


# West Parcel Solar Project at Mt. San Antonio College Project

Habitat Mitigation Plan

October 2016



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## ACRONYMS AND ABBREVIATIONS

Cal-IPC	California Invasive Plant Council
cm	centimeter
CDFW	California Department of Fish & Wildlife
CNPS	California Native Plant Society
CRAM	California Rapid Assessment Method
CWA	Clean Water Act
CWMW	California Wetlands Monitoring Workgroup
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
GIS	Geographic Information System
GPS	Global Positioning System
m	meter
Mt. SAC	Mount San Antonio College
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
Plan	Vernal Pool and Wetland Habitat Mitigation Plan
Project Proponent	Mt. San Antonio Community College District
RS	Restoration Specialist
RWQCB	Regional Water Quality Control Board
SWPPP	Storm Water Pollution Prevention Plan
U.S.	United States
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
WUS	Waters of the U.S.



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## 1.0 PURPOSE AND GOALS OF THE MITIGATION PLAN

This report presents the mitigation plan for impacts resulting from the placement of a solar power generation station on the West Campus Parcel (referred to as West Parcel hereinafter) of Mt. San Antonio College (Mt. SAC), located in the City of Walnut, California. Mitigation is necessary for impacts to Venturan coastal sage scrub (CSS) habitat, which is occupied by the federally listed as threatened coastal California gnatcatcher (gnatcatcher; *Poliophtila californica californica*), and jurisdictional habitats: mule fat scrub (MFS)—a wetland habitat, and unvegetated streambeds. The proposed habitat restoration is intended to meet the resource agencies' (i.e., California Department of Fish and Wildlife [CDFW], U.S. Fish and Wildlife Service [USFWS], and U.S. Army Corps of Engineers [USACE]) mitigation requirements and fulfill the project's obligation under the California Environmental Quality Act (CEQA). These mitigation requirements are a result of the project's anticipated impacts to occupied gnatcatcher habitat and federal and state jurisdictional areas. Mitigation will occur as a combination of preservation and restoration of CSS and riparian habitats.

## 2.0 PROJECT SUMMARY

### 2.1 PROJECT LOCATION

Mt. SAC is located in the San Gabriel Valley, in southeast Los Angeles County, California (Figure 1). The college is situated near the intersection of North Grand and Temple Avenues in the City of Walnut. It is within unsectioned land, Township 2 South, Range 9 East on the U.S. Geological Survey (USGS) 7.5-minute San Dimas quadrangle map. The West Parcel consists of approximately 27.65 acres, and is located west of Temple Avenue and south of North Grand Avenue (Figure 2).

### 2.2 DEVELOPMENT PROJECT SUMMARY

The West Parcel Solar Project consists of grading a pad and placing a 2-megawatt photovoltaic system on it. Earthwork for this project will impact 17.22 acres of land, including 8.07 acres of CSS, 0.29 acre of disturbed CSS, 8.78 acres of agricultural land, 0.06 acre of mule fat scrub, and 0.02 acre of developed areas.

Jurisdictional riparian features exist on the west parcel in two ephemeral streams. The watershed for the southern streambed is contained on-site. The watershed for the northern streambed extends a short ways off-site and is slightly larger. Both streams are ephemeral. The USACE jurisdiction consists of approximately 0.08 acre along 999 linear feet of non-wetland streambed. CDFW jurisdictional habitat consists of approximately 0.06 acre of mule fat scrub along 133 linear feet of streambed, and 0.14 acre along 843 linear feet of non-wetland streambed.

### 2.3 MITIGATION PROJECT SUMMARY

This mitigation plan addresses impacts to coastal California gnatcatcher habitat (i.e., coastal sage scrub) and jurisdictional habitat. Jurisdictional habitat consists of non-wetland waters of the U.S.

on the federal level, and mule fat scrub and streambed on the state level. All created and rehabilitated habitats will be preserved in a restricted covenant. This conservation instrument will be recorded prior to any impacts to coastal sage scrub or jurisdictional habitats.

### 2.3.1 Coastal Sage Scrub.

Impacts to CSS will be mitigated at a ratio of 2:1, where each acre of impact will be mitigated for by 2 acres of CSS habitat preservation and restoration. The impact to 8.36 acres of gnatcatcher occupied habitat necessitates 16.72 acres of mitigation. Preservation of extant sage scrub habitat will occur on the West Parcel and Expanded Wildlife Sanctuary (Table 1; Figure 3).

<b>Table 1 COASTAL SAGE SCRUB MITIGATION</b>	
<b>MITIGATION TYPE</b>	<b>ACRE(S)</b>
<b>Preservation</b>	
West Parcel	5.07
Expanded Wildlife Sanctuary	3.51
<b>Subtotal</b>	<b>8.58<sup>1</sup></b>
<b>Restoration</b>	
West Parcel	3.03 <sup>2</sup>
Expanded Wildlife Sanctuary	5.11
<b>Subtotal</b>	<b>8.14<sup>3</sup></b>
<b>TOTAL</b>	<b>16.72</b>

<sup>1</sup> Includes 0.46 acre of disturbed CSS in the Expanded Wildlife Sanctuary, which will also be restored.

<sup>2</sup> Includes restoration of 1.03 acres of temporary impact area, and 2.00 acres of agricultural land.

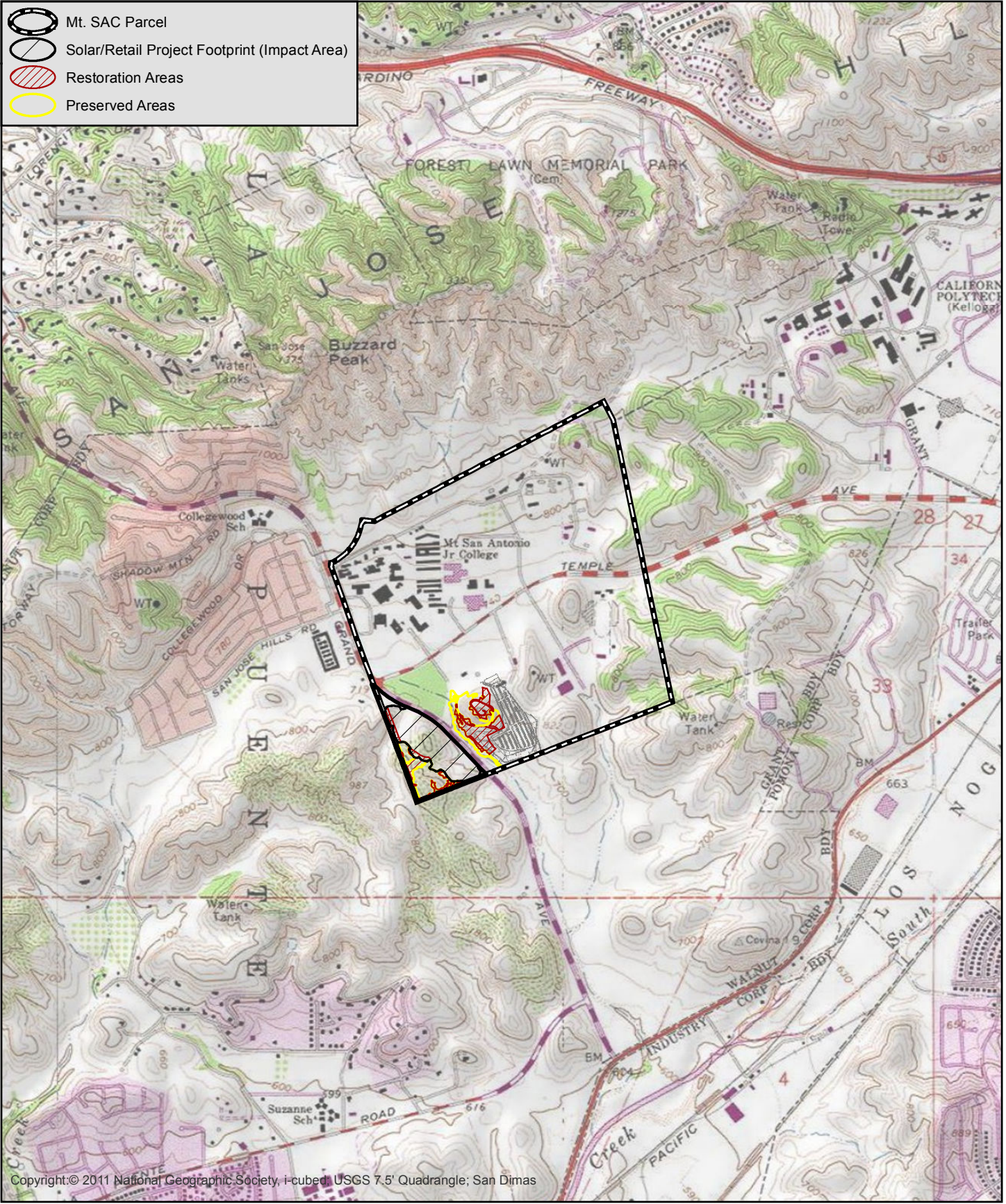
<sup>3</sup> 0.90 acre of restored CSS areas will be planted as cacti thickets; the remaining 7.24 acres of restoration will be planted as non-succulent dominated CSS.

### 2.3.2 Jurisdictional Habitats

Impacts to jurisdictional habitats will be mitigated at a ratio of 3:1 for vegetated habitats (i.e., MFS) and 1:1 for unvegetated habitats (i.e., streambed). Impacts to MFS must be mitigated at a ratio of 3:1, where each acre of impact will be mitigated for by 3 acres of restoration. The impact to 0.06 acre of wetland habitat necessitates 0.18 acre of mitigation. Mitigation will consist of 0.06 acre of creation (establishment or re-establishment) and 0.12 acre of rehabilitation. The impacts to streambed, which amount to 0.14 acre will be mitigated at a 1:1 ratio. The total amount of riparian mitigation is 0.32 acre. Riparian habitat creation (establishment) will occur on grazed (agricultural) land adjacent to Snow Creek (Table 2; Figure 3), as will the habitat enhancement (rehabilitation).



-  Mt. SAC Parcel
-  Solar/Retail Project Footprint (Impact Area)
-  Restoration Areas
-  Preserved Areas



## Project Vicinity Map (USGS Topography)

WEST PARCEL SOLAR PROJECT



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### Mitigation Areas

WEST PARCEL SOLAR PROJECT

<b>Table 2 JURISDICTIONAL MITIGATION</b>	
<b>MITIGATION TYPE</b>	<b>ACRE</b>
<b>Mule Fat</b>	
Creation	0.06
Enhancement	0.12
<b>Subtotal</b>	<b>0.18<sup>1</sup></b>
<b>Streambed</b>	
Creation	0.14
<b>TOTAL</b>	<b>0.32</b>

<sup>1</sup> Mitigation must include at least 0.06 acre of creation; enhancement obligation may be met by creation.

### 3.0 RESTORATION OVERVIEW

#### 3.1 RESTORATION SITE LOCATION AND SIZE

The total coastal sage scrub obligation of the project is 17.04 acres. This will be done through a combination of 8.58 acres of preservation and 8.46 acres of restoration. The proposed 8.14 acres of CSS restoration (Table 1) will occur on the Mt. SAC campus in portions of the area to be disturbed by grading for the solar power generation station, in agricultural areas on the West Parcel, and in the Expanded Wildlife Sanctuary (Figure 3). The proposed 0.32 acre of riparian restoration will occur along Snow Creek on the Mt. SAC campus in areas previously disturbed by grazing (Figure 3).

