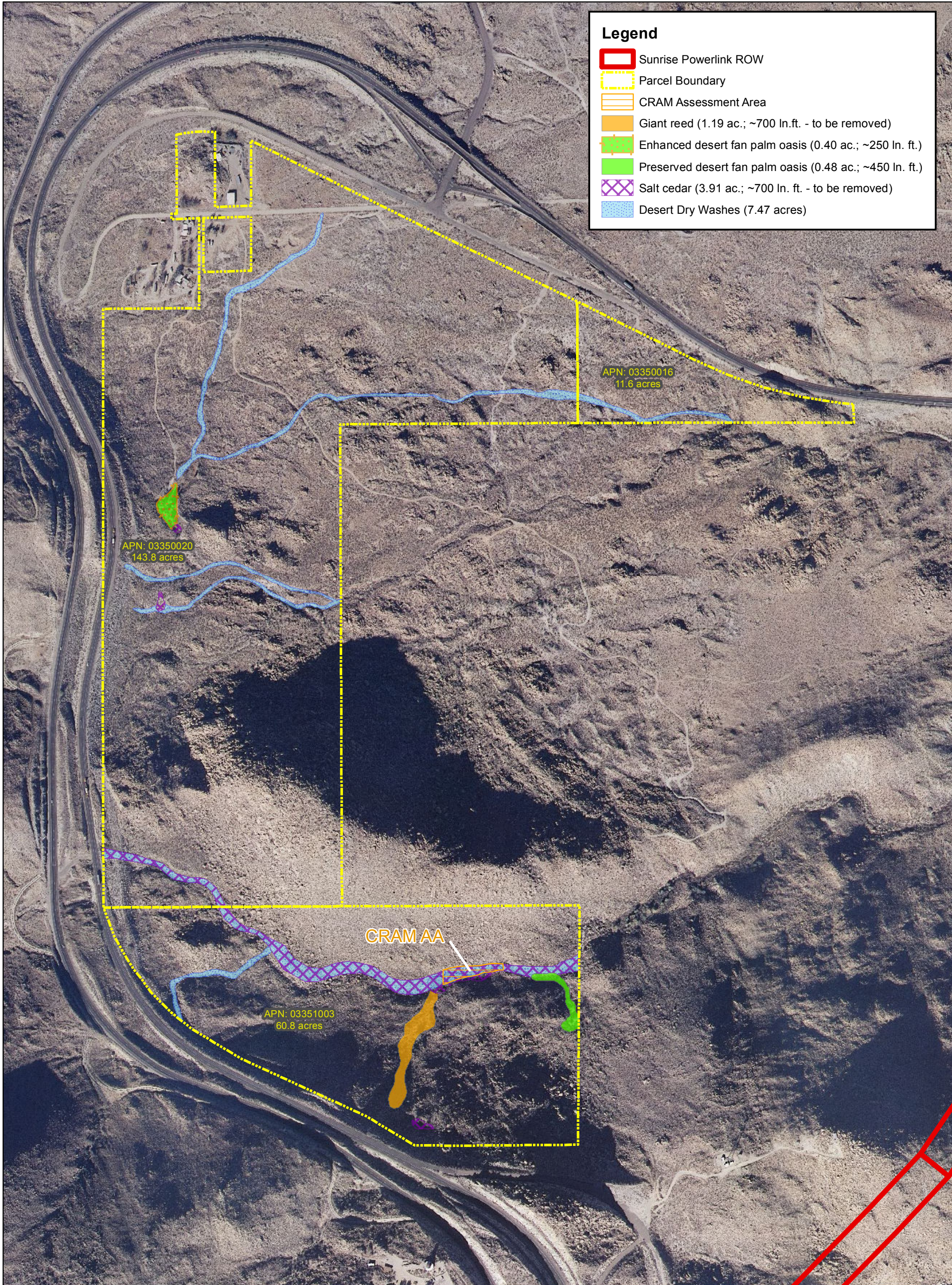
5.2.2 Projected CRAM Scores Following Mitigation Implementation at the Suckle Mitigation Site

Using proposed mitigation plans and data collected at the Suckle Mitigation Site for the Project, CRAM was used to predict how the AA at this site may improve following mitigation activities. These projected scores are based on conditions anticipated approximately 5 years after project implementation, as the full benefit of mitigation actions may not be evident immediately upon completion.

Enhancement actions will take place at the Suckle Mitigation Site that will contribute to higher CRAM scores for streams on the site. These activities are detailed in Section 7 and Figure 6. Removal of non-native plant species, which currently dominate much of the desert dry wash area at the Suckle Mitigation Site, is the main component of stream enhancement measures for this mitigation site.

Buffer & Landscape Context

Under projected future conditions, the Buffer and Landscape Context score for the Suckle AA is expected to increase from a 93.3 percent to a 100.0 percent. This increase would be possible because weed removal activities at the Suckle Mitigation Site are expected to allow the score for the Buffer Condition submetric to increase from a “B” to an “A.” In addition, with management of the site for mitigation purposes, Off-highway Vehicle (OHV) use will no longer be allowed. The cessation of this activity, which disturbs soil and likely promotes the spread of nonnative vegetation, will be beneficial to all streams and stream buffers at the Suckle Mitigation Site.

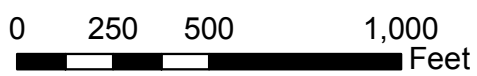
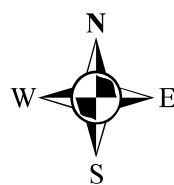


Legend

- Sunrise Powerlink ROW
- Parcel Boundary
- CRAM Assessment Area
- Giant reed (1.19 ac.; ~700 ln.ft. - to be removed)
- Enhanced desert fan palm oasis (0.40 ac.; ~250 ln. ft.)
- Preserved desert fan palm oasis (0.48 ac.; ~450 ln. ft.)
- Salt cedar (3.91 ac.; ~700 ln. ft. - to be removed)
- Desert Dry Washes (7.47 acres)

Figure 5. CRAM Assessment Areas within the Suckle Mitigation Site

Sunrise Powerlink
Imperial County, California



Map Date: November 2010
 Map By: Derek Chan
 Base Source: Imperial County
 Filepath: L:\Acad 2000 Files\17000\17128-3\GIS\ArcMap\CRAM
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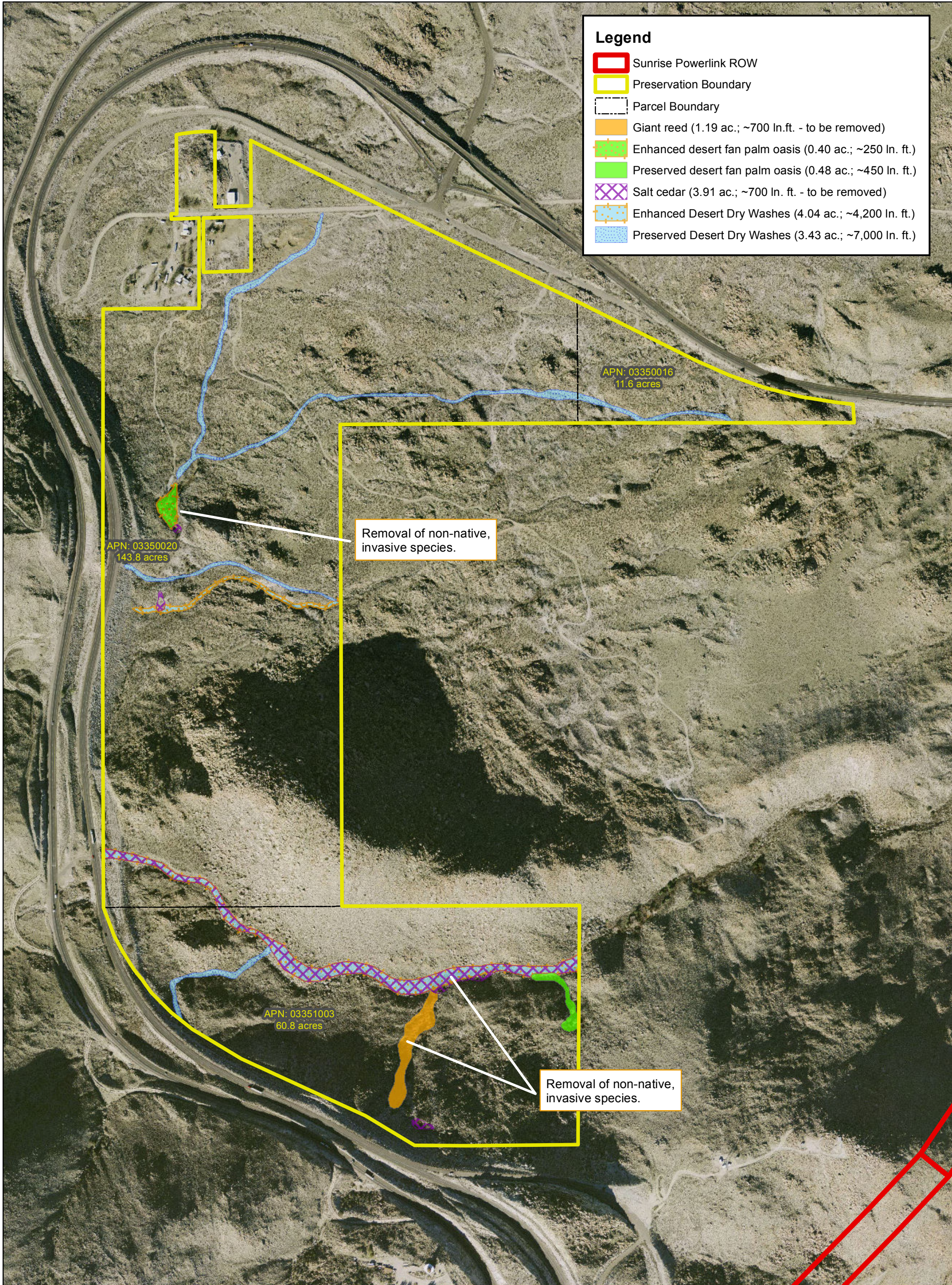
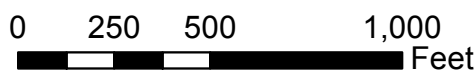
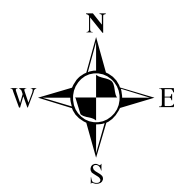


Figure 6. Mitigation Activities at the Suckle Mitigation Site

Sunrise Powerlink
Imperial County, California



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Map Date: November 2010
 Map By: Derek Chan
 Base Source: Imperial County
 Filepath: L:\Acad 2000 Files\17000\17128-3\GIS\ArcMap\Mitigation\Suckle\Suckle_Mitigation_20101111.mxd

Hydrology

Scores for the Hydrology attribute are not expected to change for the assessed desert dry wash at the Suckle Mitigation Site within 5 years of mitigation implementation. However, cessation of OHV use on the site will likely reduce aggradation and degradation within stream channels over a longer time period. Thus, although it is not reflected in the 5-year projection, mitigation implementation at the Suckle Mitigation Site also has the potential to increase scores for the Channel Stability metric and the overall CRAM score.

Physical Structure

The desert dry wash at the Suckle Mitigation Site assessed using CRAM is not anticipated to improve its score for the Physical Structure attribute by the end of the 5-year period projected for this study. The low score for this AA may reflect normal conditions for desert dry washes, and is not anticipated to improve within 5 years of mitigation implementation.

Biotic Structure

Scores for the Biotic Structure attribute are expected to increase from a 50.0 percent to a 55.6 percent for the Suckle AA. This increase would be due to a substantial increase in the Percent Invasion submetric score, from a "D" to a "B." Proposed mitigation activities include removal of several invasive species that are currently prevalent in the AA, including giant reed, salt cedar, tocalote (*Centaurea melitensis*) and Saharan mustard. The other Biotic Structure metric and submetric scores for the Suckle AA are not expected to change.

5.2.3 Conclusions of CRAM for Mitigation at the Suckle Mitigation Site

As described in Section 5.2.1, CRAM assessments at the mitigation sites are representative of all mitigation activities for the Project. The CRAM assessment at the Suckle Mitigation Site, in particular, highlights improvements to desert dry wash systems that will be affected by mitigation activities at this site. A comparison of existing and projected CRAM scores for the Suckle AA is presented in Table 7.

Mitigation activities for the Project should provide improvements in the same areas of functions and services that are likely to be impacted by the Project, as reflected in CRAM scores. A portion of the improvement will be obtained through mitigation activities at the Suckle Mitigation Site. Comparing existing CRAM scores to projected scores, it is possible to consider the nature and magnitude of likely improvements to functions and services for the representative Suckle AA. CRAM scores for this AA are summarized in Table 7. Further CRAM information can be found in Appendix B of the Conceptual HMMP, and scores for individual sites are presented in Appendix A.

Table 7. Average CRAM Attribute and Overall Scores for a Proposed Mitigation Site at the Suckle Mitigation Site.

CRAM Index and Attributes	Existing (Baseline) Mean Scores	Projected Post-Project Mean Scores	Projected Increase Following Mitigation Implementation (percentage points)
Overall Index Score	68.1%	71.2%	3.1
Buffer & Landscape Context	93.3%	100.0%	6.7
Hydrology	91.7%	91.7%	0
Physical Structure	37.5%	37.5%	0
Biotic Structure	50.0%	55.6%	5.6

All CRAM attribute scores at impact sites are projected to have some level of decrease as a result of the Project, but the largest impacts would be in the areas of Hydrology and Buffer & Landscape Context (Table 4). Mitigation actions at the Suckle Mitigation Site should allow improvements in the areas of Buffer & Landscape Context and Biotic Structure that are apparent within 5 years of mitigation implementation. In addition, there is potential for further increases in CRAM scores for Hydrology once OHV use is discontinued at the site. However, indicators that would allow a higher CRAM score for this attribute may take longer to develop than the 5-year period discussed in this report. Projected average increases and decreases in CRAM score are depicted in Figure 7.

In conclusion, CRAM provides a basis for comparing impacts along the Project ROW to proposed mitigation actions. Using a number of different approaches, proposed actions at the Suckle Mitigation Site contribute to the overall mitigation package to compensate for the areas of functionality that are impaired by the Project.

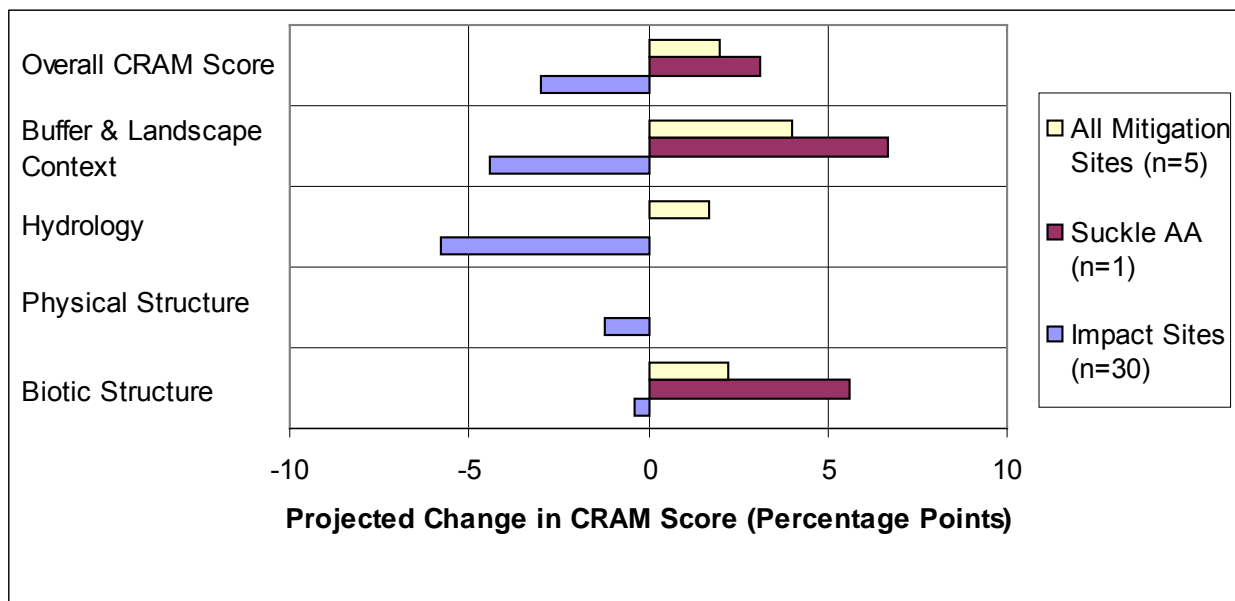


Figure 7. Projected Average Changes in CRAM Score at Stream Impact Sites and Stream Mitigation Sites 5 Years after Mitigation Implementation.

6.0 DETERMINATION OF CREDITS

The Suckle Mitigation Site contains two habitat types which will contribute to the overall mitigation acreage contained in the five mitigation properties: desert dry wash and wetland habitats. Within this site, compensation for permanent impacts to these habitats will be provided. Mitigation acreages and credits are discussed in more detail in the following sections.

6.1 Mitigation Credits within the Suckle Mitigation Site

The Suckle Mitigation Site provides 15 percent of the total Project mitigation acreage for desert dry washes and five percent of the project mitigation for wetlands. Additional credits for these habitat types are provided by the Long Potrero, Chocolate Canyon, Desert Cahuilla, and Lightner mitigation sites. A summary of mitigation acres provided by the Suckle Mitigation Site is presented in Table 8 below. A summary of collective mitigation acres provided by the entire mitigation program at all five sites is presented in Section 6.2.

Table 8. Summary of Sunrise Powerlink Aquatic Resource Mitigation at the Suckle Mitigation Site

Site	Resource Type	Mitigation Area [acres; linear feet for streams]			
		Preservation	Enhancement	Restoration	Total
Suckle Mitigation Site	Desert Dry Washes	3.43 (7,000)	4.04 (4,200)	-	7.47 (11,200)
	Wetlands	0.48	0.40		0.88
Totals		3.91	4.44	0	8.35

6.2 Summary of Mitigation Credits for Entire Mitigation Program at all Sites

A summary of total mitigation for permanent impacts (Table 9) and temporary impacts (Table 10) for each resource type is detailed below. In addition, a summary of mitigation activities at each mitigation site for the Project is contained in Table 11. On an acreage basis, the Project provides more than adequate mitigation to compensate for unavoidable permanent impacts to jurisdictional areas. In addition, enhancement and restoration activities at four of the five mitigation sites will increase the functions and services provided by jurisdictional areas at the mitigation sites. Cumulatively, this provides ample mitigation to compensate for reduced functions and services in temporarily and permanently impacted jurisdictional areas.

Proposed mitigation activities for the Project will provide improvements in the same areas of functions and services that are likely to be impacted by the Project. Overall, the average projected decrease of three CRAM percentage points at stream impact sites will be offset by an average increase of two percentage points at stream mitigation sites at the end of the 5-year monitoring period, together with restoration, enhancement, and preservation of these areas at a cumulative 35:1 ratio by acreage for permanent impacts and 2:1 ratio for temporary impacts. CRAM scores for the Physical Structure and Biotic Structure attributes may increase as the habitat areas develop over the long-term, thus raising average overall CRAM scores further than are indicated herein for the term of the 5-year monitoring program.

Projected CRAM data at mitigation sites is intended to serve as a guide for comparison of mitigation and impacts, and should not be directly applied to mitigation ratios. The results of multiplying CRAM score by any dimension of size, such as wetland area, length, or perimeter, might distort the scaling of some metrics, weight the values of other metrics in unintended ways, and thus lead to erroneous results (CWMW 2009). Furthermore, areas of habitat preservation were not included in the CRAM analyses, but are valuable in maintaining the overall condition of their watersheds and protecting the mitigation jurisdictional features from negative external stressors such as edge effects.

Table 9. Summary of Sunrise Powerlink Project Mitigation for Permanent Impacts to Waters of the U.S.

Habitat Type	Permanent Impacts	Off-site Restored Mitigation Acreage	Off-site Enhanced Mitigation Acreage	Off-site Preservation Acreage	Total Mitigation Acreage for Permanent Impacts	Permanent Impact Mitigation Ratio
Desert Dry Washes	2.45	0	4.04	74.50	78.54	32.1:1
Other Streams	0.35	0.04	2.13	1.12	3.29	9.4:1
Wetlands	0.08	0	7.52	11.11	18.63	232.9:1
Total	2.88	0.04	13.69	86.73	100.46	34.9:1

Table 10. Summary of Sunrise Powerlink Project Mitigation for Temporary Impacts to Waters of the U.S.

Habitat Type	Temporary Impacts	On-site Habitat Replacement Acreage	Temporary Impacts Replacement Ratio	Off-site Preservation Acreage	Off-site Mitigation Ratio
Desert Dry Washes	6.53	6.53	1:1	13.06	2:1
Other Streams	0.55	0.55	1:1	1.10	2:1
Wetlands	0	NA	NA	NA	NA
Total	7.08	7.08	1:1	14.16	2:1

Table 11. Summary of Sunrise Powerlink Aquatic Resource Mitigation

Site	Resource Type	Mitigation Area [acres; linear feet for streams]			
		Preservation	Enhancement	Restoration	Total
Desert Cahuilla	Desert Dry Washes	84.13 (24,400)			84.13 (24,400)
	Streams				
	Wetlands				
	Riparian				
Suckle Mitigation Site	Desert Dry Washes	3.43 (7,000)	4.04 (4,200)		7.47 (11,200)
	Streams				
	Wetlands	0.48	0.40		0.88
	Riparian				
Lightner Mitigation Site	Desert Dry Washes				
	Intermittent and Ephemeral Streams	0.54 (16,310)	0.10 (3,558)	0.04 (1,117)	0.68 (20,985)
	Wetlands	0.20	0.63		0.83
	Riparian	15.83	0.63	3.43	19.89
Long Potrero	Desert Dry Washes				
	Intermittent and Ephemeral Streams	1.39 (16,857)	0.96 (6,054)		2.35 (22,911)
	Wetlands	9.92	5.99		15.91
	Riparian	12.62	3.95		16.57
Chocolate Canyon	Desert Dry Washes				
	Perennial and Intermittent Streams	0.28 (9,051)	1.08 (3,162)		1.36 (12,213)
	Wetlands	0.99	0.02		1.01
	Riparian	10.25	0.30		10.55
Totals¹	Desert Dry Washes	87.56	4.04		91.60
	Streams	2.21 (42,218)	2.14 (12,774)	0.04 (1,117)	4.39 (56,109)
	Wetland	11.11	7.52		18.63
	Riparian	38.70	4.88	3.43	47.01

¹ Totals reflect mitigation for both permanent and temporary impacts to Waters of the U.S.

7.0 MITIGATION WORK PLAN

This section of the Final HMMP is divided into two parts. The first part provides a description of mitigation implemented for this mitigation site, with maps and tables showing acreages and locations of mitigation within the site. The second part describes implementation methods for general mitigation activities that will be performed at the mitigation site. These activities are generic in nature and will be referenced in appropriate sections where applicable.

7.1 Activities Planned at the Suckle Mitigation Site

Preservation and enhancement activities planned for this mitigation site are described in the following sections. Details regarding site preparation and Best Management Practices (BMPs) used throughout all of the mitigation sites are described in Section 7.2. Mitigation for the loss of desert dry wash and wetland functions and services within project impact areas will occur on this site.

The Suckle Mitigation Site was selected for mitigation based on the presence of desert dry washes, as well as desert fan palm oasis vegetation. The Suckle Mitigation Site is included as mitigation for project impacts to desert dry washes, and also offers the opportunity for preservation and enhancement of desert fan palm oasis wetland vegetation through the removal of the non-native, invasive salt cedar. Total area of cover of non-native, invasive plant species to be removed was assessed at this site by aerial imagery and site visits by WRA staff. Mitigation to be implemented at the Suckle Mitigation Site includes:

1. Preservation of streams, wetlands, and riparian habitat
2. Enhancement of stream, wetland, and riparian habitat, including:
 - a. removal of non-native, invasive plant species
 - b. planting of native vegetation to improve vegetation diversity and structure

Mitigation acreage within the Suckle Mitigation Site is listed in Table 12 below. Mitigation activities planned for the Suckle Mitigation Site are shown in Appendix B and Figure 6, and each activity is described further in the text below.

Table 12. Summary of Mitigation at the Suckle Mitigation Site

Mitigation Action	Area (acres)	Length (linear feet)
Desert Dry Washes		
Desert Dry Wash Preservation	3.43	7,000
Desert Dry Wash Enhancement and Preservation	4.04	4,200
Total Desert Dry Washes	7.47	11,200
Wetlands		
Desert Fan Palm Oasis Enhancement and Preservation	0.88	-
Total Wetlands	0.88	-

7.1.1 *Preservation*

A total of 0.88 acre of wetlands and 7.47 acres of desert dry wash habitat within the Suckle Mitigation Site will be preserved through this mitigation action. Land use restrictions and long-term financing mechanisms will ensure that these waters and their surrounding habitats are preserved in perpetuity.

7.1.2 *Enhancement*

The entire 0.88 acre of wetland habitat will also be enhanced through the removal of non-native, invasive vegetation. In addition, 4.04 acres of the 7.47 acres of preserved desert dry washes will also be enhanced. Enhancement activities are described in more detail below.

Non-native, Invasive Plant Removal

Non-native, invasive plant species, or weeds, to be removed include those species listed on the California Invasive Plant Council (Cal-IPC; <http://www.cal-ipc.org/ip/inventory/weedlist.php>) as having a severe or moderate (A or B) invasive impact, including salt cedar, giant reed, and the non-grass annual plant species Saharan mustard. These non-native, invasive plant species will be removed from desert dry washes, desert fan palm oasis wetland vegetation, and surrounding areas within the Suckle Mitigation Site. Non-native, invasive grass species were not observed to be present on-site outside of sparse (less than 1 percent) cover similar to surrounding reference locations. In general, outside of desert dry wash bed and banks (confined system), non-native, invasive plant species did not occur. Therefore, efforts to remove and control non-native, invasive plant species will focus on salt cedar and giant reed that are currently present within the bed and banks of the channel (see Table 13).

Table 13. Priority Non-native, Invasive Plants to be Removed at the Suckle Mitigation Site

Botanical Name	Common Name	Method of Control
<i>Arundo donax</i>	giant reed	Giant Reed Control Method (Section 7.2.1)
<i>Brassica tournefortii</i>	Saharan mustard	Hand and Mechanical Removal (Section 7.2.1)
<i>Tamarix ramosissima</i> spp. <i>ramosissima</i>	salt cedar	Salt Cedar Control Method (Section 7.2.1)

Sequence and Timing

Mitigation will be implemented concurrent with project impacts to desert dry washes. All mitigation activity will be in conformance with applicable measures for special status species as outlined in the Project Final EIR/EIS and SAA including:

- PBS
- BBG

Sequence and timing are summarized below in Table 14. Specific control methods to be used are further described in Section 7.2.1.

Table 14. Sequence and Timing of Mitigation Activities at the Suckle Mitigation Property²

	Monitoring Years					
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Weed Removal						
<u>Giant Reed Removal</u>	Up to five times between Aug. 1 and Dec. 31	At least once between Aug. 1 and Oct. 31.	At least once between Aug. 1 and Oct. 31	At least once between Aug. 1 and Oct. 31	At least once between Aug. 1 and Oct. 31	At least once between Aug. 1 and Oct. 31
<u>Salt Cedar Removal</u>	Twice between Aug. 1 and Dec. 31.	At least once between Aug. 1 and Oct. 31.	At least once between Aug. 1 and Oct.	At least once between Aug. 1 and Oct.	At least once between Aug. 1 and Oct.	At least once between Aug. 1 and Oct.
<u>Manual removal of annual weeds</u>	Once between Jun. 1 and Aug. 31.	Twice between Feb. 1 and Jun. 30.	Twice between Feb. 1 and Jun. 30.	Twice between Feb. 1 and Jun. 30.	Twice between Feb. 1 and Jun. 30.	Twice between Feb. 1 and Jun. 30.
<u>Manual removal of perennial weeds</u>	Twice between Jun. 1 and Oct. 31.	Once a month between Feb. 1 & Aug. 31.	At least 4 times between Feb. 1 & Aug. 31.	At least two times between Feb. 1 and Jun. 30.	At least two times between Feb. 1 and Jun. 30.	At least two times between Feb. 1 and Jun. 30.

The first removal of all giant reed plants (within the designated removal areas) will occur in Year 0 up to five times between August 1 and December 31. Removal of this species will occur for Years 1-5 at least once between August 1 and October 31. All new giant reed plants that have newly established on the site and all plants that have not responded to the herbicide treatment the previous year shall be removed.

The first removal of salt cedar will occur between August 1 and December 31 in Year 0. For Years 1-5, Salt Cedar removal will occur at least once between August 1 and October 31 unless otherwise specified by the consulting biologist. The contractor will retreat any sprouting stumps between 4-6 months after the first treatment. All new salt cedar trees that have newly established on the site and all trees that have not responded to the herbicide treatment the previous year shall be removed.

Weed species designated for manual removal include non-native, invasive plant species listed by the California Invasive Plant Council (Cal-IPC) as having a severe or moderate (A or B) impact. Manual removal of annual weeds will occur one time between June 1 and August 31 for Year 0. During Years 1-5, annual weeds will be manually removed twice between February 1 and June 30. Perennial weeds will be manually removed once a month between February 1 and August 31 in Year 1.

Perennial weeds shall be removed four times during the growing season (between February 1 to August 31) in Year 2.

² All mitigation activity timing will be coordinated around special status species windows.

In Years 3, 4, and 5 all weeds (annual and perennial) will be removed twice annually at a minimum between February 1 and June 30.

7.2 General Mitigation Implementation Methods and BMPs

This section describes general methods for implementation of mitigation activities that would occur on the Suckle Mitigation Site. These activities include site preparation, weed removal, and erosion control BMPs that would be implemented as applicable to a given site. In addition, all mitigation activities will avoid impacts to nesting birds and will follow the breeding season dates listed in the Project Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS; Aspen Environmental Group 2008).

7.2.1 Implementation Methods for Control of Non-native, Invasive Plant Species

Non-native, invasive plant species removal will be implemented as part of enhancement activities, during site preparation for restoration activities, and as part of long-term management activities throughout the project alignment (Recon Environmental Inc. 2010). Non-native, invasive plant species removal will target all Cal-IPC non-native, invasive annual and perennial plant species listed as having a severe or moderate (A or B) invasive impact with the exception of annual grass species which are abundant within reference locations. Non-native, invasive plant species removal methods to be implemented for each species are indicated in each of the invasive plant species control table (Table 13) above. Specifics on the implementation of these methods are described in more detail below.

In general and when feasible, live reproductive plant materials such as seed and rhizomes, will be removed from the site. Some areas of the site are remote and difficult to access, and it may not be feasible to remove plant material from these areas. In addition, some areas have extremely fragile habitats that could be damaged by attempting to remove large quantities of plant material. For these areas, the option of processing and disposing of plant material on-site in an appropriate manner will be determined by the land manager. In all cases, viable plant material will be processed and disposed of outside of the bed and banks of the channel. Plant material processing methods that may be proposed include:

- Cutting material into manageable size and disposing of materials on-site to create brush piles for wildlife
- Removal of material from the site

Weed Removal as Part of Site Preparation

Mowing will be one method used for initial removal of non-native, invasive plants to prepare restoration and enhancement areas, as appropriate, prior to the application of seeding and the installation of container plants. Based on the remoteness and topography of the mitigation sites, mowing will be implemented using weed-eaters (or “weed-whackers”) or similar trimmers with string or metal blades. This method may be used to minimize the extent and height of non-native annual herbs and grasses. Mowing will be used only if it will not have a deleterious effect on native plant species that are interspersed with the weeds.

Removal of Priority Weed Species

The removal of the priority weed species at the Suckle Mitigation Site, including Saharan mustard, will occur by manual methods, when possible. The removal methods of giant reed and salt cedar are described in separate sections below. Manual removal is the preferred method of removing most weed species from the site since ground disturbance and adverse effects to sensitive wildlife species will be minimized.

Removal of Saharan mustard will be performed first during the late winter or early spring when soils are moist enough to remove most plants without breaking the roots. A second removal effort will take place in late spring or early summer to remove any re-sprouted plants and ensure that the weed control area is weed free. Plant materials that are removed will be disposed of carefully to prevent regeneration or spread. Weeds will be removed before the species sets seed. When this is not feasible, seed heads will be removed from plants prior to removal of the remaining plant. Seed heads of non-native, invasive plant species will be placed in plastic trash bags and removed from the project site for proper disposal. Saharan mustard will be removed twice during the spring during the 5-year monitoring period unless otherwise specified by the consulting biologist.

If manual removal methods are tried and found to be ineffective after 2 years of repeated treatment, or if the problem is too widespread for these methods to be practical, then alternative methods, such as chemical controls, may be implemented as described below. All of the methods described in this section will be adapted to each species based on its morphology and phenology.

Herbicides

Herbicides will be used when manual removal methods are not effective and may be used in conjunction with manual removal methods for species that are known to be difficult to control. The project will use glyphosate-, triclopyr-, or imazapyr- based herbicides, such as Rodeo®, or other products that are approved for use near wetlands and streams. As an alternative to commercially manufactured herbicides, the project may use an organic alternative of horticultural vinegar (20 percent) spray or common household vinegar (5 percent) spray. Herbicides will not be used when rain is predicted within 24 hours after application. The owner and applicator must comply with all state and local regulations regarding the application of herbicides.

Herbicides will typically be applied using a localized spot-treatment method and applied in a manner that will eliminate or reduce drift onto native plants. The above ground plant material shall be removed from the site and disposed of at a municipal recycling center that is equipped to process and recycle green waste (Recon Environmental Inc. 2010). The removal shall be performed at a time when the plants do not have ripe seed. If this is not feasible, then seeds will be removed, placed in plastic bags and disposed of offsite. Seedlings and small plants may be hand-pulled, if it is determined to be acceptable by the consulting biologists.

Giant Reed Removal

Currently, the preferred methods of giant reed removal in Southern California are the bend-and-spray and hook methods. Due to the height of giant reed (up to 20 feet tall) and interspersed with surrounding native vegetation, sensitive species, and/or water, these methods have proven effective for remotely located, small to moderately sized infestations (Newhouser 2008).

Alternatively, the cut stump or direct foliar spray method can be used in areas where giant reed stems cannot be bent. Where giant reed is removed near the edge of streams, caution must be used so as not to allow any pieces of giant reed to fall in or near intermittent or perennial streams. Timing of giant reed stem spraying and removal is extremely important. Late summer through early fall (August to October) is the most effective time of year. Follow up spraying of resprouts must be done one month following the first treatment and up to five times within the first year. Giant reed removal will then occur on an annual basis during the monitoring period or as specified by the consulting biologist.

Using the bend-and-spray method, a worker bends the giant reed stems away from the native vegetation and another worker (the applicator) sprays the stems with the approved herbicide. The person prepping the giant reed grasps the cane with two hands between stem nodes and bends or snaps the cane so that it splits longitudinally without breaking off. If done properly, over 90 percent of the bent canes will remain intact for spraying. The nodes should not be bent as they tend to break off completely. Giant reed stems must remain alive to translocate herbicide to their rhizomes and kill the plant. Next, a fan shape should be created with the bent canes on the ground. With a crew of two or three workers to bend the giant reed stems, and one applicator, the removal team can rotate between three or four clumps of giant reed at a time.

The hook method allows the applicator to work solo, working the hook with the left hand (between pumping) and spraying herbicide with the right hand. Using a hook, the worker gathers up to 10 giant reed stalks to concentrate them for quicker application. This method uses the least amount of herbicide and has the least potential to overspray and risk of non-target plant species damage. The hook resembles a swimming pool rescue hook (8-foot wooden pole with an 18-inch PVC hook with an additional side hook on top) and was designed to reach up and pull giant reed stems down away from desirable vegetation to spray them. The hook is very useful on small patches of giant reed to reach the center of the clump. According to the hook technique, the worker inserts the hook vertically into the upright canes and then turns the hook horizontally to grab approximately 10 canes. The next step is to pull the stems towards you while stepping back and sliding the hook up the canes. As you slide the hook up the stems, the giant reed stems will bend toward you and you will be able to spray the full length of the cluster of stems in the hook.

The cut-stump method may be used in remote areas where giant reed stems cannot be bent to spray or in situations where a foliar spray application poses a significant risk to aquatic species, desirable vegetation, and other non-target species. It may also be used where standing, dead giant reed poses a fire hazard and when conducting a follow-up treatment on a small amount of regrowth. Using this method, giant reed stems are cut approximately one foot from the ground with a chainsaw, lopper, or machete. The stem stump is then immediately painted with herbicide within 1 minute of cutting to be effective. Dye will be added to the herbicide to mark treated stumps and ensure full coverage. When feasible, all cut biomass must be mulched and/or carried off site per the specific site management plan.

Salt Cedar Removal

Salt cedar may be removed by hand or by using an herbicide application, depending on the size of the plants. Removal of salt cedar plants will occur between August and October, and resprouts will be removed between 4 and 6 months following the first removal. When feasible, all biomass must be removed and disposed of at an appropriate off-site location. Follow up spraying of resprouts must be done on an annual basis during the monitoring period and may be required multiple times each year to eliminate infestations.

When salt cedar plants are seedlings, hand pulling or a weed wrench can be used to remove individuals. Removing the entire plant, including the root system, ensures that plants do not resprout. For salt cedar saplings and trees, an herbicide treatment will be used. A triclopyr-based herbicide such as Garlon®4 or Remedy™ or imazapyr-based herbicide such as Arsenal® or Habitat® or other herbicides approved by the Environmental Protection Agency for aquatic settings can be used. All herbicides must be used according to the manufacturer's directions.

The cut-surface, girdle-spray, and basal bark methods of salt cedar removal involve the use of herbicide. The cut-surface method is the preferred method of salt cedar removal. Using this method, the salt cedar trees or saplings are cut within 6 inches of the ground surface. The stump surface is sprayed with herbicide immediately following the cuts. The dead plant biomass is then removed from the site if feasible or disposed of in locations on site approved by the land manager.

The girdle-spray and basal bark methods can be used in places where removal of the dead plant biomass is prohibitive due to site conditions and with approval by the consulting biologist. The girdle-spray method is used on salt cedar trees with trunk diameters of 4 inches or greater. The trees are girdled by the creation of shallow, overlapping cuts around the trunk. Herbicide is applied to the cut surface immediately following girdling. The basal bark method can be used on salt cedar trees with diameters of less than 4 inches. Using the basal bark treatment, an herbicide mixture is applied to the lowest 12 inches of the plant. Following the girdle-spray or basal bark treatments, the plants can be left in place to die and be retreated if necessary. Any seed heads on the plants will be removed and brought off site, however.