The total jurisdictional habitat obligation is 0.32 acre. This will be done through the creation of 0.20 acre of habitat and the enhancement of 0.12 acre of riparian habitat. The creation component will occur in agricultural land adjacent to Snow Creek, where 0.20 acre will be graded to an appropriate elevation and planted with mule fat scrub. Enhancement will consist of removing all of the non-native woody riparian species, in an amount that is equal to or greater in area compared the mitigation requirement (i.e., 0.12 acre).

#### 3.2 RESTORATION GOAL

The restoration project goal is to re-establish 8.04 acres of native CSS habitat that likely occurred in this area in the past and that at maturity will resemble the adjacent undisturbed habitat. Similarly, the goal is to improve the riparian functions and services along Snow Creek through a 0.20 acre of habitat creation (establishment) and 0.12 acre of habitat enhancement (rehabilitation).

#### 3.3 EXISTING AND PROPOSED FUNCTIONS AND SERVICES

Currently, the areas proposed for restoration are either devoid of vegetation, grazed by cattle, or contain habitat that has been degraded by grazing or invasion by exotic species (e.g., field mustard [*Brassica rapa*], fennel [*Foeniculum vulgare*], shamel ash [*Fraxinus uhdei*], giant reed

[*Arundo donax*], and Brazilian peppertree [*Schinus terebinthifolius*]). The grazed and disturbed places are dominated by exotic species. The function and services of the un-vegetated areas are very low. The areas subject to grazing have relatively low functions and services compared to established CSS. This is due to the preponderance of non-native weeds and annual grasses that provide limited habitat for native plant and animal species. The same is also true for the area being considered for MFS creation along Snow Creek. The areas slated for enhancement along Snow Creek provide better functions and services, but they are also a source for the spread of exotic weeds to other riparian areas.

The primary functions and services target for the CSS of this restoration plan is to provide habitat for the coastal California gnatcatcher. The composition of native vegetation within the restored habitat should reflect the species located in adjacent CSS habitat. The restored areas should eventually perform the same functions and services for wildlife habitat as adjacent, undisturbed habitat. The target functions and services for MFS are more general and will improve the overall wildlife and hydrology of Snow Creek.

Following the successful completion of the mitigation project, this area will have higher native plant species cover and a corresponding higher density and diversity of native wildlife, and will provide habitat for the gnatcatcher. Overall, the restored habitat provided by this plan, combined with the adjacent CSS habitat preservation, is expected to result in higher long-term ecological functions and services for the affected parts of the college.

### **3.4 PRESENT AND PROPOSED USES**

The proposed preservation and restoration areas are located within the Mt. SAC campus. There are no other uses planned for the West Parcel beyond the small commercial area at the northern end of the parcel and the solar power generation station. Public access to the West Parcel will be restricted and thereby prevent disturbances to the area from off-road vehicles (ORVs), trash dumping, or other human-related activities.

Similarly, the restoration area on and near Mt. SAC Hill is not open to the public and unauthorized human-related impacts have been precluded from this area. The mitigation habitat will be fenced to preclude human related impacts. The area has, however, been degraded by many years of cattle grazing. It will be fenced to preclude any future grazing, and will become part of the college's Expanded Wildlife Sanctuary. Both areas will be designated as permanent biological open space in the college's Facilities Master Plan.

The courses offered at the college may periodically use the Wildlife Sanctuary as part of their curriculum. The curriculum will consist of passive observation from the existing access road during the breeding season (i.e., February 15<sup>th</sup> through August 31<sup>st</sup>). The curriculum outside of the breeding season may include activities on and off the existing road, provided they consist of passive observation (e.g., ecological measurements and wildlife observations). Prior to allowing access into the coastal sage scrub preservation and restoration areas, Mt. SAC will work with the resource agencies to ensure the areas are used in ways that do not adversely affect wildlife and habitat.



## **4.0 RESTORATION AND IMPLEMENTATION**

### **4.1 RESPONSIBLE PARTIES**

#### **4.1.1 Project Proponent**

The Mt. SAC Facilities Planning & Management Department (FPMD) will be responsible for retaining and financing the Restoration Specialist, Landscape Architect, and landscape contractor(s). This will encompass all the tasks associated with this mitigation, including the installation and initial 5-year maintenance and monitoring of the restored habitats described in this plan (see Section 2.1).

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The Mt. SAC Biology Department will be responsible for overseeing the long-term management of the preserved, enhanced, and restored mitigation habitat, which will be incorporated into their Wildlife Sanctuary (see also Section 10).

#### **4.1.2 Resource Agencies**

The Resource Agencies, including CDFW, RWQCB, USACE, and USFWS, will be responsible for the review and approval of the construction documents (i.e., drawings and specifications for the habitat restoration), modifications to the implementation, monitoring and maintenance of this plan, and will review the annual reports. The construction documents will be provided to the agencies 30 days prior to any use or reliance upon them. The agencies comments on these facets of the plan will be incorporated into the execution of the plan and management of the area. This plan has been prepared as part of the requirements of the resource agencies as specified in their permits. The permits for these agencies are:

- CDFW: 1600-2015-0022-R5;
- USACE: SPL-2015-00113-PKK;
- RWQCB: 15-021; and
- USFWS: FWS-LA-14B0243-15F0556.

#### **4.1.3 Restoration Specialist**

Overall supervision of the installation, maintenance, and monitoring of the restoration project will be the responsibility of a Restoration Specialist (RS) with a minimum of 5 years of experience in upland and wetland habitat restoration, including 3 years of experience in southern California. The RS will oversee work by the installation/maintenance contractor(s) for the life of

the project. Should modifications to the plan or substitutions be necessary, the RS will obtain approval from the resource agencies and Mt. SAC FPMD for these changes. Specific tasks of the RS include educating all participants with regard to the restoration goals and requirements, and directly overseeing planting, seeding, weeding, and maintenance. The RS will work with the installation/maintenance contractor(s) to avoid inadvertent impacts to adjacent sensitive habitat. The RS will periodically provide the project proponent and installation/maintenance contractor(s) with a written monitoring memo, including a list of items in need of attention. Maintenance memos typically consist of a brief description of the progress of the habitat development and a punch list of items requiring work by the maintenance contractor. The RS will prepare and submit required reports to both Mt. SAC FPMD and the resource agencies (see Section 7.2 for reporting schedule and report contents).

#### **4.1.4 Landscape Architect**

A California licensed landscape architect will prepare necessary construction plans and specifications for the restoration project, including irrigation and planting plans. The landscape architect must have previous project experience in preparing construction documents for at least three upland and three wetland habitat restoration projects. The planting plans will be subject to approval by the resource agencies. The landscape architect will also inspect the irrigation system and assist in other inspections (e.g., plant deliveries), as necessary.

#### **4.1.5 Installation/Maintenance Contractors**

The installation contractor must hold a State of California Landscape Contractor's License and have previous experience with at least three upland and three wetland habitat restoration projects. They will be under the direction of the RS and be responsible for site preparation, installation, and initial maintenance for the duration of the 120-day establishment period.

The maintenance contractor will be responsible for conducting maintenance activities for the initial 5-year maintenance/monitoring period, following the successful completion of the 120-day establishment period. The maintenance contractor and the installation contractor may be the same entity; the project proponent may change contractors at its discretion. The maintenance contractor will have at least 5 years of experience in upland and riparian habitat establishment and maintenance, including 3 years in southern California ecosystems, and must demonstrate knowledge in differentiating between native plants and weeds. The maintenance contractor will service the entire restoration area according to the maintenance schedule outlined below (Section 5.2). Service will include, but not be limited to, weed control, trash removal, watering, erosion control, dead plant replacement, and re-seeding. All activities conducted will be seasonally appropriate and approved by the RS. The installation and maintenance contractor(s) will meet the RS at the site when requested and will perform all checklist items within 2 weeks of receiving a written request from the RS for specific maintenance tasks.

## 5.0 IMPLEMENTATION PLAN

### 5.1 RATIONALE FOR EXPECTING ESTABLISHMENT SUCCESS

The restoration areas at the West Parcel and Expanded Wildlife Sanctuary are located adjacent to extant, native habitat. This proximity will facilitate natural recolonization over time. In portions of the site where native soils have been removed, vegetation is expected to be more sparse than adjacent habitat at the end of the 5-year maintenance and monitoring period; however, over time, as soil microorganisms and mycorrhizae colonize from adjacent habitat, and organic matter accumulates and becomes incorporated into the soil, this area is expected to resemble adjacent habitat. In all upland restoration areas, salvaged duff (Sections 5.4.2 and 5.5.3) will be spread to enhance the soil environment for CSS establishment. In areas that currently support a dense weed cover, the top two inches of soil will be removed and disposed of. At least 2 grow-kill cycles will be done prior to the application of salvaged duff in areas where the top two inches of soil have not been removed (Section 5.5.2). These measures will reduce competition with weeds. The installation of container plantings and seed and use of above-ground temporary irrigation will increase both the likelihood of restoration success, as well as the speed with which vegetation is established.

Competition from weeds is expected to decrease with time and with the establishment and growth of CSS. Regular weed control will be necessary until the habitat becomes fully established. The installation/maintenance contractor(s) will be responsible for weed control during the establishment period (initial 120 days) and initial 5 years of maintenance and monitoring. Following restoration sign off, the mitigation areas specified in this plan will be subject to long-term management to effect weed control, trash removal, fence repair, etc., which also will help ensure the long-term viability of the restored habitat. The Biology Department will be responsible for the long-term management of these mitigation areas, however funding for this management will be provided for in the Mt. SAC FPMD's budget.

### 5.2 SCHEDULE

The project schedule includes 4 consecutive phases: Pre-construction, Site Preparation, Installation, and 5-year Maintenance (Please also see Appendix A). There are a variable number of tasks associated with each phase, and for each phase there are various responsible parties (Table 3). The RS will be responsible for ensuring the entities responsible for any given task are aware of the objectives for that task and communicating with the project proponent and agency personnel as necessary.

The anticipated start date for the pre-construction activities is immediately upon project approval (i.e., all necessary permits have been secured). The anticipated start date for site preparation is September 6, 2016. This is when plant and soil salvage should be done ahead of grading. Planting and seeding will be done following installation of duff, which is the last phase of construction, other than documenting the completion of construction. Use of heavy equipment for construction of habitat on the West Parcel and Mt. SAC Hill is restricted to the dates between September 1 and February 14. This is necessary to avoid indirect impacts to nesting birds in general and the gnatcatcher in particular. Work may start earlier if the coastal California

gnatcatcher breeding season ends early, as documented by three surveys conducted 7 to 10 days apart. The establishment period will begin when the resource agencies deem the project is installed. Similarly, the 5-year maintenance and monitoring of the restoration effort will begin when the resource agencies deem the project has successfully completed the establishment period.

An annual report will be prepared by the RS and distributed to Mt. SAC FPMD and resource agencies by April 1 of each year. At the conclusion of the monitoring period, a final year report will be prepared by the RS and distributed to Mt. SAC FPMD and resource agencies.

## **5.3 PRE-CONSTRUCTION**

### **5.3.1 Pre-construction Activities**

Prior to initiation of restoration activities, an on-site meeting will be held with the project proponent, the installation contractor, and the RS to identify the restoration areas and adjacent native habitat to be avoided, as well as discuss the timeline in which installation activities will occur.

Burrowing owl take avoidance (pre-construction) surveys will be conducted within 30 days and no less than 14 days prior to ground disturbing activities. If the presence of burrowing owls is detected take avoidance and minimization measures will be implemented. This will include avoidance of active burrows with a minimum buffer of 500 feet. The following take avoidance measures shall be implemented if burrowing owls are detected:

- Avoid disturbing occupied burrows during the nesting period, from February 1 through August 31.
- Avoid impacting burrows occupied during the non-breeding season by migratory or non-migratory resident burrowing owls.
- Avoid direct destruction of burrows through chaining (dragging a heavy chain over an area to remove shrubs), disking, cultivation, and urban, industrial, or agricultural development.
- Develop and implement a worker awareness program to increase the on-site worker's recognition of and commitment to burrowing owl protection.
- Place visible markers near burrows to ensure that farm equipment and other machinery does not collapse burrows.
- Do not fumigate, use treated bait or other means of poisoning nuisance animals in areas where burrowing owls are known or suspected to occur (e.g., sites observed with nesting owls, designated use areas).
- Restrict the use of treated grain to poison mammals to the months of January and February.