7.2.2 Erosion Control Measures

Erosion control measures will be utilized in areas that involve grading and in conjunction with any mitigation activities that result in bare ground. These areas will be covered with rice straw to protect the surface from erosion. In areas where the slope is greater than 3:1 (horizontal to vertical), straw wattles, straw bales, and/or silt fence may be installed to reduce the velocity of runoff and trap sediment. Wattles, bales and silt fence will either be biodegradable or will be removed as part of the mitigation, when they are no longer needed. In addition, as specified in the Storm Water Prevention and Protection Plan (SWPPP, SDG&E 2010b), reseeding will occur in areas that involve weed removal.

8.0 HMMP MONITORING AND PERFORMANCE CRITERIA

8.1 As-built Conditions Reporting

As-built conditions reporting will take place at the end of the 120-day establishment period and will serve to notify the agencies of the completion of construction. In addition, this will be reported as part of the first annual monitoring report for this mitigation site. As-built conditions reporting will include descriptions of enhancement activities undertaken during mitigation implementation. If enhancement activities take place during consecutive years, the reporting will occur as part of the annual reporting the first year following implementation at the mitigation site.

8.2 Initial Mitigation Monitoring Activities and Performance Criteria

The purpose of the project's mitigation monitoring program is to assess the effects of enhancement activities, as well as to provide guidance for habitat management in the event of

negative environmental stressors that may affect ecosystem functions and services. Where possible, the monitoring program will implement the South Coast Index of Biological Integrity, a part of the SWRCB Surface Water Ambient Monitoring Program (SWAMP), in conjunction with CRAM, to determine ecosystem functions and services. The project will use CRAM to provide quantitative evaluation of mitigation site waters during the initial monitoring period, as well as qualitative monitoring that will include monitoring and mapping of non-native invasive species, unnatural or excessive erosion, and other negative environmental stressors.

Monitoring at the mitigation site would be for a minimum 5-year period, with Year 1 beginning following the completion of mitigation action (e.g., non-native, invasive species removal activities) at the site and the completion of preservation agreements between SDG&E and the long-term land manager. Monitoring would continue on an annual basis until the site has met all performance criteria *and* all regulatory agencies have agreed in writing that the site has met performance criteria and is ready for transfer to the long-term manager. Monitoring methods are described below.

8.2.1 Mapping of Desert Dry Washes and Desert Fan Palm Oasis

Purpose: Monitoring of total acreage and distribution of dry desert washes and desert fan palm oasis habitat on the mitigation site to provide information for management purposes.

Timing: Spring or summer following Years 1 and 5 of monitoring.

Methods: Mapping of desert dry washes and desert fan palm oasis habitat would be completed using Geographic Information System (GIS) based on high resolution (2-meter or less) aerial photographs taken during the respective monitoring year. The GIS mapping would then be confirmed in the field. The final maps and total acreage of desert dry washes and desert fan palm oasis present at the site will be reported in the annual monitoring report in Years 1 and 5.

Performance Criteria: Total acreage of desert dry washes and desert fan palm oasis habitat at the site may change under natural conditions during the course of the monitoring period. Such fluctuation may occur at the site as a natural process, and may result in an increase or a decrease in the total size and configuration of desert dry washes. If anthropogenic activities are determined to have resulted in a decrease in total acres of desert dry washes or desert fan palm oasis habitat in Year 5 of monitoring, appropriate management actions will be undertaken to address these issues and restore natural site hydrology.

8.2.2 Quantitative CRAM Evaluation of Desert Dry Washes

Purpose: Provide quantitative evaluation of preserved desert dry washes to inform adaptive management through comparison of CRAM scores throughout the monitoring period.

Methods: CRAM methodology will be applied in Years 1, 3, and 5 within the established desert dry wash AA. Monitoring this AA will provide a standard baseline to allow comparison between CRAM scores across monitoring years. Evaluation of dry washes using CRAM will be led by certified CRAM practitioners trained in the use of CRAM to evaluate these habitats. The results of dry wash evaluations using CRAM will be presented as part of the monitoring reports and will verify that the sites have increased in value relative to performance standards. CRAM will be conducted in conjunction with other Project monitoring activities that will occur between February and June of each monitoring year, when plant species are most identifiable.

Performance Criteria: CRAM scores will be used to evaluate the need for management action to address scores that decrease as a result of project activities. If CRAM scores decrease, reasons for the decrease will be reported as part of the annual monitoring report and appropriate management actions will be implemented.

8.2.3 Qualitative Monitoring for Non-native, Invasive Species

Purpose: To monitor non-native, invasive plant species to identify and re-treat any re-growth or new colonies prior to spreading.

Methods: Invasive species monitoring would occur on a quarterly basis the first year, bi-annual basis the second year, and annually thereafter. After the first 2 years, the mitigation site will be surveyed during each annual monitoring visit to map and describe the occurrence of negative environmental stressors. The site will also be surveyed for the locations of non-native, invasive species populations designated as a "High Priority" species by Cal-IPC (with the exception of annual grass species), and the overall success of the non-native, invasive species removal efforts will be assessed. For any observed non-native, invasive plant species, locations and extents of each population will be mapped. Other stressors to be evaluated include OHV use and anthropogenic sources of erosion and sedimentation. If environmental stressors are identified, the source of the stressor (for example, a cut fence resulting in OHV use, or off-site source population of invasive species) will be identified and described for management action.

Performance Criteria: Non-native, invasive plant species will be addressed immediately and a summary of the remedial activities and other management actions will be provided in each annual monitoring report. Annual non-native, invasive species populations will be managed so they do not exceed more than 5 percent cover within waters. Non-native, annual grass species will be controlled within waters for the duration of the monitoring period but are expected to be present due to their prolific nature within reference locations. Perennial non-native, invasive species, including salt cedar and giant reed, etc. will be managed on an annual basis such that there are no individuals left untreated for more than one 12-month period. Monitoring reports will contain a description of management activities performed each year based on the previous year's management recommendations. The success of management recommendations will also be evaluated as part of the adaptive management strategy for the site (see Section 11.0).

8.2.4 Semiannual Wildlife Surveys

A qualified biologist will conduct semiannual surveys of mitigation areas to document the bird, wildlife, and fish use of the enhanced habitat areas. Wildlife surveys will be conducted in the spring and fall of each year; the exact timing will be determined by the consulting biologist. The surveys will be initiated after enhancement actions have occurred and will continue until the conclusion of the initial monitoring period.

8.3 Monitoring Schedule and Reporting Requirements

Reports for quantitative monitoring years (Years 1, 3, and 5) will be a full report with analysis. Reports for qualitative years (Years 2 and 4) will consist of a memorandum discussing the general condition of the site and management actions implemented in that year and/or recommended for the following year. Each monitoring report will include a summary of the two wildlife surveys conducted in that year.

Monitoring at this mitigation site will be completed during the late spring or early summer of each monitoring year and will include mapping, CRAM assessments, non-native, invasive plant species monitoring, wildlife monitoring, and other monitoring, as required (see Table 15 below). Reports for quantitative monitoring years (Years 1, 3, and 5) will be a full report with analysis. Reports for qualitative years (Years 2 and 4) will consist of a memorandum discussing the general condition of the site and management actions implemented in that year and/or recommended for the following year. A mitigation monitoring report will be prepared for the mitigation site to enable clear communication with the land manager at this location. The report will be submitted to the Corps, CDFG, and SWRCB by October 31 of each monitoring year. A summary of monitoring and reporting activities is outlined in Table 15 below.

Table 15. Monitoring and Reporting Activities at the Suckle Mitigation Site

	Monitoring Years				
	Year 1	Year 2	Year 3	Year 4	Year 5
Quantitative Monitoring					
Mapping of Desert Dry Washes and Desert Fan Palm Oasis	Annually (spring or summer)				Annually (spring or summer)
CRAM	Annually (late spring or early summer)		Annually (late spring or early summer)		Annually (late spring or early summer)
Qualitative Monitoring					
Non-native, invasive plant species	Quarterly	Bi-annually	Annually (late spring or early summer)	Annually (late spring or early summer)	Annually (late spring or early summer)
Wildlife	Spring + Fall	Spring + Fall	Spring + Fall	Spring + Fall	Spring + Fall
Reporting					
Due by October 31	Quantitative + 2 Wildlife Surveys Summary	Qualitative+ 2 Wildlife Surveys Summary	Quantitative+ 2 Wildlife Surveys Summary	Qualitative+ 2 Wildlife Surveys Summary	Quantitative+ 2 Wildlife Surveys Summary

9.0 MAINTENANCE OF HMMP WETLANDS AND STREAMS DURING THE MONITORING PERIOD

Ongoing removal of non-native, invasive plant species will occur in the mitigation areas as needed based on the methods specified in Section 7.2.1. Methods for control of invasive species will be selected based on the best available techniques as informed by practices of adaptive management through annual monitoring during the initial 5 year monitoring period.

10.0 INITIAL MANAGEMENT OF THE CHOCOLATE CANYON MITIGATION SITE UNDER THE HAP/HMP

As discussed in Section 1.3, management of the Suckle Mitigation Site as a whole will occur under the institutional and funding arrangements established under the revised final HMP and PAR for the site. This section presents the proposed management tasks for the site during the first five years of HMP implementation and indicates how the tasks would be coordinated with HMMP implementation and maintenance activities during that the period. This section also identifies the estimated funding requirements for initial HMP management of the site. The tasks and funding estimates are from the September 2010 HAP/HMP and are subject to change. Actual HMP management tasks and funding will be as specified in the revised final HMP approved by the agencies (see Section 1.3).

10.1 HAP/HMP Management Tasks

Table 16 identifies the initial HMP management tasks (i.e., tasks in years 1-5 of HMP implementation) identified in the HMP for all Project mitigation sites, the specific tasks proposed for the Suckle site, and the interface between HMMP and HMP activities during the initial management period. During the first three years of HMP implementation (which will follow the final selection of a land manager), the land manager will prepare annual work plans and budgets that indicate which tasks will be implemented and how management funds will be allocated. The annual work plans will be replaced by a five-year work program developed by the land manager by year 3 of HMP implementation. The five-year work program will guide ongoing management activities and the completion of initial HMP-related tasks. Based on this time table, HMMP enhancement activities, including required monitoring and maintenance of HMMP wetlands, streams, and riparian areas, will have been initiated prior to or concurrent with the initial phase of HMP implementation.

10.2 Funding Requirements

Based on the PAR conducted for the September 2010 HAP/HMP, start-up management costs are estimated at \$148,922 for the five-year period (\$29,784 annually). The PAR assumptions and spreadsheet for initial management of the Suckle site are included as Appendix C. A revised PAR will be prepared with the designated land manager as part of the revised final HMP for the site.

Table 16. Initial HAP/HMP Management Tasks and Interface with HMMP Measures at the Suckle Mitigation Site

September 2010 HAP/HMP		Interface with HMMP Tasks
Initial Management Tasks at All Sites	Initial Tasks at Suckle	
Access Controls		
To control access and deter illegal uses, gates, fences and signs will be installed and property patrols will be conducted. Fencing will be used selectively where access to areas with highly sensitive resources or hazards needs to be precluded and where the fencing would not interfere with wildlife movement. Signs, gates, and fencing will be maintained and replaced as needed.	Approximately five signs will be erected in appropriate areas alerting the public to illegal trespassing, illegal dumping, and other illegal uses. Gates will be installed at the entry of the two existing access roads. No fencing will be installed. The signs and gates will be maintained and replaced as needed during the period.	The primary purpose of the HMP task is to control access to the property and sensitive areas. Placement of access controls will be coordinated with any temporary access controls installed in connection with the HMMP enhancement activities. The HMP task also will address the need for permanent protection of the resources preserved under the HMMP.
General Conditions Monitoring and Wildlife Assessment		
The land manager will patrol the property on an annual basis to monitor the general condition of the property and to identify areas of management concern. All areas that have signs of illegal activity (such as dumping, unauthorized access, off-road vehicle use, or other unauthorized actions), invasive species problems, erosion issues, or other habitat degradation problems will be mapped using Geographic Positioning System (GPS) technology. A general assessment of wildlife habitat conditions will be coordinated and reported with the general conditions monitoring. All properties will be assessed for the potential occurrence of listed and other special status species.	Same as for other sites, plus coordination with HMMP activities.	The annual inspections under the HMP will be coordinated with HMMP maintenance and monitoring tasks. HMMP areas will be included in the HMP assessments. Mitigation monitoring and recommendations for maintenance related to the HMMP areas will be coordinated with the designated land manager.

Table 16. Initial HAP/HMP Management Tasks and Interface with HMMP Measures at the Suckle Mitigation Site

September 2010 HAP/HMP		Interface with HMMP Tasks
Initial Management Tasks at All Sites	Initial Tasks at Suckle	
Vegetation and Invasive Species Mapping		
<p>A qualified biologist will map the type, species dominance, and boundaries of all vegetation communities using the vegetation classification system commonly used by the management entity, and note the overall quality of the habitat. Concurrently, invasive plant species will be mapped in a manner appropriate to the species and extent of infestation (e.g., individual plants or general extent of a population). Target invasives are those listed by the California Invasive Pest Council (CalIPC) as highly or moderately invasive (CalIPC 2006). Information from the wildlife assessment regarding the location of observed exotic wildlife that may be a threat to listed species (e.g., cowbirds, bullfrogs, feral pigs) also will be included on the invasive species map. The mapping will be completed by the third year of property management.</p>	<p>Same as for other sites, plus coordination with HMMP activities.</p>	<p>The HMP mapping is for the entire mitigation site and will be prepared over a three-year period. Data collected for HMP mapping will be shared with the HMMP team and vice versa. Data collection and mapping protocols described in the HMMP will be coordinated with the designated land manager.</p>

Table 16. Initial HAP/HMP Management Tasks and Interface with HMMP Measures at the Suckle Mitigation Site

September 2010 HAP/HMP		Interface with HMMP Tasks
Initial Management Tasks at All Sites	Initial Tasks at Suckle	
Species Surveys		
<p>On properties identified as mitigation for impacts to a listed species, focused surveys for that species will be conducted during start-up management and repeated as part of ongoing management. The surveys will be conducted by a qualified biologist using established protocols. The purpose of the surveys is to establish baseline information about occurrence and conditions and the basis for ongoing monitoring. If other listed species are known or have a high likelihood to occur on the property, surveys also will be conducted for those species. Surveys for non-listed special status species will be planned on a property-by-property basis.</p>	<p>BBG will be monitored annually during the start up phase. Nocturnal surveys will be conducted four times at least two weeks apart within the period from May 1 through July 31. PBS monitoring also will occur annually during the start up phase. Daytime surveys (1-3 visits per survey) will be conducted. The PBS surveys will be coordinated with 10-year PBS monitoring program being conducted by USFWS and CDFG with funds provided by SDG&E. The monitoring also will be coordinated with annual sheep count conducted by the Anza Borrego Foundation and Anza-Borrego Desert State Park.</p>	<p>HMP species surveys will be coordinated with the semi-annual HMMP surveys.</p>
Invasive Species Control		
<p>A vegetation management component will be prepared as part of the 5-yr work program. The component will (1) identify the location and extent of target invasive species, (2) determine the threat posed to sensitive vegetation communities, (3) prioritize remedial management actions based on the level of threat, (4) identify methods that will be used and (5) provide a schedule for the management actions.</p> <p>Annual work plans in years 1-3 (prior to 5-yr work program) may include weed control measures.</p>	<p>Invasive plant control measures will be initiated based on the results of the mapping effort and the priorities established in the 5-yr work program. Planning and implementation will be coordinated with HMMP activities on the site.</p>	<p>Weed control efforts undertaken as part of the HMMP implementation tasks will be communicated to the land manager. Weed control plans and measures under the HMP and HMMP will be coordinated once HMP management has commenced.</p>

Table 16. Initial HAP/HMP Management Tasks and Interface with HMMP Measures at the Suckle Mitigation Site

September 2010 HAP/HMP		Interface with HMMP Tasks
Initial Management Tasks at All Sites	Initial Tasks at Suckle	
Road Maintenance and Road Decommissioning		
<p>As part of the conditions assessment and vegetation mapping, existing roads on the property will be mapped, and roads required for property management and emergency response will be identified.</p> <p>The 5-yr work program will identify existing roads not required for property management for decommissioning and establish an inspection and maintenance schedule for retained roads (excluding Project access roads, which will be maintained by SDG&E).</p> <p>On properties crossed by Project access roads, use of those roads for property management will be planned and coordinated with SDG&E.</p>	<p>Same as for other sites.</p>	<p>HMP planning and implementation of road maintenance and decommissioning will be coordinated with the HMMP road decommissioning measures. Use of the project access road for HMMP activities will be coordinated with SDG&E. Maintenance of retained internal roads that cross HMMP areas will occur under the HMP.</p>
Erosion Control and Remedial Restoration		
<p>The land manager may be responsible for controlling minor erosion problems related to road use and invasive species removal. Erosion control activities may include minor earth work or the installation of gravel bags, silt fencing, or fiber rolls to control runoff and sedimentation. Hydroseeding and selective plantings also will be used where needed.</p> <p>The 5-yr work program will include an erosion control component.</p>	<p>Same as for other sites, plus coordination with HMMP activities.</p>	<p>HMMP erosion control at enhancement sites will be coordinated with HMP tasks as required.</p>
Trash Removal		
<p>The land manager will monitor the property for illegal dumping and provide for the collection and disposal of trash on an as-needed basis.</p>	<p>Same as for other sites, plus coordination with HMMP maintenance activities.</p>	<p>Trash collection and monitoring under the HMP will be coordinated with the same efforts within the HMMP activity areas.</p>

Table 16. Initial HAP/HMP Management Tasks and Interface with HMMP Measures at the Suckle Mitigation Site

September 2010 HAP/HMP		Interface with HMMP Tasks
Initial Management Tasks at All Sites	Initial Tasks at Suckle	
Fire Management		
The 5-year work program will include a fire management component developed in cooperation with the responsible fire agencies and in compliance with applicable State and local policies and regulations.	Same as for other sites.	The fire management component will take into consideration the location and sensitivity of the resources covered by the HMMP.
GIS Database		
The land manager will establish and maintain a GIS database for the property and management program. For properties in San Diego County, the database will be compatible with the MSCP regional database.	Same as for other sites; compatibility with MSCP database recommended although technically not required.	Data collected for HMMP purposes will be provided to the land manager for inclusion in the site database. HMP data will be shared with the HMMP team.
Planning and Coordination		
<p>During years 1-5, the land manager will prepare a 5-year work program that identifies and prioritizes biological resource and land stewardship tasks for the period and includes a five-year staffing and materials budget. The 5-year work program will be completed no later than year 3 and updated every three years. Annual work plans and annual budgets will be based on the priorities set in the 5-year work program.</p> <p>Prior to year 3, management will be guided by annual work plans prepared by the land manager, The annual work plans will cover the general conditions assessment, surveys, mapping, and other data collection required to guide management of the property. The work plans also may include access control, invasive species control, and erosion control measures that the land manager determines are necessary.</p>	Same as for other sites, plus coordination with HMMP plans and activities.	<p>The 5-year work program for the HMP will take into consideration the location and status of any HMMP activities in progress during the period covered by the program; the 5-year program also will provide for the transition of management of the HMMP preserved waters and riparian habitat by the site land manager once the initial monitoring of HMMP areas has been completed.</p> <p>The interim work program will identify and provide for the coordination of the HMP and HMMP tasks.</p>

Table 16. Initial HAP/HMP Management Tasks and Interface with HMMP Measures at the Suckle Mitigation Site

September 2010 HAP/HMP		Interface with HMMP Tasks
Initial Management Tasks at All Sites	Initial Tasks at Suckle	
Annual Reporting		
The land manager will prepare annual reports that identify management activities conducted in the prior 12 months, activities planned for the upcoming 12-months, expenditures for the past 12 months, proposed allocation of funds for the next 12 months, performance of the endowment in the prior year (if applicable), and the balance of endowment at the end of the prior year (if applicable).	Same as for other sites, plus coordination with HMMP reporting.	The HMP annual report will include a section on HMMP activities. The land manager will provide the HMMP team with a status report on initial management activities for inclusion in the HMMP annual reports.
Public Education/Information		
Web-ready public information/education materials regarding the property's resources and any restrictions that apply to public access will be prepared and posted on the land manager/owner's website during the start-up management phase.	Same as for other sites.	Information about the HMMP goals and activities will be included in the HMP education/information materials.

11.0 LONG-TERM MANAGEMENT PLAN

In the September 2010 HAP/HMP, a distinction is made between initial (start-up) management and ongoing (long-term) management of the mitigation sites. Generally initial and long-term management include the same categories of management tasks and would be implemented by the same entity (the land manager). In this regard, long-term management of the site begins during the initial management period. The difference is that there are data collection, planning, and capital tasks and costs in the initial period that would not be required at the same level in subsequent years. This section presents the proposed management tasks for the site after the initial period (i.e., beginning year 6) and discusses the interface between HMMP activities and goals and the long-term management of the site under HMP. This section also identifies the estimated funding requirements for ongoing management of the site. The tasks and funding estimates are from the September 2010 HAP/HMP and are subject to change. Actual tasks and funding will be as specified in the revised final HMP approved by the agencies (see Section 1.3).

11.1 Proposed Management Tasks

Table 17 identifies the ongoing management tasks under the HAP/HMP at all mitigation sites, specific tasks proposed for the Suckle site, and the interface between the HMMP and HAP/HMP in terms of long-term management activities and goals. The transition from maintenance of areas under the HMMP to management under the HAP/HMP would occur following the final year of monitoring under the HMMP.

11.2 Funding Requirements

Based on the PAR conducted for the September 2010 HAP/HMP, ongoing long term management costs are estimated at approximately \$19,412 annually. The HAP/HMP assumes that funding for annual management tasks would be provided through a non-wasting endowment established for the site. To generate approximately \$19,412 annually, approximately \$970,596 is needed as the principal for a non-wasting endowment. The PAR assumptions and spreadsheet for ongoing management of and the management endowment for the Suckle site are included as Appendix C. A revised PAR and endowment estimate will be prepared as part of the revised final HMP for the site.

Table 17. Ongoing HAP/HMP Management Tasks and Interface with HMMP Tasks at the Suckle Mitigation Site

September 2010 HAP/HMP		Interface with HMMP Tasks
Ongoing Management Tasks at All Sites	Ongoing Tasks at Suckle	
Access Controls		
Signs, gates, and fencing will be maintained and replaced as needed as part of property management.	Same as for other sites.	Any permanent access controls needed to protect the preserved waters would be installed and maintained as part of ongoing management under the HMP.
General Conditions Monitoring and Wildlife Assessment		
Same as during initial management period (annual assessments),	Same as for other sites, plus coordination with implementation and completion of HMMP monitoring.	Same as during the initial management period (HMMP areas included in the annual HMP assessments).
Vegetation and Invasive Species Mapping		
Vegetation and invasive species mapping will be updated every three years to five years.	Mapping will be updated every three years.	Same as during initial management period for as long as HMMP monitoring continues.
Species Surveys		
Generally same as during initial management period, with frequency of surveys determined in the 5-yr work program based on site conditions and assessment results.	Surveys for BBG and PBS will be conducted every five years. The survey results will be used to identify areas where impacts to this listed species need to be avoided and where there are opportunities to benefit the species.	HMP surveys would continue to be coordinated with the semiannual HMMP surveys for the duration of the HMMP monitoring period.
Invasive Species Control		
Annual implementation of measures identified in vegetation management component of the 5-yr work program.	Same as for other sites, with coordination with HMMP maintenance activities.	Management transitioned to HMP following the final year of mitigation monitoring.

Table 17. Ongoing HAP/HMP Management Tasks and Interface with HMMP Tasks at the Suckle Mitigation Site

September 2010 HAP/HMP		Interface with HMMP Tasks
Ongoing Management Tasks at All Sites	Ongoing Tasks at Suckle	
Road Maintenance and Road Decommissioning		
Inspection and maintenance of retained internal roads and decommissioning of roads as per schedule in 5-yr work program. Ongoing coordination for use of Project access roads.	Same as for other sites.	It is anticipated that HMMP road decommissioning would be complete prior to transfer of management responsibilities to the land manager.
Erosion Control and Remedial Restoration		
Implementation of erosion control as per measures and guidelines in the 5-yr work program.	Same as for other sites, plus coordination with HMMP activities.	HMMP erosion control at enhancement sites will be coordinated with HMP tasks as required. Management transitioned to HMP following the final year of HMMP monitoring.
Trash Removal		
Generally the same as during the initial management phase but as specified in the 5-yr work program.	Same as for other sites.	Same as during initial period for duration of HMMP maintenance and monitoring period. Continued under HMP thereafter.
Fire Management		
As specified in fire management component of 5-yr work program.	Same as for other sites.	The provisions of the 5-yr work program will apply to the HMMP areas during and after HMMP implementation.
GIS Database		
Database maintained annually.	Same as for other sites.	Same as during initial management period.

Table 17. Ongoing HAP/HMP Management Tasks and Interface with HMMP Tasks at the Suckle Mitigation Site

September 2010 HAP/HMP		Interface with HMMP Tasks
Ongoing Management Tasks at All Sites	Ongoing Tasks at Suckle	
Planning and Coordination		
5-yr work program updated every 3 years.	Same as for other sites, with coordination with HMMP activities.	The transition of management of areas from under the HMMP to under the HMP will be planned and accommodated in the updated to the 5-yr work programs.
Annual Reporting		
Generally the same as during the initial management period, in format specified in 5-yr work program.	Same as for other sites, with coordination with HMMP activities.	Same as during initial management period for duration of HMMP reporting period.
Public Education/Information		
The annual reports and any notices issued as part of access controls will be the primary vehicle for public information/education.	Same as for other sites.	Same as during initial management period for duration of HMMP reporting period.

12.0 ADAPTIVE MANAGEMENT PLAN

SDG&E will be the responsible party for implementation of management activities during the initial monitoring period. Specific maintenance and management activities will be identified based on the results of each annual monitoring visit. Maintenance and monitoring recommendations will be developed by September 15 of each year to allow time for planning and mobilization of work crews prior to the rainy season. Maintenance activities that involve work in waters and wetlands will be conducted prior to the onset of winter rains. Other maintenance activities will be conducted prior to the annual monitoring in the year following the recommendation.

As part of each annual monitoring report, maintenance and management activities implemented during the previous year will be described and the results will be evaluated under the framework of adaptive management. If management and maintenance methods are not successful in addressing negative environmental stressors identified as part of annual monitoring reports, the methods will be examined and altered to increase the potential for success based on best professional judgment and management methods that are shown to be successful based on scientific research. In some cases, success of management and maintenance activities may not be evident over the course of only one year. This will be accounted for in annual monitoring reports through evaluation of whether or not management actions are contributing to progress towards the ultimate goal. In these cases, it may be necessary to wait for 2 years or more before altering methods as part of an adaptive management strategy. Each annual monitoring report will contain a section dedicated to evaluation of management and maintenance actions as part of the adaptive management strategy.

12.1 Incorporation within Habitat Mitigation Plan for the Suckle Mitigation Site

The principles of adaptive management are fully incorporated into the implementation, monitoring, maintenance, and long term management of the Suckle Mitigation Site described in this HMMP.

12.2 Natural Occurrences

Contingencies have been included in the financial assurances (Section 12.0) to provide a cushion for any unforeseen costs of management activities to be carried out in the event that a fire, flood, or other natural disaster should have a negative impact on preserved and/or enhanced habitat during the initial monitoring period. The 5 year habitat management work programs, which prioritizes biological resource and land stewardship tasks and includes 5-year staffing and materials budget, includes a fire management component developed in cooperation with the responsible fire agencies and in compliance with applicable State and local policies and regulations. In addition, the fire management component of the long-term management plan will be updated every 3 years. Remedial actions will be carried out during the initial monitoring period if habitat quality is reduced due to the occurrence of fire and/or other natural disasters. Remedial actions will also be carried out during long-term management if habitat quality is reduced due to management activities. These actions are described in the HAP/HMP (SDG&E 2010a) and summarized in the following section.

12.3 Potential Remedial Actions

Habitat remediation consists of minor restoration of habitat from the effects of erosion, unauthorized access, or removal of non-native, invasive plant species; it is not considered ecological habitat restoration or creation. This task may include seeding with native seeds, raking, or weed removal. Habitat remediation is included during the initial monitoring (start-up) period for this mitigation site and is also an integral part of the habitat management in perpetuity.

13.0 FINANCIAL ASSURANCES

13.1 Estimated Costs for Mitigation Measures

The cost for mitigation measures for inclusion in the Financial Assurance mechanism was developed and submitted to the Corps of Engineers and a Performance Bond was purchased by SDG&E for these amounts on January 19, 2011. These specific costs for the Suckle Mitigation Site are provided in Appendix D. They include implementation of the HMMP, monitoring during the first five years, and long-term maintenance and remediation (covered under the endowment cost).

13.1.1 Land Acquisition

The Suckle Mitigation Site is owned by SDG&E. However, the Corps has required financial assurances adequate to cover acquisition of a replacement site if necessary.

The appraisal and valuation process is an exhaustive one; employing numerous comparable Sold properties within a finite range of the Subject property. Numerous aspects of the properties are physically viewed and studied which include: location, size, and shape of the property, topography, improvements, utilities, street improvements, zoning/general plan, price, terms of sale and method of transaction, Buyer, Seller and any miscellaneous comments regarding anything relating to the property and or sales transaction. In addition, standards regulated by the CPUC require the “highest and best use value, *just compensation*” to be paid for properties per a certified appraisal document.

The purchase price paid for the property was determined by these standard appraisal methods that required analysis of comparable properties in the region; therefore, should the Corps seek to purchase similar lands under the Letter of Credit, the land valuations for comparable properties would be similar to that paid by SDG&E.

13.1.2 Plan Implementation

Implementation costs for the HMMP are estimated to be \$442,702, as shown in Table 18 below. Implementation tasks include mobilization and removal of non-native, invasive species.

13.1.3 Monitoring and Maintenance for Performance Period

Monitoring costs for the HMMP are estimated to be \$278,264, as shown in Table 18 below. These costs represent the first 5 years of monitoring. In addition, maintenance costs from the HAP/HMP are estimated to be \$212,060 for the first 5 years.

13.1.4 Long-Term Maintenance

Long-term endowment costs are estimated at \$1,119,518, as shown in Table 18 below. This endowment estimate is based on the amount of money needed to generate, on an annual basis, the annual maintenance costs (assuming a five percent return on the money and three percent inflation). Five percent is the nominal rate and includes inflation (which is added to the endowment to make it "non-wasting") and that three percent is the "real" rate, available for habitat management.

13.1.5 Remediation

Remediation costs are combined with maintenance costs in Table 18 below. Remediation efforts may include removal of non-native, invasive plants and minor stream habitat restoration.

Table 18. Suckle Mitigation Costs

Category	Cost
Acquisition	
"Replacement" Assurances ¹	\$600,000
HMMP Mitigation Activities	
Preservation, Restoration, Enhancement	\$442,702
5-year Monitoring Costs for HMMP	\$278,264
Maintenance/Remediation	\$212,060
Management of Mitigation Site under HAP/HMP	
Start-up and Long-term (In Perpetuity)	\$1,119,518

¹ SDG&E has acquired the entire Mitigation Site; the Corps has required financial assurances to cover acquisition of a replacement site if necessary.

13.2 Form of Assurance

Financial assurance has been guaranteed to the Corps by SDG&E through a Performance Bond issued on January 19, 2011 that covers the estimated costs for each of the five Final HMMPs. The bond calls out the amounts for HMMP implementation at Lightner as identified in Table 24 based on implementation costs detailed above. SDG&E also is in the process of preparing a Letter of Credit as financial assurance to CDFG for LSAA implementation. The CDFG LOC will be provided on or before May 27, 2011.

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Appendix A

All CRAM Scores Collected for the Sunrise Powerlink Project

Appendix A. All CRAM Scores Collected for the Sunrise Powerlink Project.*

CRAM ID	Category	OVERALL CRAM SCORE		Physical Structure						Biotic Structure											
				Structural Patch Richness		Topo-graphic Complexity		Attribute Score (Final %)		Number of Plant Layers		Number of Co-dominant Species		Percent Invasion		Horizontal Inter-spersion/ Zonation		Vertical Biotic Structure		Attribute Score (Final %)	
Existing/Projected		E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P
5-DW-7	DDW	62.2%	58.4%	3	3	6	6	37.5%	37.5%	6	6	3	3	12	12	3	3	3	3	36.1%	36.1%
5-DW-8	DDW	71.5%	67.8%	6	6	6	6	50.0%	50.0%	6	6	3	3	12	12	6	6	3	3	44.4%	44.4%
7-DW-10	DDW	64.0%	62.0%	3	3	6	6	37.5%	37.5%	6	6	3	3	9	9	3	3	3	3	33.3%	33.3%
8-DW-2	DDW	65.3%	65.3%	3	3	6	6	37.5%	37.5%	6	6	3	3	6	6	6	6	3	3	38.9%	38.9%
9-DW-9	DDW	71.2%	69.2%	6	6	6	6	50.0%	50.0%	6	6	6	6	6	6	6	6	3	3	41.7%	41.7%
10-DW-1	DDW	72.7%	72.7%	6	6	6	6	50.0%	50.0%	6	6	9	9	9	9	9	9	6	6	63.9%	63.9%
11-DW-1	DDW	62.0%	62.0%	3	3	6	6	37.5%	37.5%	6	6	3	3	9	9	3	3	3	3	33.3%	33.3%
13-DW-15	DDW	65.3%	63.3%	3	3	6	6	37.5%	37.5%	6	6	6	6	12	12	6	6	3	3	47.2%	47.2%
14-DW-12	DDW	69.1%	65.3%	3	3	6	6	37.5%	37.5%	6	6	6	6	12	12	3	3	3	3	38.9%	38.9%
15-DW-1	DDW	68.8%	68.8%	6	6	6	6	50.0%	50.0%	6	6	9	9	12	12	3	3	3	3	41.7%	41.7%
15-DW-8	DDW	71.2%	67.4%	3	3	6	6	37.5%	37.5%	6	6	6	6	12	12	6	6	3	3	47.2%	47.2%
16-DW-11	DDW	68.6%	68.6%	6	6	6	6	50.0%	50.0%	6	6	6	6	12	12	6	6	3	3	47.2%	47.2%
17-DW-2	DDW	71.2%	71.2%	6	6	6	6	50.0%	50.0%	9	9	6	6	12	12	6	6	3	3	50.0%	50.0%
17-DW-7	DDW	63.3%	61.2%	3	3	6	6	37.5%	37.5%	6	6	6	6	12	12	3	3	3	3	38.9%	38.9%
35-S-2	ME	67.4%	67.4%	3	3	6	6	37.5%	37.5%	9	9	6	6	9	9	9	9	6	6	63.9%	63.9%
35-S-4	ME	70.5%	70.5%	6	6	6	6	50.0%	50.0%	6	6	3	3	6	6	6	6	6	6	47.2%	47.2%
53-S-8	ME	78.5%	74.7%	6	6	6	6	50.0%	50.0%	9	9	6	6	9	9	9	9	6	6	63.9%	63.9%
54-S-10	ME	63.6%	63.6%	3	3	3	3	25.0%	25.0%	9	9	9	9	12	12	9	9	9	9	77.8%	77.8%
62-S-12	ME	80.2%	80.2%	9	9	6	6	62.5%	62.5%	9	9	6	6	12	12	9	9	9	9	75.0%	75.0%
79-S-1	ME	83.4%	81.3%	6	6	9	9	62.5%	62.5%	12	12	9	9	9	9	9	9	9	9	77.8%	77.8%
82-S-1	I	83.3%	79.6%	6	6	6	6	50.0%	50.0%	12	12	12	12	12	12	9	9	9	9	83.3%	83.3%
92-S-4	ME	72.6%	70.9%	3	3	6	6	37.5%	37.5%	9	9	9	9	12	12	9	9	6	6	69.4%	69.4%
92-S-6	ME	82.6%	78.9%	6	6	6	6	50.0%	50.0%	9	9	12	12	12	12	9	9	9	9	80.6%	80.6%
107-S-2	ME	72.3%	68.2%	3	3	6	6	37.5%	37.5%	12	12	9	9	6	6	6	6	6	6	58.3%	58.3%
107-S-3	ME	67.8%	65.8%	6	6	6	6	50.0%	50.0%	12	12	9	9	9	9	6	6	6	6	61.1%	61.1%
109-S-1	I	87.8%	49.1%	9	3	6	3	62.5%	25.0%	12	9	12	9	9	9	12	9	12	12	97.2%	83.3%
111-S-9	I, W	82.0%	79.9%	9	9	6	6	62.5%	62.5%	12	12	12	12	9	9	12	12	12	12	97.2%	97.2%
112-S-2	I, W	80.4%	78.4%	6	6	6	6	50.0%	50.0%	12	12	6	6	6	6	12	12	12	12	88.9%	88.9%
117-S-1	P	81.0%	81.0%	12	12	9	9	87.5%	87.5%	12	12	12	12	9	9	12	12	12	12	97.2%	97.2%
130-S-1	ME	69.2%	67.1%	3	3	9	9	50.0%	50.0%	6	6	6	6	6	6	6	6	6	6	50.0%	50.0%
L-S-10	I	81.3%	85.1%	9	9	6	6	62.5%	62.5%	12	12	9	9	9	9	9	9	12	12	86.1%	86.1%
L-S-1	I	78.5%	80.2%	3	3	6	6	37.5%	37.5%	12	12	6	6	9	9	9	9	12	12	83.3%	83.3%
L-W-2	W	65.0%	69.2%	6	6	3	3	37.5%	37.5%	6	9	3	6	9	12	6	9	12	12	66.7%	83.3%
LP-S-12	I	70.5%	71.2%	6	6	6	6	50.0%	50.0%	9	9	6	6	9	12	6	6	3	3	47.2%	50.0%
LP-W-4**	W	59.4%	61.8%	3	3	6	6	37.5%	37.5%	7.5	7.5	3	3	6	9	6	6	6	6	48.6%	51.4%
S-DW-1	DDW	68.1%	71.2%	3	3	6	6	37.5%	37.5%	9	9	6	6	3	9	6	6	6	6	50.0%	55.6%
117-S-1	P	81.0%	81.7%	12	12	9	9	87.5%	87.5%	12	12	12	12	9	12	12	12	12	12	97.2%	100.0%

Impact AA
Mitigation AA

Key to Categories

DDW = Desert Dry Wash; ME = Mountain Ephemeral Stream; I = Intermittent Stream; P = Perennial Stream; W = Corps Wetland.

* Note: The data table in Appendix A was originally included in Appendix B of the Conceptual HMMP (WRA 2010b), titled "Table B-1."

** The CRAM score reported for depositional wetland (proposed mitigation site) LP-W-4 is the average of two CRAM assessments done on the same feature. This approach was requested by staff from the US Army Corps of Engineers.