For construction outside the avian breeding season (September 1 through February 15), a Service-approved biologist will perform pre-construction surveys immediately prior to the initiation of vegetation clearing or restoration construction. If any gnatcatchers are found in the project impact footprint, the biologist will direct workers to begin initial vegetation clearing in an

area away from the gnatcatchers. In addition, the biologist will passively flush birds toward areas of appropriate vegetation that will be avoided. It will be the responsibility of the biologist to ensure gnatcatchers will not be injured or killed by vegetation clearing/grubbing or construction. The biologist will record the number and map the location of gnatcatchers disturbed by restoration activities and report these numbers and locations to the Service within 24 hours.

For restoration construction during avian breeding season (February 15 through September 1), the Service-approved biologist will perform a minimum of three focused surveys, on separate days, to determine the presence of gnatcatcher nest building activities, egg incubation activities, or brood rearing activities within 500 feet of construction. The surveys will begin a maximum of 7 days prior to project construction, and one survey will be conducted the day immediately prior to the initiation of work. The biologist will notify the Service at least 7 days prior to the initiation of the breeding season surveys. The biologist will record the number and map the location of gnatcatchers observed during the breeding season surveys, and report these numbers and locations to the Service within 24 hours. Thereafter, surveys will be done once a week during project construction in the gnatcatcher breeding season. These weekly surveys may be suspended as approved by the Service.

Construction activities or vegetation clearing will not occur within 500 feet of an active gnatcatcher nest unless they are conducted consistent with a Service-approved plan to avoid disturbing nesting gnatcatchers (e.g., constructing sound walls, monitoring noise levels to ensure that they are less than 60 dBA, and nest monitoring).

Surveys during the avian breeding season shall be conducted within a 500-foot-buffer area for the presence/absence of breeding avian species, as well as nests or nest-building activity. The biologist will primarily inspect project areas proposed for physical disturbance within and near the unnamed streams; including vegetation that may support nesting birds. The biologist will conduct surveys during weather that is conducive to observing birds and will avoid conducting surveys during heavy rain, high winds (> 20 mph), dense fog, or extreme temperatures (over 95° F or 35° C). Data recorded on standardized field monitoring logs during each survey will include a notation of the date and time of the survey; investigators present; weather conditions; evidence of species presence (observation, vocalization, etc.); all other bird species or signs of such observed; avian behavior; habitat type; representative photo (if possible); and disturbance regime present. If these surveys are positive subsequent construction activities and monitoring will comply with the Federal Migratory Bird Treaty Act (MBTA) and resource agency permits.

### **5.3.2 Site Documentation**

At least two photographic documentation locations per acre shall be identified for comparison with post-installation photos to document the restoration effort. Along with the location, the camera height, angle (0° is level, above level is plus degrees, and below level is negative degrees), and compass bearing will be recorded for each location. Photo stations will be mapped with a sub-meter accuracy GPS and plotted on a map. The photos shall capture typical, special topography, special features and regulatory features, where present.

### **5.3.3 Flagging, Fencing, and Signage**

Project boundaries will be fenced by the installation contractor and verified by the RS. This is necessary to avoid unauthorized impacts to native habitats adjacent to the restoration area. Flagging and/or temporary fencing will be installed prior to any grading for the project, including topsoil salvage. If topsoil will be stored, it will be outside of any stream or native habitat areas. Topsoil salvage storage areas will be identified and flagged. Impacts to CSS beyond the areas shown on the plan will be restored according to this plan. The cost of this will be borne by the installation contractor responsible for the impact. Four temporary signs will be installed at the West Parcel by the installation contractor to provide an explanation of the project and a contact number for any public inquiries. Once grading is underway, construction activities will be monitored weekly. These reports will be made available to the Project Proponent and resource agencies. Temporary flagging and fencing will be removed by the contractor when deemed no longer necessary by the RS. This aspect of monitoring will cease once grading is completed.

### **5.3.4 Site Access and Staging Area**

One specific staging area will be established on or adjacent to each of the restoration areas: i.e., one on the West Parcel and one near the Expanded Wildlife Sanctuary. All staging areas will be outside of any streams and native habitats. All vehicles and construction equipment will be restricted to the staging areas when not required for restoration activities. Only construction equipment necessary to accomplish the duff salvage and habitat restoration will be allowed in the restoration area. No vehicular fluids will be added or changed within the restoration area.

## **5.4 SITE PREPARATION**

### **5.4.1 Cacti Salvage**

Following cessation of the cactus wren breeding season (March – July), coast prickly pear (*Opuntia littoralis*) pads will be salvaged from areas to be impacted by the West Parcel Solar Project. Salvage will consist of stem segments and entire plants. Pads will be collected from at least 10 separate stands to promote genetic diversity in the restored areas. Entire plants will be collected where they occur as individual plants or as small stands. Stem segments consisting of 2 to 4 pads will be collected and stored out of the sun and in a dry place. Pads will be stored for at least 2 weeks to allow for them to callous over. Entire plants will be collected and planted directly into the restoration areas, including the West Parcel and Mt. SAC Hill. At least 4,250 plants and stems shall be collected. The percentages for the various sizes of salvaged cacti are: 2 pads—50 percent (2,125 specimens); 3 pads—30 percent (1,275 specimens); 4 pad stems—15 percent (638 specimens); and entire plants—5 percent (212 plants).

### **5.4.2 Coastal Sage Scrub Duff Salvage**

Native vegetation, exclusive of cacti stands over 25 square feet in size, located in the areas to be impacted by the project will be driven over with a tracked bulldozer to crush the vegetation. The crushed vegetation and top 6 inches of soil, collectively referred to as duff, will be collected and

reused in the CSS establishment areas. The cacti stands are to be avoided during salvage due to the potential for rot in the stockpiled topsoil if they are included. The duff processing, collection, and storage, will be done by the installation contractor under the direction of the RS. The Mt. SAC FPMD, Farm Supervisor, Wildlife Sanctuary Director, installation contractor and RS will meet prior to any duff related work to determine how and where this shall be done, as well as where and how the duff will be stored.

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**Table 3  
MT. SAN ANTONIO COLLEGE RESTORATION PROJECT**

Restoration Project Phase	Restoration Task	Applicable Parties						
		Project Proponent <sup>1</sup>	Landscape Architect	Grading Contractor	Installation Contractor	Maintenance Contractor	Restoration Specialist	Resource Agencies
<b>Pre-Construction</b>	Order container plantings and seed <sup>2</sup>	X <sup>3</sup>			X <sup>3</sup>		X*	
	Prepare landscape plans		X				X*	X*
	Attend pre-construction meeting	X		X	X		X	
	Preconstruction bird surveys <sup>4</sup>							
	10-day notification to resource agencies						X	
	Install erosion control and perimeter fencing to protect existing habitat			X			X*	
	Document Pre-construction Conditions					X		
<b>Site Preparation</b>	Cacti salvage				X		X*	
	Crush and salvage topsoil (duff) (between September 1 and February 14)			X			X*	
	Surface preparation <sup>5</sup>			X				
<b>Installation</b>	Install irrigation				X		X*	
	Inspect irrigation		X		X			
	Grow-kill weed control <sup>6</sup>							
	Install salvaged topsoil			X	X		X*	
	Install salvaged cacti, container plantings, and seed				X		X*	
	Document as-built conditions			X	X		X	
	Prepare/submit as-built report					X		
<b>Maintenance</b>								
	120-day Establishment Period	Maintain site				X	X*	X*
	Replace dead container plantings					X	X*	
5-year Maintenance Period	Maintain site for minimum of 5 years or until sign off by resource agencies					X	X*	X*

<sup>1</sup> Mt. San Antonio College.

<sup>2</sup> Must provide all source locations and receive authorization of final seed and plant lists prior to ordering.

<sup>3</sup> Plant and seed orders should be placed one year prior to installation, or as soon as possible. If the installation contractor, who is normally responsible for this, has not been retained when the plant and seed orders should be placed, the order should be placed by the project proponent.

<sup>4</sup> Applies only if construction is initiated during bird breeding season (February 15 – August 31).

<sup>5</sup> Remove weed infested soils, rough grade, and/or rip as necessary.

<sup>6</sup> Grow-kill will be used in restoration areas that have not been recently manufactured or had weed-infested soils removed.

\* Inspecting work related to this task.

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Reuse of duff provides plant propagules and soil microflora that are important in the establishment of native vegetation in highly disturbed places. Placement of duff in areas graded for the solar project will be the highest priority. This is because the biological activity and organic matter are most necessary in areas of exposed sterile soils. Any remaining duff will also be applied in the restoration areas elsewhere on the West Parcel and Expanded Wildlife Sanctuary. The remaining duff will be spread evenly over the remaining areas, provided there is enough to cover these areas with at least 1 inch of duff. If there is not enough for this, the areas with the more problematic weeds will be given higher priority. Duff should be collected between September 1 and October 15, prior to seasonal rains, when the ground and vegetation is dry and most habitat constituents are dormant. This period for grading also avoids damaging the biological components of the soil and disruptions to the avian breeding season (February 15 to August 31). If there are no conflicts with the avian breeding season, duff may be collected in August. Duff will be stockpiled in 3-foot-tall windrows. The portion for Expanded Wildlife Sanctuary may be placed directly there provided the requisite site preparations have already been done.

The stockpiled duff will be covered with a waterproof covering, provided it is dry when collected. Duff will only be applied after the soil surface has been prepared (Section 5.4.3) and any necessary weed control has been completed (Section 5.5.2).

### **5.4.3 Surface Preparation**

In areas with dense weed cover, site preparation will include removal of the standing biomass and top 2 inches of soil. Soil removal in these areas is necessary to control future weeds by significantly reducing the amount of weed seeds in the soil. All soil and weed biomass will be disposed of in a legal manner.

The Mt. SAC restoration areas, including upland and riparian areas, exclusive of manufactured slopes will be decompacted and left in a rough condition. The area shall be ripped, disced, or otherwise prepared to at least 6 inches. Soil decompaction shall occur horizontally along the topographic contours (vs. perpendicular to the contours or up and down the slope). Soil roughening will provide an uneven surface for the duff to cling to and safe sites for the seeds.

Manufactured slopes within the restoration area on the West Parcel and Expanded Wildlife Sanctuary will be stair-step cut (Figure 4). This provides for better water infiltration and higher seed germination rates. The graded areas elsewhere on the West Parcel (i.e., between the stair-step cut slope and the solar arrays) will be relatively flat. These flat areas are to be ripped to 6 inches and left in a rough condition. This will increase the water infiltration and create safe sites for seeds in this area.

### **5.4.4 Duff Application**

The stair-step cut slopes (Figure 4) will receive 2 inches of salvaged duff. Salvaged duff will be raked into the surface of the stair-step cut slopes.

In the remaining upland areas the remaining duff will be spread evenly. In ungraded areas where salvaged duff is applied, it will be integrated into the existing soil surface; the existing soil surface will be scarified to 6 inches deep prior to the duff placement and the duff will be spread over the surface, ripped to a depth of 6 inches, and compacted to 80 to 85 percent. This is necessary to prevent large scale erosion of duff. This surface shall also be left in a rough condition. It is essential that all biomass must be removed prior to application of duff. This is necessary to properly integrate the duff into the receptor site and prevent large scale sloughing of duff. Straw wattles shall be installed to minimize erosion in places where salvaged topsoil is applied to slopes, except for the stair-step cut slopes.