Appendix B

Landscape Plans for the Suckle Mitigation Site

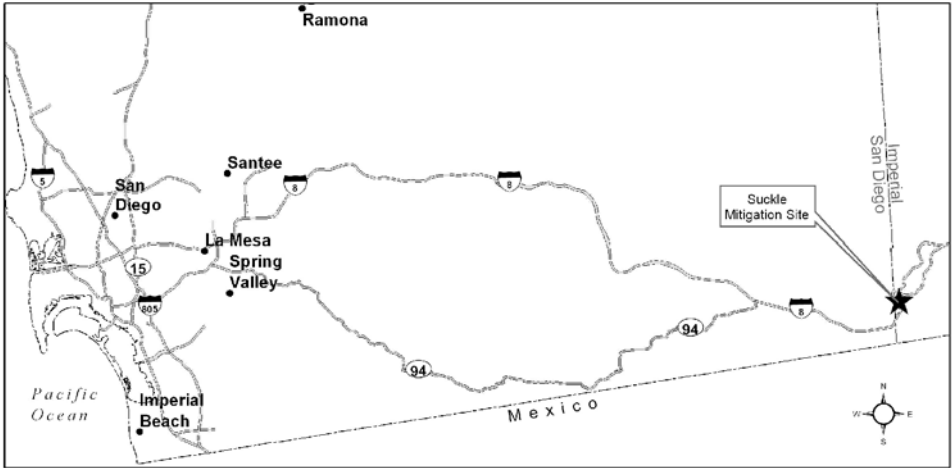
SHEET INDEX

L-1 --- COVER SHEET
 L-2 --- SUCKLE PROPERTY MITIGATION PLAN

**SUNRISE
POWERLINK**

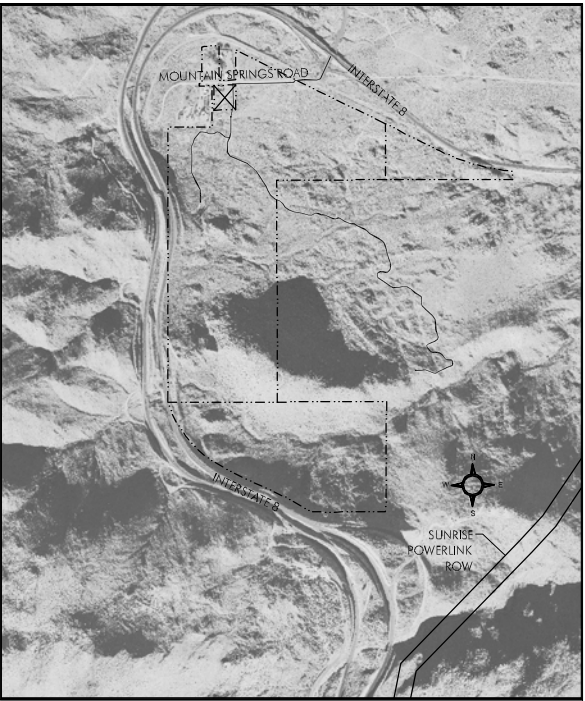
SUCKLE PROPERTY
 WATERS MITIGATION PLAN
 SAN DIEGO COUNTY, CALIFORNIA
 CORPS FILE NUMBER: 2007-00704-SAS

LOCATION MAP



- NOTES:
1. MITIGATION SITE MAY BE ACCESSED VIA INTERSTATE 8.
 2. CONTRACTOR SHALL NOT ACCESS SITE WITHOUT PRIOR PERMISSION FROM LAND MANAGER.

SITE MAP



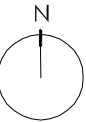
DIRECTIONS TO SITE:
 FROM INTERSTATE 5, TAKE INTERSTATE 8 EAST AND EXIT RIGHT AT
 MOUNTAIN SPRINGS ROAD.

NOT FOR CONSTRUCTION



Date	Issues And Revisions	No.
4/21/11	PERMIT SET	

PROJECT #17128-3
 DRAWN BY: ICM, KET
 CHECKED BY: GJS
 ORIGINAL DRAWING SIZE: 24 X 36



COVER SHEET

Sheet

L-1

**SUNRISE
 POWERLINK**

SUCKLE PROPERTY
 WATERS MITIGATION PLAN
 SAN DIEGO COUNTY, CALIFORNIA
 CORPS FILE NUMBER: 2007-00704-SAS

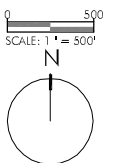
NOT FOR CONSTRUCTION



4/21/11	PERMIT SET	
Date	Issues And Revisions	No.

PROJECT #17128-3
 DRAWN BY: ICM, KET
 CHECKED BY: GIS
 ORIGINAL DRAWING SIZE: 24 X 36

SCALE: 1" = 500'



SUCKLE PROPERTY
 MITIGATION PLAN

Sheet

L-2

GENERAL SITE DESCRIPTION

1. ACCESS TO AND FROM THE MITIGATION AREAS CAN BE DIFFICULT, MOST NOTABLY TO AREAS WITHIN THE SOUTHERN STREAM CHANNEL AREA. THE SOUTHERN CHANNEL LIES WITHIN A CANYON WITH STEEP SLOPES. THE TERRAIN IS ROCKY AND MOVEMENT THROUGH THE AREA IS INHIBITED BY DENSE CACTI AND OTHER WOODY SHRUBS. IT IS EXPECTED THAT THE NORTHERN AND CENTRAL MITIGATION AREAS ARE SIMILAR TO THE TERRAIN IN THE SOUTHERN STREAM AREA.
2. THE VEGETATION AT THE SUCKLE PROPERTY IS PREDOMINATELY SONORAN MIXED WOODY AND SUCCULENT SCRUB, INCLUDING DESERT PEACH, DESERT AGAVE, AND PRICKLY PEAR. THERE ARE SEVERAL NATIVE CALIFORNIA DESERT FAN PALM OASES LOCATED WITHIN THE STREAM CHANNELS.
3. THE LOCAL CLIMATE IS HOT AND DRY. CONDITIONS MAY BE PHYSICALLY CHALLENGING. WEED REMOVAL WORK WITHIN THE SITE MAY BE DANGEROUS DUE TO THE STEEP RUGGED TERRAIN, THE REMOTENESS OF THE SITE, AND EXTREME TEMPERATURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE HEALTH AND SAFETY OF WORKERS AT THE SITE.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING POTABLE WATER AND PORTABLE RESTROOM FACILITIES AT THIS SITE. THE CONTRACTOR SHALL BE PROHIBITED FROM DISPOSING OF ANY HUMAN EXCREMENT AT THIS SITE.

PROTECTION OF WILDLIFE, PLANT SPECIES AND NATURAL RESOURCES

1. HABITAT WITHIN THE SITE HAS THE POTENTIAL TO SUPPORT SEVERAL SPECIAL STATUS WILDLIFE SPECIES, INCLUDING BATS, BAREFOOT BANDED GECKO (*COLEONYX SWITAKI*), AND PENINSULAR BIG HORN SHEEP (*OVIS CANADENSIS NELSONI*). CONTRACTORS SHALL AVOID CONTACT WITH WILDLIFE AND NOTIFY THE PROJECT BIOLOGIST OF ANY OBSERVATIONS OF SPECIAL STATUS WILDLIFE SPECIES.
2. NO FEDERAL OR STATE PROTECTED PLANT SPECIES ARE KNOWN TO OCCUR WITHIN THE SITE; HOWEVER, THE SITE MAY SUPPORT CNPS LISTED PLANT SPECIES. THE MAJORITY OF PLANTS NOT TARGETED FOR WEED REMOVAL ARE NATIVE AND SHALL NOT BE DISTURBED DURING WEED REMOVAL ACTIVITIES. THE DESERT FAN PALM HABITAT AND SURROUNDING SONORAN MIXED WOODY AND SUCCULENT SCRUB HABITAT SHALL NOT BE DAMAGED. THE CONTRACTOR SHALL OBTAIN A LIST OF SENSITIVE SPECIES FROM THE PROJECT BIOLOGIST.
3. WEED REMOVAL ACTIVITIES SHALL MINIMIZE DAMAGE TO THE NATIVE VEGETATION. DISTURBANCE TO SENSITIVE HABITAT OUTSIDE WEED REMOVAL AREAS SHALL BE PROHIBITED.
4. DESIGNATED ACCESS ROADS SHALL BE CONFIRMED BY THE PROJECT BIOLOGIST. USE OF OTHER ROADS SHALL BE PROHIBITED.
5. THE CONTRACTOR SHALL PROPOSE SUITABLE STAGING AREAS, WHICH SHALL BE APPROVED BY THE PROJECT BIOLOGIST. DUE TO THE STEEPNESS OF THE ADJACENT CANYON WALLS AND THE DENSITY OF SENSITIVE VEGETATION, THERE ARE LIMITED OPPORTUNITIES FOR ESTABLISHING STAGING AREAS OR AREAS TO PLACE BRUSH PILES.
6. HERBICIDES SHALL BE SELECTED TO AVOID HARM TO SENSITIVE SPECIES AND SHALL BE APPROVED BY THE PROJECT BIOLOGIST.
7. ALL WORK SHALL COMPLY WITH PROVISIONS LISTED IN THE PROJECT HABITAT MITIGATION AND MONITORING PLAN (HMP), FINAL ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT (FEIR/EIS), BIOLOGICAL ASSESSMENT, AND FINAL REGULATORY PERMITS.

DISTRIBUTION OF WEEDS

1. WEED REMOVAL WILL FOCUS ON THE TREATMENT OF SAHARAN MUSTARD AND DENSE STANDS OF GIANT REED AND SALT CEDAR. LOCATION OF GIANT REED AND SALT CEDAR STANDS ARE MAPPED ON CONSTRUCTION PLANS.
2. SMALL PATCHES OF SAHARAN MUSTARD ARE LOCATED WITHIN THE STREAM CHANNEL AND ON THE STREAM BANKS. THE CANYON SIDE SLOPES ARE RELATIVELY FREE OF THE SPECIES.

BEST MANAGEMENT PRACTICES FOR WEED REMOVAL

1. AVOID IMPACTS TO NATIVE TREES AND SHRUBS AND ALL SENSITIVE SPECIES ON THE SITE.
2. AVOID DISTURBANCE AND DO NOT STAGE CONSTRUCTION ACTIVITIES IN WEED INFESTED AREAS.
3. AVOID AND MINIMIZE GROUND DISTURBANCE. SELECT WEED REMOVAL EQUIPMENT WHICH WILL MINIMIZE DISTURBANCE TO THE SOIL AND NATIVE VEGETATION WHENEVER POSSIBLE.
4. CLEAN VEHICLES BEFORE ENTERING OR LEAVING A WEED-INFESTED SITE OR CONSTRUCTION SITE TO PREVENT THE TRANSPORT OF SOIL AND PLANT MATERIAL.
5. REMOVE SEEDS FROM CLOTHING, FOOTWEAR, VEHICLES, AND EQUIPMENT BEFORE ENTERING AREAS WITH NO WEED INFESTATION.
6. COVER MATERIAL, INCLUDING DEAD WEED BIOMASS OR SOIL, SECURELY DURING TRANSPORT.

MANUAL WEED REMOVAL AREAS

YEAR 1

1. WEEDS WITHIN THE MANUAL WEED REMOVAL AREAS SHALL BE REMOVED AS DESCRIBED IN THE DRAWINGS.
2. WEED SPECIES DESIGNATED FOR MANUAL REMOVAL INCLUDE NON-NATIVE, INVASIVE PLANT SPECIES LISTED BY THE CALIFORNIA INVASIVE PLANT COUNCIL (CAL-IPC) AS HAVING A SEVERE OR MODERATE (A OR B) INVASIVE IMPACT. THESE WEED SPECIES SHALL BE DESCRIBED AND IDENTIFIED TO THE CONTRACTOR BY THE PROJECT BIOLOGIST. CONTRACTOR SHALL PROVIDE A WEED REMOVAL PLAN WHICH ADDRESSES EACH WEED SPECIES AND WEED REMOVAL LOCATION FOR APPROVAL BY THE PROJECT BIOLOGIST PRIOR TO ANY REMOVAL ACTIVITIES.
3. THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT BIOLOGIST TO DETERMINE THE EXACT TIMING OF WEED REMOVAL ACTIVITIES. CONTRACTOR SHALL REMOVE SEED HEADS FROM PLANTS PRIOR TO REMOVING THE STEMS AND ROOTS, IF THE PLANTS HAVE SET SEED.
 - A. PERENNIAL WEEDS SHALL BE REMOVED ONCE A MONTH DURING THE GROWING SEASON, OCCURRING BETWEEN APPROXIMATELY FEBRUARY 1 TO AUGUST 31. COMMON PERENNIAL WEEDS AT THE SITE INCLUDE SHORTPOD MUSTARD (*HIRSCHFELDIA INCANA*), CASTOR BEAN (*RICINUS COMMUNIS*) AND CURLY DOCK (*RUMEX CRISPUS*).
 - B. ANNUAL WEEDS SHALL BE REMOVED TWO TIMES DURING THE SPRING, ONCE BETWEEN APPROXIMATELY FEBRUARY 1 AND APRIL 15 AND ONCE BETWEEN APRIL 16 AND JUNE 30. COMMON ANNUAL WEEDS AT THE SITE INCLUDE SAHARAN MUSTARD (*BRASSICA TOURNEFORTII*) AND TOCALOTE (*CENTAUREA MELITENSIS*).
4. WEEDS SHALL BE REMOVED WITH MANUAL TOOLS WHICH CAUSE MINIMAL GROUND DISTURBANCE. NATIVE SHRUBS OR TREES ADJACENT TO WEED REMOVAL AREAS SHALL NOT BE DISTURBED.
5. THE CONTRACTOR SHALL DISPOSE OF SEEDS, WEED CLIPPINGS AND DEAD PLANT BIOMASS WITH APPROVAL FROM THE PROJECT BIOLOGIST. THE CONTRACTOR SHALL CONTAIN SEEDS, WEED CLIPPINGS, AND DEAD PLANT BIOMASS IN BAGS. THE CONTRACTOR SHALL DISPOSE OF WEED CLIPPINGS IN DESIGNATED AREAS WITHIN THE SITE, AS FEASIBLE. THE METHOD OF ONSITE AND OFFSITE TRANSPORTATION OF REMOVING SEEDS, WEED CLIPPINGS, AND DEAD PLANT BIOMASS SHALL BE DETERMINED BASED ON THE SITE TOPOGRAPHY AND REMOTENESS.

YEARS 2-5

1. YEAR 2: ANNUAL WEEDS SHALL BE REMOVED TWO TIMES DURING THE SPRING, ONCE BETWEEN FEBRUARY 1 AND APRIL 15 AND ONCE BETWEEN APRIL 16 AND JUNE 30. PERENNIAL WEEDS SHALL BE REMOVED FOUR TIMES DURING THE GROWING SEASON, BETWEEN FEBRUARY 1 AND AUGUST 31. THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT BIOLOGIST TO DETERMINE THE EXACT TIMING OF WEED REMOVAL ACTIVITIES.
2. YEARS 3-5: WEEDS SHALL BE REMOVED TWICE ANNUALLY AT A MINIMUM. THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT BIOLOGIST TO DETERMINE THE EXACT TIMING OF WEED REMOVAL ACTIVITIES.
3. WEED REMOVAL METHODS SHALL BE ADAPTED AS NECESSARY BASED ON ANNUAL MONITORING RESULTS. THE PROJECT BIOLOGIST SHALL SPECIFY CHANGES TO WEED REMOVAL METHODS BY SEPTEMBER 15 OF EACH MONITORING YEAR.

GIANT REED REMOVAL AREAS

YEAR 1

1. ALL GIANT REED (*ARUNDO DONAX*) PLANTS WITHIN THE GIANT REED REMOVAL AREAS SHALL BE REMOVED AS DESCRIBED IN THE DRAWINGS.
2. THE FIRST REMOVAL OF GIANT REED PLANTS SHALL OCCUR BETWEEN AUGUST 1 AND OCTOBER 31. GIANT REED PLANTS SHALL BE RETREATED APPROXIMATELY ONE MONTH FOLLOWING THE FIRST TREATMENT AND THEN UP TO FIVE TIMES DURING THE FIRST YEAR. EACH TREATMENT SHALL BE ONE TO TWO MONTHS APART. GIANT REED RESPROUTS SHALL BE CUT BACK PRIOR TO HERBICIDE REAPPLICATION WHENEVER FEASIBLE. EXACT TIMING OF REMOVAL ACTIVITIES SHALL BE COORDINATED WITH THE PROJECT BIOLOGIST.
3. THE IMAZAPYR-BASED HERBICIDE HABITAT OR APPROVED EQUIVALENT SHALL BE USED FOLLOWING THE LABEL DIRECTIONS AND REQUIREMENTS. DYE SHALL BE ADDED TO THE HERBICIDE MIX TO MARK TREATED PLANTS. CONTRACTOR SHALL SUBMIT HERBICIDE INFORMATION AND THE APPLICATION REGIME FOR APPROVAL BY THE PROJECT BIOLOGIST.
4. GIANT REED REMOVAL METHODS SHALL BE DETERMINED BASED ON SITE CONDITIONS AND CONSTRAINTS. THE CONTRACTOR SHALL SUBMIT A GIANT REED REMOVAL PLAN TO THE PROJECT BIOLOGIST FOR APPROVAL PRIOR TO ANY REMOVAL ACTIVITIES. THE CONTRACTOR SHALL USE THE FOLLOWING REMOVAL METHODS:
 - A. CUT-STUMP METHOD: CONTRACTOR SHALL CUT PLANTS WITH THE USE OF CHAINSAWS, A HYDRO AXE (AN ARTICULATED TRACTOR WITH A MOWER/MULCHER MOUNTED ON FRONT), SHREDDER, OR OTHER APPROVED METHOD TO TREAT THE PLANTS AT THE BASE. HERBICIDE SHALL BE APPLIED TO THE STUMPS IMMEDIATELY AFTER CUTTING THE STEMS.
 - B. BEND AND SPRAY METHOD: CONTRACTOR SHALL BEND PLANTS BETWEEN STEM NODES NEAR THE BASE OF EACH PLANT SO THAT THEY ARE FLAT TO THE GROUND. CONTRACTOR SHALL THEN SPRAY GIANT REED PLANTS WITH HERBICIDE.
 - C. HOOK METHOD: CONTRACTOR SHALL USE A HOOK TO PULL DOWN GIANT REED CANES TO DESIRABLE POSITION. A HOOK SHALL CONSIST OF AN APPROXIMATELY 8'-LONG WOODEN POLE WITH AN 18" POLYVINYL CHLORIDE (PVC) HOOK ATTACHED TO THE POLE. HERBICIDE SHALL THEN BE APPLIED TO FOLIAGE.
5. THE CONTRACTOR SHALL DISPOSE OF GIANT REED BIOMASS WITH APPROVAL FROM THE PROJECT BIOLOGIST. THE CONTRACTOR SHALL CONTAIN THE BIOMASS IN BAGS. THE METHOD OF ONSITE AND OFFSITE TRANSPORTATION OF REMOVING BIOMASS SHALL BE DETERMINED BASED ON THE SITE TOPOGRAPHY AND REMOTENESS.

YEARS 2 - 5

1. GIANT REED REMOVAL SHALL OCCUR ON AN ANNUAL BASIS DURING MONITORING YEARS 2-5 UNLESS OTHERWISE SPECIFIED BY THE PROJECT BIOLOGIST. THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT BIOLOGIST TO DETERMINE THE TIMING OF HERBICIDE TREATMENT TO REMOVE GIANT REED PLANTS.
2. ALL NEW GIANT REED PLANTS WHICH HAVE NEWLY ESTABLISHED ON THE SITE AND ALL GIANT REED PLANTS, WHICH HAVE NOT RESPONDED TO HERBICIDE TREATMENT THE PREVIOUS YEAR, SHALL BE TREATED WITH HERBICIDE USING THE SAME PARAMETERS DESCRIBED IN THE YEAR 1 TREATMENT GUIDELINES, UNLESS OTHERWISE SPECIFIED BY THE PROJECT BIOLOGIST.



1 WEED REMOVAL PLAN
 1" = 500'

SALT CEDAR REMOVAL AREAS

YEAR 1

1. ALL SALT CEDAR (*TAMARIX RAMOSISSIMA*) TREES WITHIN THE SALT CEDAR REMOVAL AREAS SHALL BE TREATED AS DESCRIBED IN THE DRAWINGS.
2. THE FIRST REMOVAL OF SALT CEDAR TREES SHALL OCCUR BETWEEN AUGUST 1 AND OCTOBER 31. THE CONTRACTOR SHALL RETURN TO THE SITE TO TREAT ANY RESPROUTING STUMPS BETWEEN FOUR AND SIX MONTHS FOLLOWING THE FIRST TREATMENT. EXACT TIMING OF REMOVAL ACTIVITIES SHALL BE COORDINATED WITH THE PROJECT BIOLOGIST.
3. A TRICLOPYR-BASED HERBICIDE SUCH AS GARLON 4 OR IMAZAPYR-BASED HERBICIDE SUCH AS HABITAT OR APPROVED EQUIVALENT SHALL BE USED FOLLOWING THE LABEL DIRECTIONS AND REQUIREMENTS. CONTRACTOR SHALL SUBMIT HERBICIDE INFORMATION AND THE APPLICATION REGIME FOR APPROVAL BY THE PROJECT BIOLOGIST.
4. SALT CEDAR REMOVAL METHODS SHALL BE DETERMINED BASED ON SITE CONDITIONS AND CONSTRAINTS. THE CONTRACTOR SHALL SUBMIT A SALT CEDAR REMOVAL PLAN TO THE PROJECT BIOLOGIST FOR APPROVAL PRIOR TO ANY REMOVAL ACTIVITIES. THE CONTRACTOR SHALL USE THE FOLLOWING REMOVAL METHODS:
 - A. CUT-SURFACE METHOD: THE CUT-SURFACE METHOD IS THE PREFERRED METHOD OF SALT CEDAR REMOVAL. SALT CEDAR TREES OR SAPLINGS SHALL BE CUT WITHIN SIX INCHES OF THE GROUND SURFACE. THE STUMP SURFACE SHALL BE SPRAYED WITH HERBICIDE IMMEDIATELY FOLLOWING CUTTING. SEEDLINGS SHALL BE UPROOTED BY HAND SUCH THAT THE ENTIRE ROOT SYSTEM IS REMOVED.
 - B. GIRDLE-SPRAY METHOD: THE GIRDLE-SPRAY METHOD MAY BE USED WITH APPROVAL BY THE PROJECT BIOLOGIST IN PLACES WHERE REMOVAL OF THE DEAD PLANT BIOMASS IS PROHIBITIVE DUE TO SITE CONDITIONS. SALT CEDAR TREES WITH TRUNK DIAMETERS OF OVER FOUR INCHES SHALL BE GIRDLED. THE CONTRACTOR SHALL MAKE SHALLOW, OVERLAPPING CUTS INTO THE BARK WITH A HATCHET OR CHAINSAW. HERBICIDE SHALL BE APPLIED TO THE ENTIRE CUT SURFACE IMMEDIATELY FOLLOWING THE CUTS. CONTRACTOR SHALL REMOVE SEED HEADS FROM SALT CEDAR TREES IF THE TREES HAVE SET SEED. THE REMAINING TREE BIOMASS SHALL BE LEFT IN PLACE AFTER THE HERBICIDE APPLICATION.
 - C. BASAL BARK METHOD: THE BASAL BARK METHOD MAY BE USED WITH APPROVAL BY THE PROJECT BIOLOGIST IN PLACES WHERE REMOVAL OF THE DEAD PLANT BIOMASS IS PROHIBITIVE DUE TO SITE CONDITIONS. SALT CEDAR TREES WITH TRUNK DIAMETERS LESS THAN FOUR INCHES SHALL BE TREATED USING THE BASAL BARK METHOD. HERBICIDE SHALL BE APPLIED TO THE LOWEST 12 INCHES OF EACH TRUNK. CONTRACTOR SHALL REMOVE SEED HEADS FROM THE SALT CEDAR TREES OR SAPLINGS IF THE PLANTS HAVE SET SEED. THE REMAINING TREE BIOMASS SHALL BE LEFT IN PLACE AFTER THE HERBICIDE APPLICATION.
5. THE CONTRACTOR SHALL DISPOSE OF SEED HEADS AND PLANT BIOMASS WITH APPROVAL FROM THE PROJECT BIOLOGIST. THE CONTRACTOR SHALL CONTAIN SEEDS IN BAGS. THE METHOD OF ONSITE AND OFFSITE TRANSPORTATION OF REMOVING SEEDS AND PLANT BIOMASS SHALL BE DETERMINED BASED ON THE SITE TOPOGRAPHY AND REMOTENESS.

YEARS 2 - 5

1. SALT CEDAR REMOVAL SHALL OCCUR ON AN ANNUAL BASIS DURING MONITORING YEARS 2-5, UNLESS OTHERWISE SPECIFIED BY THE PROJECT BIOLOGIST. THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT BIOLOGIST TO DETERMINE THE TIMING OF THE REMOVAL.
2. ALL NEW SALT CEDAR TREES, WHICH HAVE ESTABLISHED ON THE SITE, AND ALL SALT CEDAR TREES, WHICH HAVE NOT RESPONDED TO HERBICIDE TREATMENT DURING THE PREVIOUS YEAR, SHALL BE TREATED WITH HERBICIDE USING THE SAME PARAMETERS DESCRIBED IN THE YEAR 1 TREATMENT GUIDELINES, UNLESS OTHERWISE SPECIFIED BY THE PROJECT BIOLOGIST.

Appendix C

PAR Analysis for the Suckle Mitigation Site

ASSUMPTIONS APPLIED IN THE PRELIMINARY PROPERTY ANALYSIS RECORD FOR THE MITIGATION SITES¹

INTRODUCTION

Because the properties are located in different ecoregions and support different sensitive vegetation communities and species, each mitigation property requires its own suite of management and monitoring tasks that will supplement the general management that will be performed at each site to mitigate project impacts. The costs to perform these management tasks are produced by a PAR, which identifies the individual tasks and assigns labor and materials costs for each task. Management is conducted in two phases. Phase 1 is a five-year start-up period during which initial access control measures are installed, baseline inventory surveys are conducted, and intensive management actions are taken to bring the property to a condition that provides the baseline for future monitoring. Phase 2 is ongoing management, which consists of annual maintenance in perpetuity. Phase 2 costs are given as an average annual estimate of implementation. The PAR then calculates an endowment amount that would yield enough interest (at a conservative rate) to cover the annual in-perpetuity management costs without having to use the principal (i.e., a non-wasting endowment).

GENERAL ASSUMPTIONS FOR COST ANALYSIS

The cost analysis incorporates several general. Any changes to these assumptions would require a re-evaluation of the cost estimate.

Land Assumptions

1. *Total Acreage* is the acreage of the mitigation land that will be managed on each property, which does not include permanent or temporary project impacts or the right-of-way, if they occur on the property. *Land Stewardship* activities will be conducted on this acreage in perpetuity.
2. Taxes, district fees and other levies are the responsibility of the land owner and are not included in this analysis.
3. Management of storm water conveyance structures will not be the responsibility of the Land Manager.

¹ This document is Part 3 of the September 2010 of Habitat Acquisition Plan/Habitat Management Plan for the Sunrise Powerlink Project. The assumptions are being refined and a revised Property Analysis Record (PAR) in connection with selection of the land manager and preparation of a revised final management plan for each mitigation site. Selection of the land manager and preparation of the revised final management plans and revised final PAR for the HMMP mitigation sites is subject to approval by the Corps, SWRCB, and CDFG.

Funding Assumptions

1. Funding will be through a one-time payment for five-year start-up costs and interest earned on endowments provided by SDG&E for annual ongoing management costs.
2. Management and monitoring tasks in this cost analysis are based on requirements outlined in the MMCRP and conditions of the BO issued by the USFWS.
3. A separate cost analysis has been conducted for each property, and reflects the specific mitigation requirements and property site conditions.

COST JUSTIFICATION AND LINE ITEM ASSUMPTIONS

The cost breakdown for biological management and monitoring is divided into the following sections: Facilities Maintenance and Access Control, Biological Inventory and Monitoring, Habitat and Land Management, Preserve Management Plan and Reporting, and Contingencies and Administration. As described in the individual HMPs, "land stewardship," which is the overall management of the property as a whole, consist of access control (Facilities Management and Access Control section of the PAR), general condition monitoring (a line item within Biological Inventory and Biological Monitoring sections of the PAR), and trash removal (a line item within the Habitat/Land Management section of the PAR). The dollar amount required for management is based on the analysis below.

Each PAR is presented in two components: Start-up Costs and Annual Costs in Perpetuity. Start-up costs cover the initial investment in infrastructure and surveys to begin monitoring and reporting, and maintenance, monitoring and reporting that would occur in the first 5 years of implementation. Annual Costs in Perpetuity provides an average annual estimate of implementation of the HMP. An annual inflation rate (3.0%) is applied to the annual cost which is used to generate an estimate of an endowment that would yield an amount, assuming a 5% return², to pay for the annual management and monitoring. To this endowment estimate the start-up cost is added to provide a total initial endowment estimate.

Facilities Maintenance and Access Control

Gates, fencing, and signs are included in the cost analysis as needed to protect mitigated species or habitats from unauthorized access. The HMP includes the start-up and long-term maintenance costs for facilities other than those provided by SDG&E for Operations and Maintenance (e.g., gates for maintenance access roads).

² The calculation of the endowment amount assumes that 3% of the return will be reinvested in endowment (to keep pace with inflation) and 2% would be allocated annually for management tasks. See Attachment for documentation that a 5% nominal interest rate and 2% real interest rate are consistent with historical experience and market data and comparable to values assumed by the Social Security Board of Trustees in their long-term analysis of Social Security funds.

Fencing

Fencing will be an important aspect of land management, since unauthorized use can destroy sensitive resources and undermine the biological value of the mitigation. Several assumptions have been made for the cost analysis. Some properties (e.g. Lightner and Long Potrero) will require fencing whereas others (e.g. Chocolate Canyon, Desert Cahuilla Land Transaction, El Capitan, Hamlet, Lakeside, Nabi and Suckle) will not. Fencing discussed in this section is limited to the perimeter or portions of the properties. The entire perimeter of each parcel will not need to be fenced as there is steep topography, adjacent protected land, vacant land or existing fencing associated with private property present at the property boundaries. Details for each property are provided in the individual PARs. A combination of smooth wire or chain link will be used for the mitigation sites. Fencing costs are estimated at \$15 per linear foot and based on the average cost of the two types of fencing. It is estimated that 10% of the fencing installed during the start-up period will need to be replaced annually.

Gates and Barriers

Gates will be required to block unauthorized access but allow access for the Land Managers and emergency services personnel. Gates will be installed on the perimeter at main access points into the property if needed. High quality 16-foot swinging arm gates firmly planted into the ground are recommended since they are most resistant to vandalism and destruction. A typical 16-foot swinging arm gate will cost about \$5,000 including installation. These gates will need to be serviced annually and replaced every 20 years.

Concrete bollards are fixed barriers to vehicular access that are firmly planted into the ground to resist being removed or pushed over by vehicles. They will be used to prevent vehicles from bypassing gates. Four bollards are expected to be needed at \$75 per bollard for each gate. Long-term maintenance consists of replacement every 10 years.

Signage

Signage will be used to indicate boundaries, cite regulations, and identify areas of habitat restoration. Signs are estimated at \$15 per sign, which is an average cost for small signs of this type (e.g., 8 in. by 13.5 in.). Signage is susceptible to vandalism and/or removal; therefore, in addition to initial installation, it is expected that an average of 20% of signs will need replacement each year.

Biological Monitoring

Monitoring costs include baseline inventory surveys to be conducted during the first five-years and long-term monitoring for mitigated species and habitats. For the purpose of this cost analysis, the following definitions are used. A *baseline survey* is conducted at a certain point in time and is used as the benchmark against which subsequent surveys will be compared. *Baseline surveys* can take place during a single year or can be conducted over a period of time to encompass the natural fluctuation in the density or distribution of a population or structure of a plant or animal community. *Monitoring surveys* are conducted over a given period of time or in perpetuity, and are compared to the baseline survey results to indicate changes in populations or habitat conditions over time. Negative changes over time (e.g., showing a more restricted sensitive species population distribution) will alert the land manager and may trigger specific remedial management actions. Note that long-term monitoring may be

conducted less frequently than surveys conducted during the five-year start-up period if appropriate for a given species.

Habitat-Related Monitoring

Habitat-related monitoring includes general condition monitoring, general wildlife habitat assessment, vegetation mapping, invasive species mapping, and species-specific habitat assessment. Some of these activities can be conducted concurrently as described below. Unless otherwise specified, the estimated survey rate (acres/hour) includes field preparation and travel time.

General Condition Monitoring and Wildlife Habitat Assessment

General condition monitoring will be conducted to identify threats to sensitive habitats and species. Threats may include invasive species, erosion problems, illegal trespass (e.g., off-road vehicles or graffiti, etc.), trash or illegal dumping. In addition, the general overall health a quality of wildlife habitat will be assessed during this effort. One visit will be conducted annually at an estimated rate of 10 acres/hour.

Vegetation Communities and Invasive Species Mapping

Baseline mapping of vegetation communities and invasive species will be conducted during the start-up period and updated annually for the remainder of this period. Updates will continue every three years thereafter. This effort is expected to be more intense than that described for general condition monitoring, in which general presence/absence information will be recorded for invasive species. Mapping will consist of defining boundaries and noting the density, species, and level of threat. This effort is estimated to be conducted at 7.5 acres/hour

Species-specific Habitat Assessments

Some species may require ongoing habitat assessments to inform species-specific monitoring. This type of assessment is more specific than that described for general condition monitoring, as it takes into consideration the particular habitat needs of a given species. For example, a habitat assessment for the least Bell's vireo and southwestern willow flycatcher might focus on such habitat characteristics as canopy structure or dominant plant species. This type of assessment is expected to be conducted concurrently with vegetation communities and invasive species mapping, as this is a more intense effort than general condition monitoring.

Information gathered from the general conditions monitoring and invasive species mapping will be used to prepare a vegetation management plan, which will include a list and assessment of threats to biological resources, management priorities, and a work plan for habitat management. The plan will be updated annually.

Focused Species Survey Methods

Surveys for mitigated species will be conducted according to established protocols (either USFWS presence/absence protocols or preserve-specific monitoring protocols³), USGS guidelines, or recommendations of species experts. A brief summary of each approach is provided below. Field preparation and travel time is built into the estimated number of acres covered per hour.

³ If not otherwise specified, preserve-specific monitoring protocols include USFWS presence/absence protocols that have been specifically modified to fulfill long-term preserve monitoring goals.

- Felt-leaved monardella, modified from McEarchen (in progress and 2009). Baseline surveys for felt-leaved monardella will be conducted on the Lightner property twice during the start-up period. The surveys will be conducted to assess the current condition and extent of the population, potential threats, and condition of the surrounding habitat. Each survey is expected to be conducted in 10 hours.
- Lakeside Ceanothus. Baseline surveys for Lakeside ceanothus will be conducted on the El Capitan property. The surveys will assess the current condition of the population, level of seedling recruitment, potential threats, and condition of the surrounding habitat. Each survey will take 30 hours, and be conducted twice during the start-up period.
- Quino: USFWS protocol (2002). Baseline surveys and long-term monitoring of the Quino checkerspot butterfly will be conducted every three years on the Long Potrero and Lightner properties. The Hermes butterfly will be surveyed on the Lightner property concurrently. Each flight season (usually between late February and late April) consists of five field visits which are conducted one week apart at 15 hours/acre. Surveys will occur within scrub and grassland habitats (the survey acreage may be reduced if a habitat assessment is conducted to determine excludible habitat.). A report will be prepared and submitted to the USFWS 45 days after the last survey.
- Arroyo Toad: USFWS MSCP Animal Survey Protocol (USFWS 2009) and USGS Monitoring Protocol for the arroyo toad (USGS 2003). Baseline surveys and long-term monitoring will be conducted for the arroyo toad on the Long Potrero property every three years. Three field visits per survey will be conducted during the breeding season (March through June) at an estimated 2.5 acres/hr of suitable habitat. Report due to USFWS 30 days after final surveys or positive sighting. To be conducted every three years during start-up and ongoing management periods.
- Barefoot banded gecko: CDFG protocol (in prep). Baseline surveys and long-term monitoring of the barefoot banded gecko will be conducted on the Suckle property. Surveys will consist of four visits between May 1 and July 31 at an estimated rate of 2.5 acres/hr. Ten percent of the site will be surveyed. Surveys will be conducted annually during the start-up period, and every three years thereafter.
- Gnatcatcher: modified USFWS survey protocol (1997). Focused species surveys will be conducted on the Lakeside property. Surveys will consist of one visit during the breeding season (February 15 – August 30) at an estimated rate of 10 acres/hr. A report is due to USFWS within 45 days of the final survey. Surveys will be conducted every three years during start-up and ongoing monitoring periods.
- Least Bell's vireo: USFWS Survey Guidelines (2001) as modified. Least Bell's vireo surveys will be conducted on the Chocolate Canyon property. Three survey visits will be conducted 10 days apart, between April 15 and July 31 at an estimated rate of 3 acres/hr in riparian scrub, forest, or woodland habitat. A report is due to USFWS 45 days after the last survey. Surveys will be conducted annually during the start-up period and every three years thereafter.
- Southwestern willow flycatcher: USFWS monitoring protocol (2010) as modified. To be conducted concurrently with least Bell's vireo surveys

- Peninsular Bighorn Sheep Project Monitoring will be conducted independently by California State Parks and is not part of this HMP. Surveyors will enter all the data into a spreadsheet or GIS database, analyze the data, and create survey reports for each survey season as required by the USFWS. The additional cost of reporting and data management is calculated at 25% of the total survey effort.

HABITAT/LAND MANAGEMENT

Habitat management consists of actions that are directed at maintaining habitat quality for mitigated species through invasive species control, erosion control, trash removal, and minor habitat remediation, as described below.

Invasive Species Control

Control of invasive plant species will be one of the most important aspects of habitat management. The common non-native plant species in the dominant habitats (coastal sage scrub, grassland and chaparral) are usually non-native grasses, mustards (*Brassica* spp and *Hirschfeldia incana*), star-thistle (*Centaurea melintensis*), fennel (*Foeniculum vulgare*) and many others. Non-native plant species that occur in riparian areas, such as arundo (*Arundo donax*), pampas (*Cortaderia selloana*) and tamarisk (*Tamarix* spp.), will be removed through the jurisdictional resources habitat mitigation Plan. This cost analysis assumes that there will be an initial intensive effort to remove the most damaging invasive species (as per California Invasive Plant Council (CalIPC)) recommendations, and that invasive species removal will most likely be a continual process in perpetuity. Although invasive species removal can be conducted by laborers, this activity must be supervised by a qualified biologist to ensure that sensitive species and habitats are not damaged during the removal process.