## **5.5 INSTALLATION**

### **5.5.1 Irrigation**

A temporary irrigation system will be installed throughout the restoration areas, except in the cacti thickets. The irrigation will be an overhead sprinkler design. The project landscape architect, together with the installation contractor, will inspect the irrigation to ensure full coverage of target areas prior to plant/seed installation. The RS will have control over the irrigation schedule and amount. All establishment areas must be off irrigation for 2 years prior to sign off.

### **5.5.2 Weed Control**

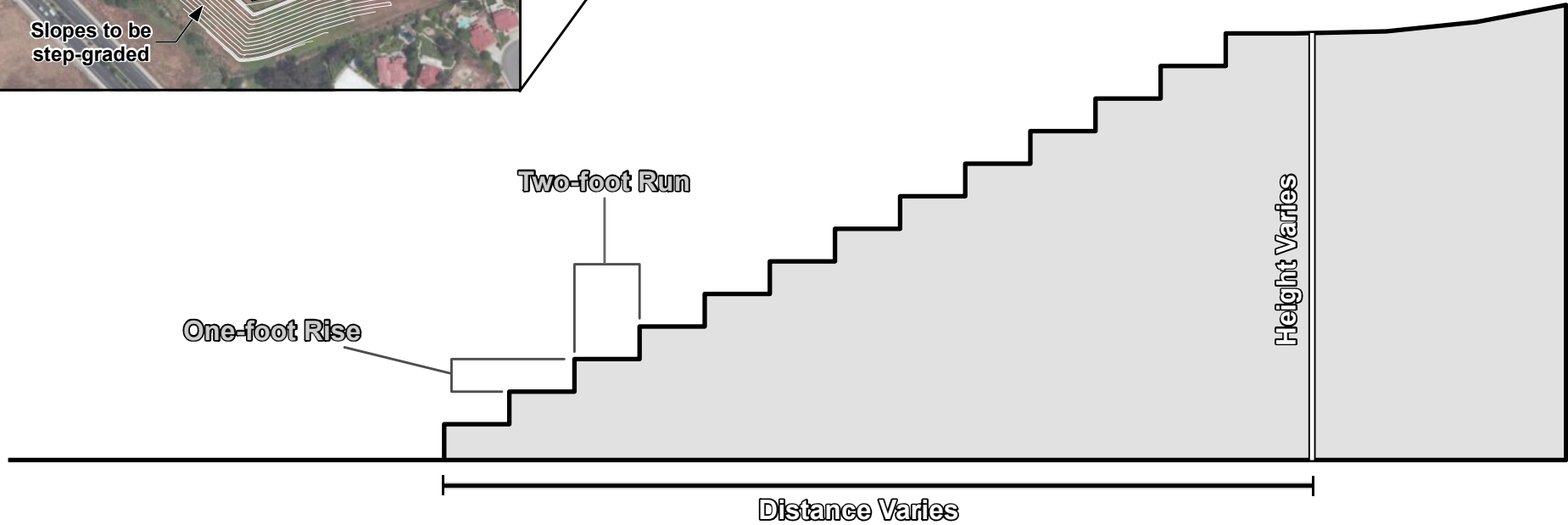
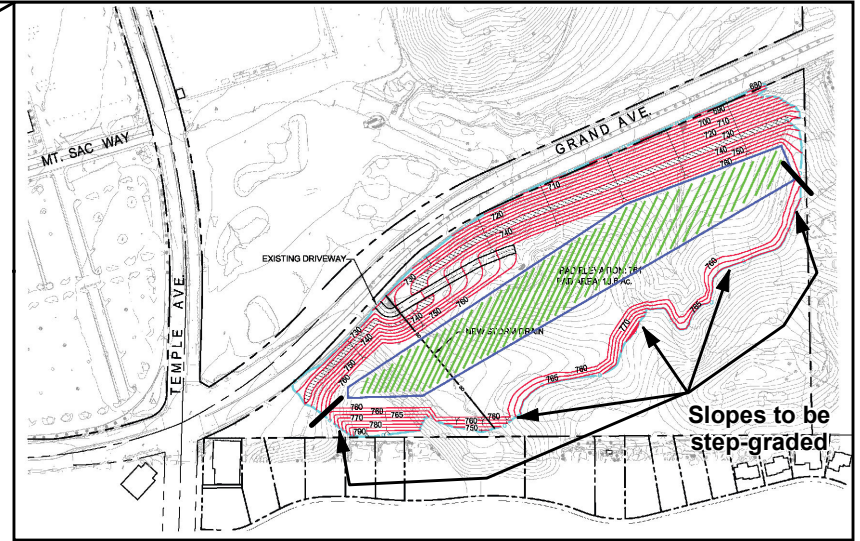
At least two weed grow/kill cycles will be conducted by the installation contractor prior to planting, preferably between September and April). The number of cycles will be dependent upon how effective the soil removal was in removing the weed seed soil bank, as determined by the RS. In each cycle (approximately 1 month per cycle), weeds will be allowed to grow and, prior to flowering, will be removed. If rainfall is not sufficient to catalyze the grow/kill cycles, it will be supplemented with irrigation. The grow/kill cycles are intended to reduce the weed seed bank on site and reduce non-native and invasive species competition in the restoration area. Initial weed removal may be conducted by mechanical line trimmers outside of the avian breeding season, hand, carefully managed goats, and careful herbicide application. All plant material, as well as any trash and other debris removed from the project area, will be disposed of in a legal manner.

Weed control will also be done within preserved habitat for any noxious weed species, except for naturalized annual grasses. Noxious weeds are those species rated as high by California Invasive Plant Council (Cal-IPC), except for annual grasses, and moderate with an alert.

These measures may not be necessary in the new manufactured slopes. If so, the grow/kill cycles will not be implemented.

The non-creation component for the MFS mitigation will be fulfilled by removing at least 0.12 acre of non-native perennial species from Snow Creek: all of the non-native perennial species south of the existing Wildlife Sanctuary will be removed. This will eliminate all of these species in the reach of Snow Creek at Mt. SAC south of Temple Avenue. These areas will be maintained free of non-native perennial species in perpetuity.

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### Slope Grading Detail

WEST PARCEL SOLAR PROJECT

### **5.5.3 Container Plantings, Seed, and Salvaged Cacti**

The plant palette was developed based on the species observed as part of biological surveys for the 2008 and 2012 Master Plan Update (HELIX Environmental Planning, Inc. 2008 and 2012) and for surveys of the West Parcel Solar project (2015). The species selected for planting and seeding are found in undisturbed Venturan CSS habitat on site or nearby. Substitutions, other donor sites, or use of commercial material may be allowed if materials are unavailable, at the discretion of the RS, and acceptable to the resource agencies. The source of all plant material and seed shall be provided in the as-built report for the site. The RS must inspect all plant material prior to installation to ensure healthy, disease free, and appropriately sized plants, and properly sourced seed and plants.

Container plantings and seed installation will begin immediately following final site preparation (e.g., installation of salvaged topsoil) and installation of the temporary irrigation system. Although planting and seeding may occur at any time of the year if an irrigation system is in place, it is highly recommended that plant material installation be conducted between October and January, the beginning of the rainy season and natural growth period for native upland vegetation.

Native seed collected from on site or nearby sources and nursery-grown container plants propagated from on site or nearby sources (i.e., southern cismontane Los Angeles and northern Orange Counties) will be used in the restoration areas. The species to be used are common in the region and known from this watershed. All seed and container stock must be inspected and approved by the RS prior to installation.

All container stock will be 1 gallon in size, be rooted appropriately for a 1-gallon pot (i.e., neither root bound or insufficiently developed), and shall be installed in holes that are the same diameter as the planting container and 1 to 2 times as deep. Holes may be dug with mechanical augers provided these are dug outside the bird breeding season. Holes must be located in places where soils are at least as deep as the planting container (i.e., not in shallow soils over rock). The auguring depth shall be between 1 and 2 times the depth of the container stock. Plants installed on manufactured slopes and recently exposed sterile subsoil will receive a small dose of slow release fertilizer.

Holes will be filled with water and allowed to drain twice before planting. A basin with a 1-gallon capacity will be constructed around each container planting. The basins shall be filled, allowed to soak in, and filled again following installation. This may take several days in heavy soils where draining is slow.

Seeding will be done immediately following the installation of the container stock. Seeding will be conducted either by hand, or as the first step in a two-step hydroseed/mulch application process. Where hand seeding is conducted, seed will be raked into the soil surface. If hydroseeded, the second step will include the bulk of the fiber mulch and tackifier. No other soil preparation, seed scarification, or inoculation will be required, and no additional amendments or additives will be used in the seeding process where salvaged topsoil has been applied. If there are areas where topsoil has not been applied, mycorrhizal inoculum must be added to seed mix.

Container stock must be temporarily covered during hydroseeding. No seeding will occur in the cacti thickets.

**Coastal Sage Scrub.** The CSS installation will occur as non-succulent dominated CSS and cacti thickets. Of the 8.14 acres of habitat restoration, 7.24 acres will be CSS and 0.90 acre will be cacti thickets. Plants shall be arranged in a way that mimics natural plant distribution; container plantings will be installed in species groupings of 3 to 38 plants depending on the species (Table 4). Woody species (e.g., laurel sumac [*Malosma laurina*] and lemonadeberry [*Rhus integrifolia*]) will be planted in the more mesic landscape position on the slope, if present. To aid plant establishment in the weed infested soils that exist in places on site, plants must be inoculated with mycorrhizae by the nursery or at installation. Seeding of the restored CSS is intended to reinforce major shrub components and introduce important herbaceous components (Table 5).

<b>Table 4</b>					
<b>VENTURAN COASTAL SAGE SCRUB PLANTING PALETTE</b>					
<b>CONTAINER PLANTINGS</b>					
<b>Scientific Name</b>	<b>Common Name</b>	<b>Spacing on Center</b>	<b>Grouping Size</b>	<b>Number Per Acre</b>	<b>Amount to be Ordered<sup>1</sup></b>
<i>Artemisia californica</i>	California sagebrush	5	38	380	2,750
<i>Encelia californica</i>	California encelia	5	9	90	652
<i>Ericameria palmeri</i> var. <i>pachylepis</i>	Palmer's rabbitbrush	5	5	35	253
<i>Eriogonum fasciculatum</i> ssp. <i>fasciculatum</i>	California buckwheat	5	23	230	1,665
<i>Heteromeles arbutifolia</i>	toyon	10	3	15	109
<i>Malosma laurina</i>	laurel sumac	10	5	35	253
<i>Rhus integrifolia</i>	lemonadeberry	8	2	20	145
<i>Salvia mellifera</i>	black sage	5	16	160	1,158
<i>Sambucus mexicana</i>	blue elderberry	10	3	24	174
<b>TOTAL</b>				<b>989</b>	<b>7,160</b>

<sup>1</sup> Container stock necessary for 7.24 acres of CSS restoration. The remaining 0.90 acre of CSS restoration consists of cacti thickets.

**Table 5  
VENTURAN COASTAL SAGE SCRUB SEED PALETTE**

<b>SEED MIXTURE</b>				
<b>Scientific Name</b>	<b>Common Name</b>	<b>Percent Purity/ Germination</b>	<b>Pounds Per Acre</b>	<b>Amount to be Ordered<sup>1</sup></b>
<i>Artemisia californica</i>	California sagebrush	90/25	3	21.7
<i>Baccharis pilularis</i>	coyote brush	2/40	0.5	3.6
<i>Corethrogyne filaginifolia</i> var. <i>filaginifolia</i>	California sandaster	NA	2	14.5
<i>Deinandra fasciculata</i>	fascicled tarplant	20/80	3	21.7
<i>Encelia californica</i>	California encelia	40/60	2	14.5
<i>Eriogonum fasciculatum</i>	California buckwheat	50/20	3	21.7
<i>Eriophyllum confertiflorum</i>	golden-yarrow	30/70	2	14.5
<i>Pseudognaphalium biolettii</i>	Two-color rabbit- tobacco	5/40	1	7.2
<i>Heterotheca grandiflora</i>	telegraph weed		1	7.2
<i>Isocoma menziesii</i>	goldenbush	40/30	1	7.2
<i>Acmispon glaber</i>	deerweed	95/80	1	7.2
<i>Lupinus succulentus</i>	arroyo lupine	98/85	1	7.2
<i>Malacothrix saxatilis</i> var. <i>tenuifolia</i>	cliff aster	NA	2	14.5
<i>Mimulus aurantiacus</i>	monkeyflower	2/60	2	14.5
<i>Stipa lepida</i>	foothill needlegrass	90/80	5	36.2
<i>Plantago erecta</i>	dot-seed plantain	90/80	2	14.5
<i>Salvia columbariae</i>	chia		2	14.5
<i>Salvia mellifera</i>	black sage	70/50	2	14.5
<i>Sisyrinchium bellum</i>	Blue-eyed grass		2	14.5
<i>Stephanomeria virgata</i>	virgate wreath plant		1	7.2
<b>TOTAL</b>			<b>38.5</b>	<b>278.6</b>

<sup>1</sup> Seed necessary for 7.24 acres of CSS restoration. The remaining 0.90 acres of CSS restoration consists of cacti thickets.

**Cactus Thickets.** Salvaged, calloused cacti stems will be placed directly into the ground 3 feet on-center. Twenty-five thickets with an average size of 0.065 acre (2,830 square feet) will be created. The size of any one thicket shall be at least 0.04 acre and no larger than 0.19 acre. The unplanted ground within each cacti thicket will be covered with 3 inches of mulch. This is necessary to prevent weeds and other native species from becoming established within the cactus thickets. Two weeks following planting, the thickets shall be watered for the first time, allowed to dry out (approximately 4 weeks), and irrigated again. The cactus thickets shall not receive any further irrigation.

**Mule Fat Scrub.** Mule fat (*Baccharis salicifolia*) shall be planted throughout the MFS creation area (Table 6). Blue elderberry (*Sambucus nigra* ssp. *canadensis*) and arroyo willow (*Salix lasiolepis*) shall be planted in small groupings (2 to 3 plants) with elderberry planted along the outer edge and arroyo willow planted near Snow Creek. California blackberry (*Rubus ursinus*) shall be planted at the upper edge (east side) of the MFS creation area. Seeding for the MFS will be done by hand and raked in (Table 7).



<b>Table 6</b>				
<b>MULE FAT SCRUB PLANTING PALETTE</b>				
<b>CONTAINER PLANTINGS</b>				
<b>Scientific Name</b>	<b>Common Name</b>	<b>Spacing On Center</b>	<b>Number Per Acre</b>	<b>Amount to be Ordered<sup>1</sup></b>
<i>Baccharis salicifolia</i>	mule fat	6	600	120
<i>Rubus ursinus</i>	California blackberry	6	--	15
<i>Sambucus nigra</i> ssp. <i>caerulea</i>	blue elderberry	10	44	9
<i>Salix lasiolepis</i>	arroyo willow	10	44	9
<b>TOTAL</b>			<b>688</b>	<b>153</b>

<sup>1</sup> Based on planting 0.20 acre.

<b>Table 7</b>				
<b>MULE FAT SCRUB SEED PALETTE</b>				
<b>SEED MIXTURE</b>				
<b>Scientific Name</b>	<b>Common Name</b>	<b>Percent Purity/ Germination</b>	<b>Pounds Per Acre</b>	<b>Amount to be Ordered</b>
<i>Ambrosia psilostachya</i>	western ragweed	20/30	2	0.6
<i>Baccharis salicifolia</i>	mule fat	10/20	2	0.4
<i>Epilobium ciliatum</i>	willow herb	70/60	2	0.4
<i>Persicaria lapathifolia</i>	willow weed	NA	1	0.2
<i>Cyperus eragrostis</i>	tall flatsedge	90/80	2	0.4
<i>Elymus triticoides</i>	creeping wild rye	90/80	1	0.6
<b>TOTAL</b>		<b>--</b>	<b>13</b>	<b>2.6</b>

<sup>1</sup> Based on planting 0.20 acre.

#### **5.5.4 Fencing and Signage**

Permanent fencing will be located around the perimeter of the mitigation areas as part of the installation. The type of fencing shall be appropriate for the need: fencing between the mitigation areas and public areas shall be 5-foot tall chain link; fencing between the mitigation and grazing areas shall be 3-strand barbed wire; fencing between the mitigation areas and students shall be split rail or other treatment based on the campus design guidelines and approved by CDFW; and internal areas generally only accessible by campus personnel (e.g., boundary between solar facility and mitigation areas) shall be a 3-strand wire fence.

Permanent signage identifying the sensitivity of the habitat as well as restricted activities shall be erected every 100 feet along the boundary of the mitigation areas. Signs will also be posted at entrances to the Wildlife Sanctuary restricting use of the area during the breeding season to established trails. These signs will be designed by the RS, and following approval by the resource agencies, placed by the installation contractor.

## 6.0 RESTORATION MAINTENANCE

Maintenance activities will be directed by the RS. Impacts to sensitive species are not anticipated to be an issue once the site is graded, installation has occurred, and the 5-year maintenance and monitoring period is initiated. Nonetheless, the RS will be responsible for ensuring that no activities (such as use of mechanized equipment) occur during the bird-breeding season that could affect nesting activities.

A 120-day establishment period, followed by a 5-year maintenance program is required to ensure the successful establishment and persistence of the restored habitats. The 5-year monitoring period may not begin unless signoff of the 120-day establishment period is approved by the RS.

If necessary, the installation/maintenance contractor(s) will correct any problems identified by the RS during the 120-day establishment period or at any time during the 5-year monitoring period. The RS will provide the installation contractor with a punch list of remedial measures 90 days into the 120-day establishment period to ensure signoff by the agencies at the end of the establishment period.

### 6.1 MAINTENANCE ACTIVITIES

The following maintenance requirements will be met for the 120-day establishment and 5-year monitoring periods. These maintenance guidelines are specifically tailored for native plant establishment<sup>1</sup>.

#### 6.1.1 Fence and Signage Maintenance

The installation/maintenance contractor(s) will be responsible for repairing damage to protective fencing and signage associated with the restoration areas within 2 working days of any damage.

#### 6.1.2 Irrigation

The goal is to obtain seed germination and plant growth with the least amount of irrigation. Frequent irrigation encourages weed invasion and leaches nutrients from the soil. The CSS restoration that is minimally irrigated may fill in slower but ultimately will more closely mimic natural habitat.

After the initial plant establishment period, water will only be applied during the “normal” rainy season and only as needed outside of the rainy season to prevent the mortality of container plantings and seedlings. Irrigation may be used to help aid plant establishment. Following the 120-day establishment period, irrigation may be used for up to 3 years when rainfall during the winter and early spring is below average for a given month. The combined amount of winter and early spring irrigation and natural rainfall should not exceed the average<sup>2</sup> rainfall in any given month. Irrigation will also be applied twice monthly during the first summer. The RS will work

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<sup>1</sup> Please see Section 10 for long-term management activities.

<sup>2</sup> Based on the previous 10 years of precipitation data from the NOAA.

with resources agencies in the application of irrigation if it shall be considered past year 3 of the 5-year monitoring period. The mitigation habitat must be off of irrigation for two years prior to signoff. The irrigation system may be activated several times in one 24-hour period to enhance deeper water absorption.

Once the plant material is established and does not require supplemental irrigation, the irrigation system will be disconnected but the above-ground components of the irrigation system will remain in place until the site approaches 5-year signoff. This will allow subsequent irrigation in special circumstances but avoid over irrigating the habitat. The RS will determine how and when the above-ground components of the irrigation system are to be removed; however, the irrigation system must be removed prior to final sign off. The maintenance contractor will be responsible for repairing damage to the irrigation system within 2 working days of such damage.

### **6.1.3 Weed Control**

Weed control will be conducted as necessary to minimize competition that could prevent the establishment of native species. Eliminating the non-native weeds that dry out and readily ignite should be an effective fire management practice. As weeds become evident, they shall be removed by hand, line trimmers, or controlled with the proper herbicides (if approved by the RS). Mechanical and herbicide weed control shall be spot-treatment oriented. Maintenance personnel will be responsible for knowing the difference between weeds and native species. The RS will assist in training, if necessary, for this requirement. If there is a high turnover on the maintenance contractor's crew, the maintenance contractor may be fiscally responsible for the RS's time. All non-native plant material will be removed from the restoration site and disposed of in a licensed landfill. The RS will oversee weed control by the maintenance contractor.

Non-native species considered to be highly invasive by the California Invasive Plant Council (Cal-IPC List A and B species; 2014) shall be totally eradicated within restoration boundaries. Examples of invasive plants include but are not limited to fennel (*Foeniculum vulgare*), Pampas grass (*Cortaderia selloana*), and artichoke thistle (*Cynara cardunculus*).

### **6.1.4 Plant Replacement**

Plants will be replaced at the direction of the RS. The maintenance contractor will be responsible for replacing any dead or terminally diseased plants at least 1 month prior to the end of the initial 120-day establishment period; thereafter, plant replacement by the maintenance contractor will be conducted as directed by the RS. Plant replacement will usually be completed within 30 days of the RS's request, although it may be longer if replanting occurs at an inappropriate time of year or if the desired planting stock is unavailable.

### **6.1.5 Pruning**

No post-installation pruning is necessary unless otherwise directed by the RS.

### **6.1.6 Trash and Debris Removal**

The restoration areas will be kept free of trash and debris and will be checked by maintenance contractor according to the maintenance schedule (see Section 6.3).

### **6.1.7 Pest Control**

Insects, vertebrate pests, and diseases will be monitored. A high tolerance will be permitted before control measures are considered. Only a licensed pest control adviser, as required by law, will make specific recommendations. All applicable federal and state laws and regulations will be closely followed. The RS will be consulted on any pest control matters.

### **6.1.8 Fertilizer Application**

Fertilizer, other than any incorporated within the installation, will not be applied except in extraordinary circumstances and only at the written direction of the RS, and then only in the upland areas.

### **6.1.9 Site Damage**

Damage to plants, irrigation systems, and other facilities occurring as a result of unusual weather or vandalism will be repaired as directed by the RS. The applicant (Mt. SAC FPMD) is financially responsible for such damage. The maintenance contractor, at his expense, will repair any erosion damage caused by the maintenance contractor's inadequate maintenance or operation of irrigation facilities, as determined by the RS.

### **6.1.10 Fire Management**

The preserved and restored habitats covered by this plan have been designed to avoid any currently required fire management areas for the nearby residential areas and proposed solar facility. Should fire suppression actions be required or occur in an emergency situation, subsequent consultation with the resource agencies will occur to determine if the habitat values of the preserved habitats have been compromised and what, if any, remedial measures are necessary.

## **6.2 RESPONSIBLE PARTIES**

The Mt. SAC FPMD will be financially responsible for ensuring the RS and maintenance contractor fulfill their responsibilities with regard to the maintenance and monitoring programs.

## **6.3 MAINTENANCE SCHEDULE**

The entire restoration area will be cleared of weeds at least monthly during the 120-day establishment period and at least 4 times per year for the duration of the 5-year maintenance period, or as needed to keep non-native vegetation from dropping seed at the site. Maintenance

activities shall be conducted primarily during the growing season, which is from December through July.