Difficult-to-remove or widespread invasive species:

The cost estimate assumes that a small staff of laborers will be needed for widespread and/or difficult to remove invasive species. Cost assumptions include: 25 acres/crew day, \$1,600 per crew day (5 laborers/crew, \$64/ hour labor cost plus equipment cost), on approximately one to ten percent of the total property in a given year. The activity may include mowing, herbicide treatment, hand removal, debris removal, etc. Equipment needed for this activity may include weed-whips, gardening tools, chain saws and other tools as well as rental equipment such as mowers for removal of non-native grasses. The frequency of treatment varies from annually to every five years depending on the local conditions of a given property.

Other invasive species:

Smaller scale infestations and/or species that are less difficult to remove can be conducted by laborers at an estimated cost of \$45/hour at an estimated rate of 0.25 acre per hour. Much of this work will likely be done by hand or with small equipment. Generally, this level of invasive species removal is expected to occur annually on one to five percent of the property depending on local conditions.

Erosion Control and Road Maintenance

Erosion control and road maintenance for this cost estimate is meant to cover minor problems, for example erosion repairs along degraded habitat or near unused or old trails. It does not include the construction of erosion control devices, such as cement berms or culverts, or any measures that would require permits, engineering or major contracting. In general, maintenance of roads is not the responsibility of the Land Manager, except for existing roads that are required for management access and not already maintained by SDG&E for access to the transmission line and related structures.

Erosion control materials are estimated to cost \$600 per acre. Materials will consist of gravel bags (250 bags at \$1.50/bag), fiber roles and stakes (12 rolls at \$28/roll), and silt fencing (500 feet at \$25/100-ft roll). This management task can be conducted by laborers, and assumes \$45/hour at a rate of eight labor hours per acre on five percent of the property on an annual basis. As with invasive species removal, this activity must be supervised by a qualified biologist to ensure that sensitive species and habitats are not damaged during erosion control activities.

Trash Removal

Trash removal is a land steward task that is more important in open space areas that are more accessible to the public (e.g. Suckle) as compared to areas that are far from public facilities (e.g., El Capitan). Because the Sunrise mitigation parcels will not be open to the public, the need for trash removal is lower than for a property that has active recreation. Trash removal is based on a cost of \$100/acre for one percent to five percent of the property and will be conducted every one to five years depending on the property.

Habitat Remediation

Habitat remediation consists of minor rehabilitation of habitat from the effects of erosion, unauthorized access or removal of exotics; it not considered ecological habitat restoration or creation. This task may include seeding with native seeds, raking, or weed removal. Remedial restoration may also include the restoration of closed trails or roads. Due to the high level of disturbance and compaction, a closed road or trail can take a substantially greater amount of time to revert back to the surrounding native vegetation community without active seeding, weeding, and soil preparation. Therefore, remedial restoration for decommissioned roads and trails will be somewhat active (e.g., may include soil decompaction, seeding with the imprinting method, more active exotic species control etc.), but will not include irrigation as part of this HMP. Major restoration, restoration for mitigation purposes (e.g., those identified in the Habitat Mitigation Monitoring Plan (HMMP) for this Project) and/or the development of restoration plans are not included in this HMP.

Habitat remediation is included during the start-up period for most properties and is also an integral part of the habitat management in perpetuity. Costs are estimated based on one percent to five percent of the total acreage of each property every two to five years. Remediation efforts, including

labor and materials, will vary in cost between \$300/acre for minor habitat repair and \$1,000/acre for a more active effort, which is required to restore decommissioned roads and trails.

PRESERVE MANAGEMENT PLANS AND REPORTING

Annual Reports

Annual reports will include a threats assessment, work plan, budget plan, and a financial summary (including the status of endowments). Reporting will be prepared annually and be submitted to the appropriate wildlife, or other public agency. Preparation of annual reports is expected to take approximately 20 hours during the start up period and 10 hours thereafter.

Five Year Work Programs

Using the results from the general condition monitoring, wildlife habitat assessments, vegetation communities mapping, invasive species mapping and species-specific habitat assessments, 50year work programs will be prepared and regularly updated. The plan will include a threats assessment, prioritization, monitoring protocols and schedules, and a work plan. The plan is expected to be completed in year three and updated annually thereafter. Some interim land management will occur during years one and two. Initial report preparation is estimated to take 30 to 60 hours during the start-up period, and updates will take 10 to 30 hours annually.

GIS Database Management

GIS tasks will include the management of survey data submitted by the surveyors (including GPS data), and the preparation of maps and graphics to assist in the data analysis, to be conducted by the land manager, and in the preparation of annual reports and preserve management plans. GIS-related activities are estimated to take 8 hours annually during the start up period and 4 hours thereafter.

CONTINGENCIES AND ADMINISTRATION

This cost estimate includes a provision for contingencies at a rate of 10% of the budgeted expenses to provide a cushion for extra and unforeseen costs. There is also a provision for administrative overhead at 15% to provide for the cost of maintaining an office, office supplies, and administrative staff to assist with paperwork and other administrative costs.

LABOR RATE ASSUMPTIONS

The following table summarizes the labor rate assumptions used for this cost analysis. Labor rates usually vary from organization to organization which should be considered during discussion of this cost analysis. The cost analysis is based on 'fully burdened' labor rates, which includes labor costs and overhead to allow for staffing, materials, and equipment.

Position	Hourly Rate*
Land Manager	\$100
Plant Ecologist	\$90
Entomologist	\$90
Herpetologist	\$90
Ornithologist	\$90
Mammalogist	\$90
Biological Supervisor	\$160
Laborer	\$45
GIS Specialist	\$90

* Charge rates, not pay rates - includes benefits, including health care, 3% matching in a 401k, vacation (120 days), sick (40 hours) and paid holidays (72 hours).

ENDOWMENTS

SDG&E will establish “non-wasting” endowments for each mitigation property, based on this cost analysis, to provide for the management and monitoring of biological resource. Start-up costs will be provided through an initial one-time payment into the endowment account. Annual ongoing management costs will be funded through annual interest earned on the endowment principal. It is assumed that the cost of ongoing management will increase by approximately 3.0% annually, based on the average annual U.S. Bureau of Labor Statistics Consumer Price Index inflation rates over the last 20 years (e.g., between 1989 and 2009). The average annual rate of return is estimated to be 5%. The average estimated reinvestment is estimated at 3%.⁴

⁴ See footnote 2 and Attachment.

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November 1, 2010

Mr. Donald E. Haines
Environmental Resource Manager
Sunrise Environmental Services
Sunrise Powerlink Project
8315 Century Park Court, CP21G
San Diego, CA 92123-1548

Re: Sunrise Powerlink Project Environmental Mitigation — Interest Rate Assumptions for Calculating Endowment for On-Going Habitat Management

Dear Mr. Haines:

As requested, I have reviewed the assumptions used to calculate estimated endowment amounts in connection with the Sunrise Powerlink Project environmental mitigation — namely, nominal interest rate of 5% per year and inflation rate of 3%, which is also annual reinvestment rate of the endowment fund, resulting in real interest rate of 2%.^[1] This letter examines these assumptions in light of historical experience in the U.S. and in comparison to those employed by the Trustees of the Social Security trust funds in a 75-year actuarial study.

Nominal Interest Rate

Nominal interest rate represents the annual return on endowment investment, assumed to consist primarily of government bonds. Although other types of investment can generate higher returns over short time periods, they are subject to risks which over time will diminish those returns. Returns on bonds can also vary depending on risks associated with future inflation and borrower default. The U.S. Treasury bonds represent the least risk, or safest, investment in the financial market. Since the endowment principal will be kept intact, or only increased to keep pace with inflation, very long-term Treasury bonds can be used, such as 10-, 20-, and 30-year bonds.

From 1970 to 2009, interest rates on 30-year Treasury bonds, averaged over 10-year periods, varied from 5.0% (from 2000 to 2009) to 10.6% (from 1980 to 1989), as shown below. Interest rates on 10-year bonds, also averaged over 10-year periods, varied from 4.5% (from 2000 to 2009) to 10.6%

1. For a nominal interest rate, R_{nom} , and inflation rate, P_{infl} , the real interest rate, R_{real} , or net revenue from endowment after reinvestment for inflation, is $R_{real} = (1 + R_{nom}) / (1 + P_{infl}) - 1$, which may be approximated by $R_{real} \approx R_{nom} - P_{infl}$. To generate a constant annual revenue, M , for habitat management, the required endowment is $E = M / R_{real}$. This assumes that the endowment will grow through annual reinvestment of $\Delta E = E \times P_{infl}$.

Mr. Donald E. Haines
 November 1, 2010
 Page 2

(from 1980 to 1989).[2] These rates clearly reflect prevailing economic conditions — high rates during periods of high inflation (which occurred roughly from 1973 to 1982) and low rates during recessions, of which there were two during the 2000s.

Average Interest Rates of 10- and 30-Year
 U.S. Treasury Bonds, 1970 to 2009 (Percent)

	1970-79	1980-89	1990-99	2000-09
10-Year U.S. Treasury Bonds	7.5	10.6	6.7	4.5
30-Year U.S. Treasury Bonds	8.5 [1]	10.6	7.0	5.0 [2]

Source: Federal Reserve Board.

1. Average for 1977 through 1979.
2. No 30-year U.S. Treasury bonds were issued from 2003 to 2005.

The 5% nominal interest assumed in planning environmental mitigation for the Sunrise Powerlink Project is consistent with recent historical experience. It may be considered conservative (that is, low), since it is equal to the average interest rate on 30-year Treasury bonds from 2000 to 2002 and from 2006 to 2009, when the U.S. saw two national recessions.

The Board of Trustees of the Social Security trust funds [3] reports annually to the U.S. Congress on the funds' actuarial (financial) status. The latest report was issued in August 2010 (Trustees Report).[4] The actuarial analysis covers a 75-year projection period, over which it makes various assumptions on future demographics and economics, including inflation and interest rates. The Social Security funds are invested in special U.S. Government obligations, and the funds' nominal interest rate is the average interest rate of those securities. Historically, these rates have been very close to those of 10-year Treasury bonds, ranging from 4.5% (from 2000 to 2010) to 10.3% (from 1980 to 1990).

2. Interest rates on longer term bonds are usually higher than those with shorter terms, reflecting the higher inflation risk. Interest rates of 20-year bonds tend to fall in between those of 10- and 30-year bonds.

3. The two Social Security trust funds are the Old-Age, Survivors, and Disability Insurance (OASDI) Fund and the Disability Insurance (DI) Fund. The trustees include the Secretaries of the Treasury, Labor, and Health and Human Services, the Commissioner of Social Security, and others.

4. *2010 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*, Washington, D.C.: USGPO, August 2010.

Mr. Donald E. Haines
 November 1, 2010
 Page 3

For this year (2010), the Trustees Report expects the nominal interest rate to stay low (between 3.2% and 3.6% for the high- and low-cost assumptions, respectively).[5] However, it is expected that interest rates will recover by 2012 (to between 5.3% and 6.9%) and that the long-term average will be between 5.4% and 5.9% for the low- and high-cost assumptions, with intermediate-cost assumption of 5.7%. The Social Security funds will be expended as needed, when payroll tax receipts are not sufficient to meet benefit obligations. Accordingly, these funds have a mix of maturities, which allows for future drawdowns. For the environmental mitigation program (where no drawdowns from the endowment are planned to occur), nominal interest rates assumed for the Social Security programs can be considered to be conservative, or low, estimates. The 5% nominal rate assumed for the Sunrise Powerlink Project is even more conservative than those used in the analysis of Social Security funds.

Inflation Rate

Consumer price inflation has varied widely from 1970 to 2010. Inflation was very high by historical standards from 1973 to 1982, peaking at 13.5% on an annual basis in 1980. In response, the Federal Reserve tightened monetary policy and reduced inflation to 3.2% by 1983. Inflation for the 1980-90 period averaged 4.7% per year. It has declined further since then, averaging 2.8% in the 1990s and 2.5% from 2000 through the first half of 2010 (see table below).

Average Annual Inflation Rate by Decade, 1970 to 2010
 (Percent)

	1970-80	1980-90	1990-2000	2000-10
CPI (All Urban Consumers - U.S.)	7.8	4.7	2.8	2.5 [1]

Source: U.S. Bureau of Labor Statistics, Consumer Price Index (CPI)
 1. Average through first half of 2010.

Over a nearly 40-year period from 1970 to the first half of 2010, inflation has averaged 4.1% per year. However, this is not necessarily a reliable guide to future inflation, which is caused by a combination of excess demand (demand for goods and services exceeding what the economy is capable of supplying) and excess liquidity (loose monetary policy).

An indication of the financial market's expectation of future inflation is shown by comparing the interest rate on long-term (30-year) Treasury bonds and the interest rate on the U.S. Treasury's inflation-indexed bonds, whose principal amount is adjusted to keep pace with inflation, thereby

5. The Trustees Report analyzes three projection scenarios—low-, intermediate-, and high-cost scenarios, with corresponding financial requirements on the Social Security funds.

Mr. Donald E. Haines
 November 1, 2010
 Page 4

eliminating the inflation risk. Between February and September 2010, expected long-term inflation rate varied from 2% to 2.6%, as indicated by this comparison.[6]

The Trustees Report on the financial status of Social Security funds also includes assumptions regarding future inflation, ranging from 1.8% to 3.8% per year for the low- and high-cost scenarios, with an intermediate-cost assumption of 2.9% per year.

Thus, the assumed inflation rate of 3% used for the Sunrise Powerlink Project environmental mitigation is higher than the average inflation for the past 20 years and higher than the current financial market's expectation of future inflation. However, it is consistent with the intermediate-cost assumption used for analysis of the Social Security funds.

Real Interest Rate

Although real interest rate can be derived from assumed values of nominal interest rate and inflation, it can also be examined using historical data. For the Social Security funds, the Trustees Report indicates that the real interest rate averaged 2.8% per year over a 40-year period from 1969 to 1998, varying from 0.3% in 1969-78 to 2.2% in 1999-2008.

Average Real Interest Rate on Social Security Trust Funds
 1969-2008 (Percent)

	1969-78	1979-88	1989-98	1999-2008
Real Interest Rate on Social Security Trust Funds	0.3	4.5	4.3	2.2

Source: Social Security Board of Trustees, 2010 Annual Report.

It is interesting to note that, although average real interest rate was low during the first years of high inflation, it recovered quickly and was on average high for the next 20 years. More recently, real interest rate has remained below 2%, with a low of 0.6% in 2008, reflecting the substantial slowdown in economic activity.[7]

The Trustees Report projects that the real interest rate will remain low over the next several years. After this initial period, however, the Trustees project real interest rate to average 2.1% to 3.6% for the high- and low-cost scenarios, with intermediate-cost assumption of 2.9%.

6. Data for 30-Year Treasury inflation-indexed bonds are available only since February 2010.

7. Real interest rate for 2009, however, was 4.4%, reflecting additional return, or earnings, from negative inflation, or price deflation. That is, purchasing power of the trust funds increased due to lower consumer prices.

Mr. Donald E. Haines
November 1, 2010
Page 5

The real interest rate of 2% assumed in the Sunrise Powerlink Project environmental mitigation analysis is close to the recent experience of the Social Security trust funds. However, the Trustees Report does not expect that this condition will continue into the long-term future. That is, in relation to the assumed rate of long-term inflation (3% in the environmental mitigation analysis), assumed nominal interest rate is low, resulting in low real interest rate. It may be noted, however, that the 2% rate is close to that assumed for the high-cost scenario for the Social Security funds.

Summary Comments


In conclusion, the nominal interest rate and inflation rate assumed for the Sunrise Powerlink Project environmental mitigation analysis are consistent with historical experience and market data and comparable to values assumed in the long-term financial analysis of the Social Security funds. In fact, the resulting real interest rate, and the corresponding estimate of endowment is likely to be conservative, that is, it would have a large margin of safety.

It is understood that the Sunrise Powerlink Project would separately fund annual management expenses over an initial period of several years, prior to utilizing net interest income from the endowment fund (that is, after reinvestment for cost inflation). If the endowment were to be funded at the beginning of the initial period, then it would accumulate additional funds at the nominal interest rate. If, however, the endowment were to be funded at the end of the initial period, then it would need to reflect the annual management cost at the time of funding, including any effects of inflation in the intervening period.

If there any questions on the above or related issues, please feel free to contact me at 858-535-1420 or at onakaplanning@gmail.com.

Sincerely,

Onaka Planning & Economics [8]



Jun Onaka, Ph.D.

8. Onaka Planning & Economics (OP/E) prepared financing plans for the subregional habitat conservation plans of MSCP and MHCP in San Diego County, as well as several subarea plans. OP/E also assisted San Diego Association of Governments (SANDAG) in analyzing region-wide funding needs for habitat management and endowment.

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JUN ONAKA, Ph.D.

Fiscal and Economic Analysis and Public Finance

Jun Onaka has over 25 years' experience in conducting planning and economic studies, including fiscal and economic impact studies; demographic and socioeconomic analyses; and financing plans and feasibility studies for infrastructure improvements and public services. He has prepared fiscal and economic impact analyses of master-planned development, highways and public infrastructure improvements, and open space conservation. He has also prepared financing plans for public improvements, including transportation, water and wastewater facilities, education, parks, and open space. Dr. Onaka is the principal of Onaka Planning & Economics (OP/E), a consulting firm specializing in the economics and financing of urban development.

PROJECT EXPERIENCE — SUMMARY

Fiscal and Economic Impact Studies of Public and Private Projects — Onaka Planning & Economics (OP/E) has conducted numerous fiscal impact studies of private master plan developments, with focus on impacts to the general fund budget of the local government within whose jurisdiction the development is to take place. Studies were conducted for the Imperial County and its Local Agency Formation Commission (LAFCO), the cities of Carlsbad, Chula Vista, San Diego, and other jurisdictions.

OP/E has prepared socioeconomic projections and impact analyses pursuant to requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) for public service and infrastructure projects, such as highways, transmission lines, and correctional facilities. OP/E prepared socioeconomic impact and growth inducement studies for the California Department of Transportation (Caltrans) projects, including State Routes (SR) 54, 54/125, 56 and 76. Issues addressed included population, employment, housing, land use, community character, schools, other public services, and growth inducement. OP/E prepared socioeconomic impact analysis for a proposed electric transmission line from Lucerne Valley to Bear Valley in San Bernardino County, proposed by Southern California Edison. OP/E prepared socioeconomic analyses for construction and/or expansion of California Department of Corrections and Rehabilitation facilities in the counties of Kern, Riverside, Imperial and San Diego. OP/E also prepared socioeconomic impact studies for open space management plans (San Luis Obispo County; US Bureau of Land Management; see also regional habitat conservation plan, below).

OP/E assisted San Diego Association of Governments (SANDAG) in the preparation of a regional economic development plan, called Regional Economic Prosperity Strategy, with focus on regional income, employment, and business formation. OP/E has developed new methods of cluster analysis, a method of economic analysis regarding the structure of regional employment.

Regional Habitat Conservation Plans — OP/E prepared financing and economic analyses of regional habitat conservation plans, including the San Diego Multiple Species Conservation Program, the North San Diego County Multiple Habitat Conservation Program, and other plans prepared pursuant to the federal Endangered Species Act and the California Natural Community Conservation

JUN ONAKA, Ph.D.
Fiscal and Economic Analysis and Public Finance
Page 2

Planning Act. The San Diego Multiple Species Conservation Program (MSCP) is a cooperative regional habitat conservation program of the City of San Diego (Metropolitan Wastewater Department), County of San Diego, and other jurisdictions, covering a 500-square mile area in southwestern San Diego County. OP/E estimated impacts from forecast regional growth, need for public acquisition of habitat land, and costs of land acquisition and habitat management.