## 7.0 RESTORATION MONITORING

### 7.1 INSTALLATION MONITORING

The RS will monitor habitat restoration installation activities including cactus and duff salvage, finish grading, installation of cacti stems, duff, irrigation, container plants, and seeding. Installation monitoring will include attendance at one pre-construction meeting and monitoring of the site during the installation period (Table 8). Specifically, the RS will:

- Ensure that installation personnel understand the project requirements and limitations;
- Oversee duff and cactus salvage, weed biomass removal, duff application, and soil surface integration;
- Approve plant and seed orders;
- Ensure that grading is appropriate to support the target habitat types
- Inspect plant and seed material prior to installation;
- Monitor the manner in which the plant and seed material is installed; and
- Prepare an as-built letter report for submittal to the appropriate resource agencies stating that the installation is complete.

<b>Table 8 INSTALLATION MONITORING SCHEDULE</b>	
<b>TASK</b>	<b>SCHEDULE</b>
<b>Installation</b>	
Pre-construction meeting	Prior to construction
First day of	<ul style="list-style-type: none"> <li>• Duff salvage, cactus pad salvage;</li> <li>• weed biomass removal;</li> <li>• duff application and soil surface integration;</li> <li>• container stock installation</li> <li>• seeding; and</li> <li>• irrigation installation.</li> </ul>
During	Once during each grow/kill cycle
Generally	At least 2 times per week

The landscape architect will ensure the irrigation system is installed correctly.

Photo documentation stations will be established prior to and after plant/soil salvage. These stations will be used throughout the 5-year maintenance and monitoring period (see also Section 7.3.1). The photos will be taken as follows:

- Photos will be taken with a GPS camera that records the location and direction of the photos.
- The camera will be mounted on a pole with a level at a consistent height and angle.
- The photo point location will be marked with a nailed, yellow, survey stake whisker, driven flush to the ground surface. The compass orientation will be marked with a second marker (blue whisker), approximately 5 feet from the photo location.

The 120-day establishment period will begin when the resource agencies verify the project has been installed per plan. The 5-year maintenance and monitoring period will begin when the resource agencies have verified that all planting has successfully been installed at the end of the 120 day establishment period.

### **Post-compliance Report**

The Permittee shall submit a post-compliance Report to the resource agencies within thirty (30) days from the date construction is completed. The post-compliance report shall include: 1) A comparison including map overlays<sup>3</sup> of and a discussion on the pre- and post-construction conditions (with supporting photograph documentation); and 2) a summary of project compliance (including noncompliance and corrective actions taken to achieve compliance).

## **7.2 MAINTENANCE MONITORING**

Following installation, a RS will monitor maintenance activities conducted by the maintenance contractor during the initial 120-day establishment period and subsequent 5-year maintenance and monitoring period (Table 9). Monitoring visits will be conducted monthly during Year 1. In Year 2, visits will be conducted monthly from February through July and two times in the remainder of the year (September and December). Quarterly visits (March, June, September, and December) will be conducted during Years 3 through 5. This monitoring schedule is the minimum; more frequent inspections may be necessary if there are problems with maintenance contractor performance or habitat development.

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<sup>3</sup> This may be accomplished by marking up a set of construction plans to show where the plans deviated.

<b>Table 9 MAINTENANCE MONITORING SCHEDULE</b>	
<b>PHASE</b>	<b>SCHEDULE</b>
<b>Installation Monitoring</b>	
120-day establishment period	Monthly (4 visits)
<b>Maintenance Monitoring</b>	
Year 1	Monthly (12 visits)
Year 2	
February to July	Monthly (6 visits)
August to December	2 visits: September and December
Years 3 to 5	
Quarterly	4 visits: March, June, September, and December

The RS will provide as necessary monitoring memos noting any issues with plant establishment and growth, irrigation, sediment control, etc., to Mt. SAC FPMD and the installation/maintenance contractor(s). During each visit, the RS will inspect the site to ensure that the restoration effort is progressing as expected and to identify any problems that may affect the successful establishment and growth of the native habitat. The installation/maintenance contractor will correct any problems identified by the RS. If necessary, the RS will provide a list of items in need of attention to the project proponent and installation/maintenance contractor following each inspection. The installation/maintenance contractor will respond in writing within 2 weeks to report completion of any identified maintenance tasks to both the RS and Mt. SAC FPMD.

### **7.3 SUCCESS MONITORING**

In addition to maintenance monitoring visits, the RS will conduct success monitoring visits in May of each year during the 5-year maintenance and monitoring period. Data collected during success monitoring events will be used to determine if the restoration project has met success criteria for the given year. Monitoring will be conducted when annual species are readily identifiable.

Technical monitoring will include assessment of the vegetation community in the restoration area as compared to the vegetation community in a reference area located in nearby undisturbed CSS habitats. Technical monitoring will provide a quantitative comparison of community composition between the restoration area and the reference area that will indicate whether the restoration area is on a trajectory to meet the restoration goal and what remedial measures are necessary to establish that trajectory if it is not.

#### **Vegetation**

A total of one 50-meter transect per acre will be used to collect data in the CSS establishment areas during Years 3 through 5 for the success monitoring. Two 30-meter long transect will be used for the MFS area. The CSS transects will be haphazardly located during the first year (May of Year 1), and permanently marked with rebar to facilitate their use in subsequent years.

Transect placement will capture a representative sample of slope configurations, steepness, and orientation. The MFS transect will be centered in the MFS restoration area and parallel to Snow Creek.

Vegetative data will be collected along each transect using the point intercept line transect sampling methods described in the California Native Plant Society's Field Sampling Protocol (Sawyer and Keeler-Wolf 1995). Species cover data will be collected by recording all of the species intercepted at each 0.5-meter interval along the length of each transect. Vegetation will be recorded separately for herb (0 to 0.6 meter), shrub (0.6 to 2 meters), and tree (greater than 2 meters) layers. Species richness data will be collected by noting all species occurring within a 5-meter belt transect centered on each line transect.

### **Animal Diversity**

Wildlife use of the restoration area will be noted opportunistically during each maintenance monitoring visit and success assessment by direct visual or audio observations, or indirectly from the presence of their tracks, scat, or dens. No focused wildlife surveys will be conducted.

#### **7.3.1 Photo Documentation**

In addition to the qualitative and quantitative monitoring, several permanent photo documentation stations will be established. Photos will be taken as part of all 5 success monitoring events and will be included in the annual success monitoring reports prepared by the RS. The ground level photos will be taken in the same places and manner as the preconstruction photos (Section 5.3.2). An aerial photo of the restoration areas, taken within the previous year, will also be included in the annual report.

#### **7.3.2 Reports**

Reports will be prepared by the RS each year during the 5-year monitoring period and submitted to the resource agencies and Mt. SAC FPMD by April 1 of each year. Each report will evaluate the success of the mitigation effort to date, pursuant to the success criteria (Section 8), along with any recommendations for future work that may be deemed necessary. This report shall also include the survival, percent cover, and height of both tree and shrub species for the mule fat scrub establishment area. The number by species of plants replaced, an overview of the revegetation effort, and the method used to assess these parameters shall also be included. The report shall include other relevant information such as: a summary of invasive species control, methods used to remove non-native plants, and a list of wildlife observed on site.

## **8.0 SUCCESS CRITERIA**

The following sections provide standards to determine the successful completion of the restoration effort as well as measurement methods for success criteria. Attainment of these standards indicates the restoration area is progressing toward, and has the habitat function and value specified by this plan.



## 8.1 120-DAY ESTABLISHMENT PERIOD

Success at the end of the 120-day establishment period will be met if there is 95 percent survivorship of the container stock and cacti cuttings, head-to-head coverage cover, with no more than two to three foot overlap, and appropriate application rates for the irrigation system, no erosion-related issues, weed cover of less than 1 percent, and seed germination from hydroseed that is at least 1 seedling per square foot. It is recommended that the initial container stock and seed order include 10 to 15 percent more plants and seeds than specified in the plans to help ensure adequate establishment success. Extra container stock may be held in a nursery for no more than 1 month and installed at the time of initial planting or as needed during the 120-day establishment period, at the installation contractor’s discretion. Replacement container stock shall be in the ground for at least 30 days prior to the end of the 120-day establishment period.

## 8.2 5-YEAR MAINTENANCE AND MONITORING PERIOD

These success criteria apply to Years 3 through 5 of the monitoring period. The Year 3 report is also of particular significance. At Year 3 it should be apparent if the project is on track to meet the fifth and final year success criteria. If it is not, Mt. SAC FPMD, resource agencies, and RS shall determine what steps, or course of action, shall be undertaken to meet the mitigation obligation. Contingency measures will be driven by the nature of the obstacle(s) to success. Potential measures include replanting, extension of the irrigation, or restoring at a different location.

Habitat establishment for the coastal sage scrub and mule fat scrub will be assessed relative to specific success criteria. The sage scrub criteria will be according to predetermined cover values (Table 10). Species richness will be determined according to the average species richness derived from four, 5 meter by 50 meter belt transects (Figure 5). The reference transect data will be collected in May 2017.

<b>CRITERIA</b>	<b>YEAR 3</b>	<b>YEAR 4</b>	<b>YEAR 5<sup>1</sup></b>
Minimum native vegetation cover <sup>2</sup>	35	50	70
Shrub cover	30	40	55
Herbaceous cover	5	10	15
Species richness <sup>3</sup>	65	75	90
Maximum weed cover <sup>2</sup>	15	10	10
Maximum invasive species cover <sup>2, 4</sup>	0	0	0
Recruitment <sup>5</sup>	+	+	+

<sup>1</sup> Year 5 success criteria were provided by the USFWS

<sup>2</sup> Percent native vegetation, weed, and invasive species cover will be evaluated based on absolute cover. To meet success criteria for a given year, it must be within the standard deviation for the percentage listed.

<sup>3</sup> This criterion is relative to established values for native species in the reference transects.

<sup>4</sup> This category is for species rated as “high” by Cal-IPC, except for naturalized grasses (e.g., *Bromus madritensis*, ssp. *rubens*).

<sup>5</sup> Any recruitment satisfies this criterion



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**Coastal Sage Scrub Reference Transect Locations**

WEST PARCEL SOLAR PROJECT

The reference habitat for the mule fat scrub was sampled in June 2016 (Appendix B). These data will be used for comparison with the Years 3 through 5 success assessments for the mule fat scrub (Table 11). It was necessary to collect this data prior to construction because all of the existing mule fat scrub will be lost as a result of the project.

<b>CRITERIA</b>	<b>YEAR 3</b>	<b>YEAR 4</b>	<b>YEAR 5</b>
Minimum native vegetation cover <sup>1</sup>	≥55	≥65	≥80
Tree/Shrub cover	≥45	≥55	≥70
Herbaceous cover	≥10	≥10	≥10
Species Richness	≥100	≥200	≥300
Maximum weed cover <sup>1</sup>	≤115	≤110	≤100
Maximum invasive species cover <sup>2</sup>	0	0	0
Recruitment <sup>3</sup>	1	1	1

<sup>1</sup> Native vegetation, species richness, and weed percent cover is evaluated relative to the reference transects.

<sup>2</sup> This category is for species rated as “high” by Cal-IPC, except for naturalized grasses (e.g., *Bromus madritensis*, ssp. *rubens*).

<sup>3</sup> Milestone is shown as number of species.

### **8.2.1 Native Cover**

Cover by native vegetation should increase over time and ultimately approach that of the existing adjacent habitat. Native vegetation cover will be measured separately for herb, shrub and tree strata within the restoration area, but the success criterion only applies to total native cover. At least 50 percent of the relative native cover in the coastal sage scrub must consist of 1 or more of the following species: California sagebrush, California buckwheat, and black sage. The restored coastal sage scrub will have 90 percent of the species richness relative to the reference transects. The mule fat scrub species richness will be required to exceed what was observed in corresponding reference transects because the observed species richness was so low.

### **8.2.2 Mule Fat Scrub Remediation**

As specified in the CDFW Lake and Streambed Alteration Agreement (Agreement measure 4.7), if revegetation survival and/or cover requirements do not meet success criteria, replacement planting, additional watering, weeding, invasive exotic eradication, or any other practice, must be undertaken to achieve these requirements. Replacement plants shall be monitored with the same survival and growth requirements for five years after planting. This requirement applies only to the mule fat scrub establishment.

### **8.3 NON-NATIVE COVER**

Non-native cover is typically a problem with habitat restoration, particularly at the outset of the project. However, as the restoration takes hold and with diligent maintenance efforts, non-native cover should decrease to an acceptable level. Given the intense maintenance schedule for the

site, non-native cover shall not exceed 15 percent relative cover by Year 3 of the project, and 10 percent relative cover in Years 4 and 5.

## **8.4 INVASIVE SPECIES**

Invasive weed species shall be completely eradicated from the restoration site each year. No invasive species (except naturalized annual grasses) shall be allowed to persist within the restoration area. Certain non-native grasses have been included in various invasive species lists. Some of these are naturalized in our region and a typical component of “undisturbed” CSS. The tolerance for these species will be the same as other non-invasive, non-native species.

## **8.5 IRRIGATION**

To provide evidence that vegetation is self-sufficient, direct irrigation of the restoration area must be shut off at least 2 years prior to final sign off (e.g., Year 3 if project is to be signed off in Year 5).

# **9.0 COMPLETION OF RESTORATION**

## **9.1 NOTIFICATION OF COMPLETION**

The RS shall notify the resource agencies and the Mt. SAC FPMD of completion of the mitigation effort through the submittal of the Year 5 annual monitoring report. If success criteria are not met by the end of Year 5, the RS shall work with Mt. SAC FPMD and the resource agencies to determine appropriate remedial measures for achieving success criteria.

### **9.1.1 Agency Confirmation**

If the habitat restoration meets the success standards identified in this plan at the end of the 5-year monitoring period, the restoration will be considered a success; if not, the maintenance and monitoring program will be extended one year at a time until the standards are met. Specific remedial measures (approved by the resource agencies) will be used during any extension. Monitoring extensions will be done only for areas that fail to meet final success criteria. This process will continue until all Year 5 standards are met or until the resource agencies determine that other mitigation measures are appropriate. Alternatively, a subsequent agreement may be negotiated with the resource agencies. Only areas that fail to meet the success standards will be subject to any subsequent agreement.

## **9.2 CONTINGENCY MEASURES**

### **9.2.1 Initiating Procedures**

Upon receipt of any of the annual monitoring reports, if the resource agencies determine that the restoration effort is not on course to meet final success criteria for the project, the resource agency(ies) will notify the project proponent in writing that the restoration effort is in need of

remedial measures. The project proponent shall have 30 days to respond to, challenge, or confirm the determination that remedial work must be done. Potential remediation measures include such items as extending the monitoring period, planting more container stock and/or seed, and planting additional areas.

### **9.2.2 Alternative Locations for Contingency Mitigation**

Alternate restoration areas (including creation and enhancement, as appropriate) should only be considered if there is compelling reasons related to the mitigation sites for the failure of this plan. Sufficient contingency restoration areas are present within the Mt. SAC campus, however, if necessary off-site locations will also be considered. If the success criteria are not met within the restoration areas designated by this plan, Mt. SAC FPMD, the resource agencies, and the RS will work toward a mutually acceptable alternative solution, which may include attempting CSS and/or MFS restoration elsewhere on the Mt. SAC campus.

## **10.0 LONG-TERM MANAGEMENT PLAN**

Mt. SAC will fund the long-term management of the mitigation habitat (preserved, enhanced and restored; i.e., re-established and created habitats) described in this report. This includes areas on the West Parcel and near Mt. SAC Hill, which are referred to collectively in this report as the *Wildlife Sanctuary*. Following signoff of the project (Section 9.1), long-term management will commence. Long-term management will entail: monitoring and reporting, maintenance, and management (Table 12).

The Wildlife Sanctuary Director at Mt. SAC will oversee management of this area. The Director must know the obligations the college is under as part of their environmental and resource agency permits for this project. The Director will be responsible for the long-term monitoring, directing maintenance. The Director will work with Mt. SAC FPMD to file all required reports with the resource agencies.

**Table 12  
LONG-TERM MANAGEMENT PLAN TASKS**

<b>TASK</b>	<b>TASK DESCRIPTION</b>	<b>RESPONSIBLE PARTY</b>	<b>NUMBER &amp; TIMING OF TASKS</b>
Master Plan Update	Enter boundaries of Wildlife Sanctuary into campus geographic database	Mt. SAC FPMD	Once: at the beginning of the Long-Term Management Period
Qualitative Assessment	Map invasive and troublesome weedy plant species, and prepare a memorandum to discuss timing of invasive plant species removal	Qualified Biologist*	Semi-annually: Spring and Fall
	Oversee invasive plant species removal by contractor		
	Identify areas of erosion		
	Assess integrity of Wildlife Sanctuary fencing and signage	Mt. SAC FPMD	
	Remove invasive plant species within 4 weeks of mapping		
	Repair erosion		
	Repair fencing and signage		
Administration	Management of Mitigation Land <sup>1</sup>	Qualified Biologist*	Semi-annually: Summer and Winter
Technical Assessment	Visually assess habitat quality and wildlife use. Compile list of plant and animal species observed during the inspection.	Qualified Biologist*	Annually (May)
	Update management plan activities to address changes in the habitat or surrounding areas that could negate the habitat values of the Wildlife Sanctuary. Provide management recommendations as is necessary		
	Conduct photo documentation		
	Provide results of qualitative and technical assessments in a report to the resource agencies	Qualified Biologist*	
	Map vegetation and inventory plant and animal species.		
	Coastal California gnatcatcher protocol surveys	Permitted Biologist	

\*May be from the Mt. SAC Biology Department or a biologist from elsewhere. The biologist conducting the work must have the knowledge, training, and experience with southern California ecosystems requisite to the task, and be pre-approved by the resource agencies.

<sup>1</sup> Oversee management of mitigation land. Includes ordering equipment and supplies (e.g., plants and seeds), and scheduling qualitative and technical monitoring, and maintenance.

## 10.1 MANAGEMENT

The Wildlife Sanctuary is intended to serve as a habitat preserve and outdoor biological classroom, and as such, is not compatible with uses that disrupt wildlife and alter the native vegetation. Activities specifically prohibited include off-road vehicle use, dumping, construction activities and staging, vegetation clearing, grazing, and removal of natural resources. Signage, fencing, and measures to restrict activities will be implemented by Mt. SAC to ensure that passive, educational uses do not adversely affect wildlife and habitat. Prior to allowing access, Mt. SAC will work with the resource agencies to ensure the Wildlife Sanctuary is used in ways that do not adversely affect wildlife and habitat.

Brush removal for fire safety is only allowed if specifically directed by the local fire marshal in an emergency situation. The mitigation habitat has been planned to avoid typical brush management zones (i.e., are at least 100 feet from any residential or commercial structure). Brush management for fire safety would only be done under very unusual circumstances.

Management activities during the breeding season (February 15 through September 1) that have the potential to destroy active nests (e.g., spraying or pulling vegetation within coastal sage scrub or woody riparian vegetation) or disrupt nesting activities (e.g., weed whipping along roads and trails adjacent to coastal sage scrub or woody riparian vegetation) will be conducted under the oversight<sup>4</sup> of a monitoring biologist<sup>5</sup> who will ensure that gnatcatcher nesting activities are not disrupted and that no avian nests are destroyed.

Adaptive management may be necessary to ensure the values persist that were intended by this plan. Adaptive management includes those activities necessary to address the effects of climate change, fire, flood, or other natural events. The need for adaptive management and a change in management approach to the Wildlife Sanctuary will be assessed based on the findings of the qualitative/quantitative and technical assessments (Section 10.2). Any adaptive management measures must be consistent with California Fish & Game Code and the Migratory Bird Treaty Act.

During the scheduled assessments, the Biologist will visually assess the amount of change that has occurred, if any, to the quality and distribution of the coastal sage and mule fat scrubs. If the visual assessment determines there has been a 20 percent decrease or more from the baseline conditions, vegetation mapping will be updated to reflect current conditions. These maps will be used to consult with the resource agencies to determine whether or not a change in the management approach is necessary. Examples of adaptive management responses are a greater effort toward weed removal, and seeding with appropriate native species.

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<sup>4</sup> “Oversight” includes, but is not limited to, the following activities, which will be conducted as necessary to ensure that no nests are destroyed and that nesting activities of listed species are not disrupted: training personnel on vegetation to be avoided and removed; flagging specific areas to be avoided; training personnel on avoidance and minimization measures; regularly inspecting work activities; and providing direct supervision of management activities when necessary.

<sup>5</sup> The monitoring biologist will be familiar with the gnatcatcher and its breeding behavior.

The preserved and restored habitats covered by this plan have been designed to avoid any currently required fire management areas for the nearby residential areas and proposed solar facility. Should fire suppression actions be required or occur in an emergency situation, consultation with the resource agencies will occur to determine if the habitat values of the preserved habitats have been compromised and what, if any, remedial measures are necessary.

## **10.2 MONITORING AND REPORTING**

The Wildlife Sanctuary will be monitored in perpetuity in two ways: qualitatively and technically. The person conducting the monitoring<sup>6</sup> will be appropriately qualified for the task. Biological monitors (Biologist) must be pre-approved by the resource agencies. The curriculum vitae or resume will be provided to the resource agencies for their review and approval. The agencies will have 1 month for that review. If the agencies fail to respond within 1 month the candidate will be considered approved.

Maintenance Assessments. A Biologist will inspect the Wildlife Sanctuary on a semi-annual basis: once in the spring and again in the fall, with particular attention placed on the recorded mitigation areas. Areas of interest during these inspections include amount of weeds, erosion, fencing, signage, and unauthorized access and vandalism. A brief report, including photos from the photo documentation stations, will be prepared following each inspection. This report, which will be prepared under the direction of the Biology Department, will be provided to Mt. SAC FPMD and the resource agencies. Any issues in need of remedial actions will be described in this memo, along with recommended solutions. Mt. SAC FPMD will either direct staff or hire a consultant to resolve the issue, or forward the information to the Biology Department for their attention.

Technical Assessments. Annual inspections will be conducted to assess habitat status and wildlife use. A list of all plants and animals observed will be recorded, with an emphasis on weeds, and sensitive plant and animal species. Information gathered during these inspections will be included in the annual reports. These reports will be provided to the resource agencies and may be used as a basis for modifying the management practices. Photographs taken from established photo-documentation points will also be included in the annual reports. Annual reports will be provided to USFWS and CDFW.

Directed coastal California gnatcatcher surveys will be completed during the first year, the third year, the fifth year, and then subsequently every 5 years thereafter. Surveys will adhere to the February 1997 survey protocol, except there will only be three surveys. Surveys shall be completed during the breeding season by a permitted biologist. The Biologist shall notify the USFWS of their intent to conduct surveys at least 15 working days prior to the anticipated first date. The results of the survey shall be filed with the resource agencies within 90 days of the third survey.

Vegetation communities and boundaries may change over time due to natural processes such as fire, flood, and succession. Changes within the Wildlife Sanctuary may affect the function and

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<sup>6</sup> May be an individual from the Mt. SAC Biology Department or from elsewhere.



value provided; thus, monitoring and documentation of such changes in habitats is important to the successful long-term management of the resources. As such, vegetation mapping will be updated in the field every 5 years using a current aerial photograph as a base map to determine what, if any, changes have occurred in the Wildlife Sanctuary that warrant changes to the management activities outlined in this plan. Proposed changes in the management activities will require review and approval from the resource agencies.