The North San Diego County Multiple Habitat Conservation Program (MHCP) is a cooperative regional habitat conservation program by local jurisdictions in north San Diego County and the San Diego Association of Governments. OP/E prepared a financing and acquisition plan and land use and socioeconomic impact analysis for the MHCP. OP/E also completed financing plans for Natural Community Conservation Planning (NCCP) programs for various public agencies, including a consortium of water agencies in San Diego County and the cities of Carlsbad, Oceanside and Rancho Palos Verdes. NCCP was enacted by the California Legislature to foster cooperative conservation efforts by public agencies and private landowners consistent with federal and state Endangered Species Acts.

Public Facility Financing Plans and Feasibility Studies — OP/E prepared financing plans for public facility improvements and feasibility studies for public financing districts (1913/1915 Act assessment districts, Mello-Roos community facilities districts, reimbursement programs for shared infrastructure improvements, and development fee programs) in the cities of Carlsbad, Escondido, and San Diego. Facilities addressed by these plans and studies include arterial streets, drainage, water, wastewater, school facilities, and habitat conservation. OP/E has worked primarily with private entities engaged in planning and construction of major offsite infrastructure facilities using public financing. OP/E has also worked extensively with those firms to implement the terms of public financing districts, including reimbursements of design, field, and construction costs expended for district improvements.

Infrastructure and Public Facilities Planning — OP/E prepared analysis and projections of regional infrastructure services needed to support forecast growth in the San Diego region, as part of the Regional Comprehensive Plan for San Diego, prepared by San Diego Association of Governments (SANDAG).

PROFESSIONAL HISTORY

Onaka Planning & Economics, La Jolla, CA — Principal — 1991-Present
P&D Technologies, Inc. (previously PRC Engineering; currently P&D Consultants, a company of TCB/AECOM), San Diego, CA — Senior Project Manager — 1983-1991
Carnegie-Mellon University, Pittsburgh, PA — Assistant Professor of Urban and Regional Planning — 1980-1983

EDUCATION

Ph.D., Urban Planning, University of California at Los Angeles
A.B. (Magna Cum Laude), Applied Mathematics in Economics, Harvard University

Suckle Start Up Costs (First Five Years)

* Acreage for parcel is exclusive of substation

Facilities Maintenance/Access Control

	Specification	Unit	No. Units	Cost/Unit	Frequency (for 5 years)	Total 5-Yr Cost	Annual Cost (Total divided by 5 Yrs)	Assumptions	Comments
Vehicle Barrier	Concrete Bollards	Item	8	\$75.00	1	\$600.00	\$120.00	Targeted for access points into the preserve. 4 bollards per gate	
Gates	16 ft. Swinging Arm	Item	2	\$5,000.00	1	\$10,000.00	\$2,000.00	Targeted for access points into the preserve.	
Sign - initial installation	Boundary 8" x 13.5	Item	10	\$15.00	1	\$150.00	\$30.00	Average cost for signs. Sign types: boundary, regulations, habitat restoration. One-time cost for initial installation (10 signs).	
Sign - replacement	Boundary 8" x 13.5	Item	2	\$15.00	4	\$120.00	\$24.00	Average cost for signs. Sign types: boundary, regulations, habitat restoration. Replacement of 20% annually for the remaining 4 years	Formula: Total Cost = (20% total number of signs per property) * (cost per sign) * (number of years installation is needed)
<u>SUBTOTAL CAPITAL IMPROVEMENTS</u>						<u>\$10,870.00</u>	<u>\$2,174.00</u>		

Biological Inventory (Baseline Surveys)

	Specification	Unit	No. Units	Labor rate	Frequency (for 5 years)	Total Cost	Annual Cost (Total divided by 5 Yrs)	Assumptions	Comments
Land Manager	General condition monitoring and wildlife assessment	Acres	199.4	\$100.00	5	\$9,970.00	\$1,994.00	One visit annually to identify threats to habitat and species (comprehensive). 100 acres/day; 10 hour days (=10 acres/hour)	Formula: Total Cost = (total acres/acres per hour) * (labor cost per hour) * (number of surveys in 5 year period).
Plant Ecologist	Update of vegetation communities and invasive species mapping	Acres	199.4	\$90.00	5	\$11,964.00	\$2,392.80	Baseline mapping of vegetation communities and invasive species; to be conducted concurrently; 7.5 acres/hour	Formula: Total Cost = (total acres/acres per hour) * (labor cost per hour) * (number of surveys in 5 year period).
Herpetologist	Barefoot banded gecko	Acres	20	\$90.00	20	\$14,400.00	\$2,880.00	Baseline surveys: annually for 5 years. 4 visits/year May 1 - July 31. Assume 10% of property surveyed per year @ 2.5 acres per hour. Annual habitat assessments will be conducted during vegetation communities surveys	Formula: Total Cost = (habitat acres/acres per hour) * (labor cost per hour) * (number of visits in 5 year period).
Mammalogist	Peninsular bighorn sheep	L. Hours	16	\$90.00	5	\$7,200.00	\$1,440.00	1 survey locations, 2 times per year, 4 hours per location plus 2 hours travel time; to be conducted annually. Annual habitat assessments will be conducted during vegetation communities surveys.	Formula: Hours/year * labor rate
Surveyors	Data entry, analysis and reporting	N/A	N/A	N/A	N/A	\$10,883.50	\$2,176.70	(25%) * (total survey effort)	Formula: 25% of time spent for (general condition monitoring; mapping, and species surveys)
<u>SUBTOTAL BIOLOGICAL MONITORING</u>						<u>\$54,417.50</u>	<u>\$10,883.50</u>		

Habitat /Land Management

* or cost per unit

	Specification	Unit	No. Units	Labor rate*	Frequency (for 5 years)	Total Cost	Annual Cost (Total divided by 5 Yrs)	Assumptions	Comments
Exotic Plant Control	Other species, labor	Acres	10	\$45.00	5	\$9,000.00	\$1,800.00	Laborer; 0.25 acre/hour; 5% of total property annually. Cal-IPC high and moderate risk species.	Formula: Total Cost = (5% total acres/ac per hour) * (labor cost per hour) * (no. treatments in 5 year period).
Erosion Control	Materials	Acres	2	\$600.00	5	\$6,000.00	\$1,200.00	Gravel bags (250 @ \$1/bag), fiber rolls and stakes (12 @ \$28/roll), silt fencing (500 ft @ \$25/100 ft roll) = \$600/acre per 5 years, 1% property.	Formula: Total Cost = 1% total acres * cost per acre * no. treatments in 5 year period.
Erosion Control/ Road Maintenance	Labor	Acres	10	\$45.00	5	\$2,250.00	\$450.00	Laborer; 8 labor hrs/acre; 5% of property per 5 years	Formula: Total Cost = (5% total acres) * 8 labor hrs/acre* labor cost per acre * no. treatments in 5 year period.
Trash Removal	Trash Hauling-load	Acres	10	\$100	1	\$1,000.00	\$200.00	\$100/acre every 1 years for 5% of total property	Formula: 5% total acres * cost per acre * frequency
Habitat Remediation	Minor habitat enhancement	Acres	10	\$300	3	\$9,000.00	\$1,800.00	\$300/acre; 5% of total property every other year. (eg. may include maintenance of water sources for BHS etc.). Preparation of a restoration plan and project management is not included in this cost.	Formula: Total Cost = (5% total acres) * (cost per acre) * no. treatments in 5 year period.
Habitat Management - all tasks	Supervision by qualified biologist	L. Hours	5	\$160.00	5	\$4,000.00	\$800.00	A qualified biologist will monitor management activities in areas occupied by or suitable for listed species. Approximately 5 hours annually.	Formula: Total Cost = (number of hours) * (labor cost per hour) * (annually for 5 year period).
<u>SUBTOTAL BIOLOGICAL MANAGEMENT</u>						<u>\$31,250.00</u>	<u>\$6,250.00</u>		

Plan/Reporting

	Specification	Unit	No. Units	Labor rate	Quantity (for 5 years)	Total Cost	Annual Cost (Total divided by 5 Yrs)	Assumptions	Comments
Land Manager	Annual Reporting and Coordination	L. Hours	20	\$100.00	5	\$10,000.00	\$2,000.00	Preparation of annual report, to include threats assessment, work plan, budget plan, and status of endowment.	Formula: hrs to update report * labor rate * frequency
Land Manager	Prepare and update management plan	L. Hours	30	\$100.00	3	\$9,000.00	\$1,800.00	Using results from general condition monitoring and invasive species mapping, prepare and update management plan. Will include threats assessment, prioritization, and work plan. Assumes plan completed in year 3 and updated in years 4 and 5. Some interim land management will occur in years 1 and 2.	Formula: hrs to update plan * labor rate * frequency
GIS Specialist	GIS Database Management and reporting	L. Hours	8	\$90.00	5	\$3,600.00	\$720.00	Data management and produce figures and maps for annual report and management plan.	Formula: hrs to conduct GIS work * labor rate * frequency
<u>SUBTOTAL REPORTING</u>						\$22,600.00	\$4,520.00		

TOTAL						\$119,137.50	\$23,827.50		
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Contingencies/

Administration	Total costs	% of Total	Total Cost	Annual Cost (Total divided by 5 Yrs)	Assumptions	Comments			
Contingencies	\$119,137.50	10	\$11,913.75	\$2,382.75					
Administrative Overhead	\$119,137.50	15	\$17,870.63	\$3,574.13	Accountants, technical, clerical, contract managers, lawyers, etc.				
<u>SUBTOTAL CONTINGENCIES/ADMINISTRATION</u>						\$29,784.38	\$5,956.88		

	Total Cost	Annual Cost (Total divided by 5 Yrs)
GRAND TOTAL	\$148,921.88	\$29,784.38

Suckle Annual Cost In-Perpetuity

Facilities Maintenance/Access Control

	Specification	Unit	No. Units	Cost/Unit	Quantity	Total Annual Cost	Assumptions	Comments
Vehicle Barrier	Concrete Bollards	Linear Ft.	8	\$75.00	0.1	\$60.00	Targeted for access points into the preserve. 4 bollards per gate. To be replaced every 10 years.	
Gates	16 ft. Swinging Arm	Item	2	\$5,000.00	0.05	\$500.00	Targeted for access points into the preserve. To be replaced every 20 years.	
Sign	Boundary 8" x 13.5	Item	2	\$15.00	1	\$30.00	Average cost for signs. Signs types: boundary, regulations, habitat restoration. Aprox. Replacement at 20% per year	Formula: Total Cost = (20% total number of signs per property) * (cost per sign) * (number of years installation is needed)
<u>SUBTOTAL CAPITAL IMPROVEMENTS</u>						<u>\$590.00</u>		

Biological Monitoring

	Specification	Unit	No. Units	Cost/Unit	Frequency	Total Cost	Assumptions	Comments
Land Manager	General condition monitoring and wildlife habitat assessment	Acres	199.4	\$100.00	1	\$1,994.00	One visit annually to identify threats to habitat and species (comprehensive). Total acreage = 705.86 ac.; 100 acres/day; 10 hour days (=10 acres/hour)	Formula: Total Cost = (total acres/acres per hour) * (labor cost per hour) * (frequency).
Plant Ecologist	Update of vegetation communities and Invasive species mapping	Acres	199.4	\$90.00	0.33	\$789.62	Baseline mapping of vegetation communities and invasive species (general) to be conducted concurrently; 7.5 acres/hour. Once every three years.	Formula: Total Cost = (total acres/acres per hour) * (labor cost per hour) * (frequency).
Herpetologist	Barefoot banded gecko	Acres	20	\$90.00	1.3	\$936.00	Baseline surveys: every three years. 4 visits/survey May 1 - July 31. Assume 10% of property surveyed per year @ 2.5 acres per hour. Annual habitat assessments will be conducted during vegetation communities surveys	Formula: Total Cost = (habitat acres/acres per hour) * (labor cost per hour) * (number of visits annually).
Mammalogist	Peninsular bighorn sheep	L. Hours	16	\$90.00	1	\$1,440.00	1 survey locations, 2 times per year, 4 hours per location plus 2 hours travel time; to be conducted annually. Annual habitat assessments will be conducted during vegetation communities surveys.	Formula: Hours/year * labor rate
Surveyors	Data entry, and analysis	N/A	N/A	N/A	N/A	\$1,289.91	25% of the total survey effort required for the property.	Formula: 25% of time spent for (general condition monitoring; mapping, and species surveys)
<u>SUBTOTAL BIOLOGICAL MONITORING</u>						<u>\$6,449.53</u>		Note: in general, these estimates do not include travel time or field prep

Habitat/Land Management

	Specification	Unit	No. Units	Labor Rate	Frequency	Total Cost	Assumptions	Comments
Exotic Plant Control	Difficult to remove species (palms, Eucalyptus trees, artichoke thistle)	Acres	0	\$64.00	0.00	\$0.00	25 acres/crew day; \$1,600 per crew day (5 laborers/crew, \$64/ hour labor cost; plus equipment cost); 5% of total property per year, total property acreage 705.86. Mowing, herbicide treatment, hand removal, debris removal, etc. Treatment every 5 yrs.	
Exotic Plant Control	Other species, Removal by Laborers	Acres	10	\$45.00	1	\$1,800.00	Laborer: 0.25 acre/hour; 5% of total property per year. Cal-IPC high and moderate risk species.	Formula: Total Cost = (5% total acres/ac per hour) * (labor cost per hour) * (frequency).
Erosion Control	Materials	Acres	2	\$600.00	1	\$1,200.00	Gravel bags (250 @ \$1/bag), fiber rolls and stakes (12 @ \$28/roll), silt fencing (500 ft @ \$25/100 ft roll) = \$600/acre per 5 years, 1% property.	
Erosion Control/ Road Maintenance	Labor	Acres	10	\$45.00	1	\$450.00		
Trash Removal	Trash Hauling	Acres	2	\$100.00	1	\$200.00	\$100/acre annually for 5% of total property	Formula: 1% total acres * cost per acre * frequency
Habitat Remediation	Minor habitat enhancement	Acre	2	\$300.00	1	\$600.00	\$300/acre: 1% of total property per annually (eg. minor habitat remediation and maintenance of water sources for BHS etc.).	Formula: Total Cost = (1% total acre) * (cost per acre) * frequency
Habitat Management - all tasks	Supervision by qualified biologist	L. Hours	5	\$160	1	\$800.00	A qualified biologist will monitor management activities in areas occupied by or suitable for listed species. Approximately 5 hours annually.	Formula: Total Cost = (number of hours) * (labor cost per hour) * (frequency).
<u>SUBTOTAL BIOLOGICAL MANAGEMENT</u>						<u>\$5,050.00</u>		

Plan/Reporting

	Specification	Unit	No. Units	Labor Rate	Frequency	Total Cost	Assumptions	Comments
Land Manager	Annual Reporting and Coordination	L. Hours	10	\$199.00	1.00	\$1,990.00	Preparation of annual report, to include threats assessment, work plan, budget plan, and status of endowment.	Formula: hrs to update report * labor rate * frequency
Land Manager	Update management plan	L. Hours	10	\$100.00	1.0	\$1,000.00	Using results from general condition monitoring and invasive species mapping, update management plan. Will include threats assessment, prioritization, and work plan. Update annually.	Formula: hrs to update plan * labor rate * frequency
GIS Specialist	GIS Database Management and reporting	L. Hours	5	\$90.00	1.00	\$450.00	Data management and produce figures and maps for annual report and management plan.	Formula: hrs to conduct GIS work * labor rate * frequency
<i>SUBTOTAL REPORTING</i>						<i>\$3,440.00</i>		

TOTAL						\$15,529.53		
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Contingencies/ Administration

	Total costs	% of Total				Total Cost	Assumptions	Comments
Contingencies	\$15,529.53	10				\$1,552.95		
Administrative Overhead	\$15,529.53	15				\$2,329.43	Accountants, technical, clerical, contract managers, lawyers, etc.	
<i>SUBTOTAL CONTINGENCIES/ADMINISTRATION</i>						<i>\$3,882.38</i>		

GRAND TOTAL						\$19,411.91		
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ENDOWMENT NEEDED

\$970,595.63 Assume 5% return on investment and 3.0% inflation yearly

Appendix D

Cost Estimate Table for Mitigation Activities at the Suckle Mitigation Site

Appendix D: Cost Estimate Table for Mitigation Activities at the Suckle Mitigation Site

Implementation, Maintenance, and Monitoring Costs				Total Cost	20% Contingency Cost per Item	
	Implementation Costs					
	1.0	Mobilization	1.1	Mobilization	\$17,568	\$3,514
				Subtotal	\$17,568	\$3,514
	2.0	Removal of Non-native, Invasive Plant Species				
			2.1	Salt Cedar Removal	\$195,500	\$39,100
			2.2	Giant Reed Removal	\$89,250	\$17,850
			2.3	Removal of Non-native Invasive plants within enhanced dry washes and wetlands	\$66,600	\$13,320
				Subtotal	\$351,350	\$70,270
	Maintenance Costs					
	3.0	Interim Maintenance (1-5 Years)				
			3.1	Adaptive management - weed removal	\$175,675	\$35,135
			3.2	Trash removal	\$1,042	\$208
				Subtotal	\$176,717	\$35,343
	Monitoring Costs					
	4.0	Monitoring (1-5 Years)				
			4.1	Monitoring	\$126,050	N/A
			4.2	Wildlife Biologist Monitoring	\$152,214	N/A
				Subtotal	\$278,264	\$0
				Sum of all Subtotals	\$823,899	\$109,127
Ongoing Management of Entire Mitigation Property				Annual Cost	25% Contingency/ Admin Cost per Item	
		Start-up Funding (5 years)		Annual Labor and Materials	\$23,828	\$5,957
				Total for Start-up Management	\$148,922	
	1.0	Facilities Maintenance/Access Control				
			1.1	Vehicle Barrier	\$60	\$15
			1.2	Gates	\$500	\$125
			1.3	Sign	\$30	\$8
				Subtotal	\$590	\$148
	2.0	Biological Monitoring				
			2.1	Land Manager	\$1,994	\$499
			2.2	Plant Ecologist	\$790	\$198
			2.3	Herpetologist	\$936	\$234
			2.4	Mammalogist	\$1,440	\$360

		2.5	Surveyors	\$1,290	\$323
			Subtotal	\$6,450	\$1,613
3.0	Habitat/Land Management	3.1	Exotic Plant Control - difficult spp.	\$0	\$0
		3.2	Exotic Plant Control - other spp.	\$1,800	\$450
		3.3	Erosion Control - materials	\$1,200	\$300
		3.4	Erosion Control/Road Maintenance - labor	\$450	\$113
		3.5	Trash Removal	\$200	\$50
		3.6	Habitat Remediation	\$600	\$150
		3.7	Habitat Management - all tasks	\$800	\$200
			Subtotal	\$5,050	\$1,263
4.0	Plan/Reporting	4.1	Land Manager-reporting/coordination	\$1,990	\$498
		4.2	Land Manager -plan updates	\$1,000	\$250
		4.3	GIS Specialist	\$450	\$113
			Subtotal	\$3,440	\$860
			Annual Management after Start-up	\$15,530	\$3,883
			Endowment*	\$970,596	
			MANAGEMENT TOTAL	\$1,119,518	

* Total assumes 3% annual inflation, 3% annual reinvestment, and 2% annual actual return.

Appendix E

Title Report, County Assessor's Parcel Map, Phase One Environmental Assessment Report, Plat Map, and Williams Act/Farmland Security Zone Contracts

Provided in Hardcopy of HMMP