### 10.3 MAINTENANCE

Maintenance tasks include weed removal, erosion control, trash removal, and fence and sign maintenance.

Weed Eradication. Mt. SAC FPMD will be responsible for controlling weeds within the Wildlife Preserve. A Biologist will assess weed cover twice per year to prioritize weed eradication efforts. The highest priority weed specie or species will targeted for removal based on the threat to the habitat, with the focus placed on the most problematic species. The number of species targeted for eradication will depend on the amount of budget for weed eradication relative to the eradication effort, but at least one species will be focused on per year. Once a species is targeted for eradication, efforts to eliminate that species will continue until it has been expunged from the mitigation area. A memorandum identifying the specie or species targeted for eradication will be prepared immediately following the weed assessment inspection. The Biologist will oversee removal, as necessary. The Biologist shall take photographs before and after implementation of weed species eradication measures.

Weed removal will be accomplished by hand or mechanical means. The use of chemical herbicides within the Wildlife Preserve will be restricted unless the Biologist determines it necessary for their control. Permitting and compliance with all applicable federal and state laws and regulations related to herbicide use and handling will be the responsibility of Mt. SAC. If the use of herbicide is deemed necessary, application should be kept to an absolute minimum and the following general guidelines should be implemented:

- All herbicide use will involve short duration, biodegradable chemicals;
- Herbicide application should be minimized to the extent possible;
- Herbicide application should target weeds, and backpack sprayers or stump painting should be used for focused application;
- Herbicide will only be applied when there is no wind; and
- To maximize success, herbicide should be applied during the appropriate time(s) of year and be applied in the manner appropriate for the target plant species.

Mt.SAC FPMD will be responsible for initiating weed removal within 4 weeks after receipt of the qualitative assessment memo. These activities will be conducted to remove weed species to the maximum extent practicable, although complete removal of all weeds may be infeasible.

Focused weeding events will be conducted in the spring and fall, but additional weeding can occur as needed throughout the year. Mt. SAC may modify this schedule to accommodate

annual fluctuations in weed growth. Prevention/reduction of exotic species introduction will be an on-going process.

Erosion Control. A Biologist will report to Mt. SAC FMPD any noted erosion problems within the Wildlife Sanctuary. Mt. SAC FMPD will identify appropriate measures to address the erosion issue while minimizing impacts to adjacent habitat. Remediation measures may include:

- Decomposed granite surfacing;
- Plantings;
- Wooden footer rails and/or water bars;
- Use of positive grading techniques and appropriate drainage facilities (e.g., swales or brow ditches) to direct surface flows away from unstable areas and into existing drainage outlet points;
- Use of erosion control/stabilizing measures such as geotextiles, mats, fiber rolls, soil binders, or temporary hydroseeding (or other plantings); and
- Use of sediment controls to prevent off-site sediment transport (i.e., silt fences, fiber rolls, gravel bags, temporary sediment basins, check dams, and/or energy dissipaters). Energy dissipaters will reduce the velocity and downstream erosion potential of runoff leaving the site.

If the erosion has already damaged habitat in an area set aside as mitigation for project impacts, the habitat will be restored under the direction of a qualified restoration biologist.

Trash Removal. Mt. SAC FMPD contractors will be responsible for trash removal from the Wildlife Sanctuary, which will occur once a year (spring). If littering is noted as a particular problem at certain locations (i.e., overlooks along trails), trash receptacles may be installed to control the problem. If provided, the receptacles will be emptied regularly to avoid attracting nuisance animals. In cases of excessive trash disposal, Mt. SAC FMPD may enlist the help of student or community volunteer groups to conduct litter removal.

Fence Maintenance. Permanent fencing for the Wildlife Sanctuary will be installed as part of the installation and establishment of this plan. Perimeter fencing will be inspected semi-annually in the spring and fall, as part of the qualitative assessments. All defective locations will be noted in a brief report to Mt. SAC FMPD, who will arrange for any necessary repairs to be done within 4 weeks of receiving the report.

Campus security may periodically inspect wildlife sanctuary for homeless encampments and problems with the perimeter of the fencing.

## 10.4 FUNDING

Mt. SAC will be responsible for all costs associated with the long-term. Funds for this work will come from a dedicated line item in the college's general fund. The annual cost for the long-term maintenance and monitoring is estimated to be \$15,141 per year (Appendix C). This will increase by 3% each year. Every 10 years, Mt. SAC shall conduct a financial review of the

budget amount and adjust the line item amount to match the needs of the habitat management. Any changes in funding must be acceptable to the resource agencies.

## 11.0 REFERENCES

- California Invasive Plant Council. 2014. Invasive Plants of California's Wildland. <http://www.cal-ipc.org/ip/management/ipcw/categories.php>.
- HELIX Environmental Planning, Inc. 2008. Mt. San Antonio College 2008 Master Plan Update, Biological Technical Report. July 16.
2012. Mt. San Antonio College 2012 Master Plan Update, Draft Biological Technical Report. August 17
2015. West Parcel Solar Project at Mt. San Antonio College, Biological Technical Report . 29 May. 26 pp, plus appendices.
- Sawyer, J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. CNPS. 472 pp.



Appendix A

CONSTRUCTION SCHEDULE

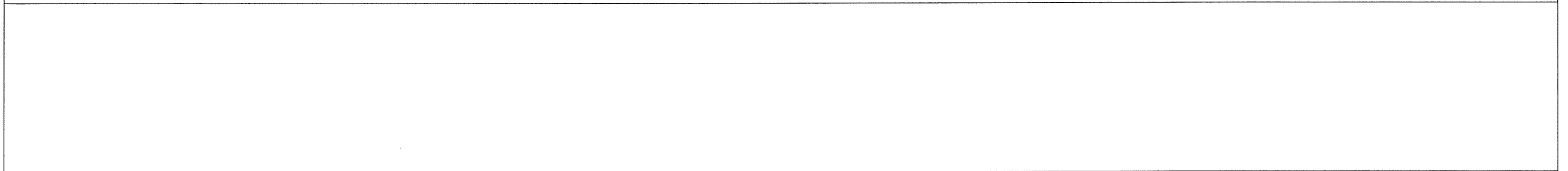
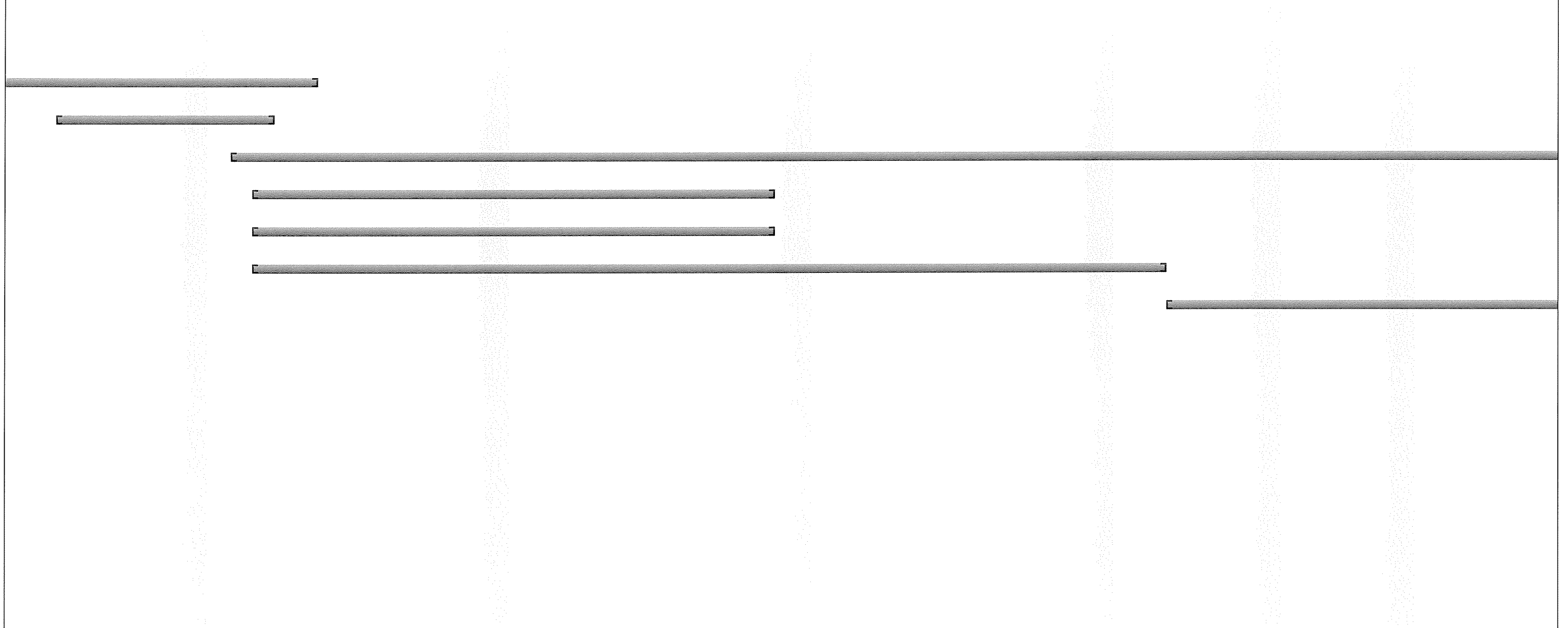


ID	Task Mode	Task Name	Duration	Start	Finish	Thu Sep 1		Mon Sep 5		Fri Sep 9		Tue Sep 13			Sat Sep 17		Wed Sep 21		Sun Sep 25			Thu Sep 29		Mon Oct 3		Fri Oct 7		Tue Oct 11			Sat				
						11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
1	☰	cacti collection WP	4 days	Thu 9/1/16	Tue 9/6/16	█																													
2	➤	duff collection	15 days	Tue 9/6/16	Mon 9/26/16	█																													
3	➤	OX & Prep for fill	28 days	Wed 9/21/16	Fri 10/28/16	█																													
4	➤	Grade and Apply Duff EP	8 days	Mon 10/17/16	Wed 10/26/16																														
5	➤	Fill & Grade WP	90 days	Tue 10/25/16	Mon 2/27/17																														
6	➤	Install Fencing EP	18 days	Wed 10/26/16	Fri 11/18/16																														
7	➤	Irrigation EP	18 days	Wed 10/26/16	Fri 11/18/16																														
8	➤	Grow/Kill EP	30 days	Wed 10/26/16	Tue 12/6/16																														
9	➤	Plantings EP	17 days	Wed 12/7/16	Thu 12/29/16																														
10	➤	120 day establishment EP	120 days	Mon 1/2/17	Fri 6/16/17																														
11	➤	Finish Grade WP	30 days	Mon 2/13/17	Fri 3/24/17																														
12	➤	Place Duff WP	5 days	Mon 3/27/17	Fri 3/31/17																														
13	➤	Install Fence WP	20 days	Mon 3/27/17	Fri 4/21/17																														
14	➤	Install Irrigation WP	15 days	Mon 4/3/17	Fri 4/21/17																														
15	➤	Grow/Kill WP	30 days	Sat 4/22/17	Thu 6/1/17																														
16	➤	PlantingWP	15 days	Thu 6/1/17	Wed 6/21/17																														
17	➤	120 day establishment WP	120 days	Thu 6/22/17	Wed 12/6/17																														

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Project: 5-yr Monitoring Date: Tue 8/9/16	Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Deadline
	Split	External Tasks	Inactive Summary	Manual Summary	Progress
	Milestone	External Milestone	Manual Task	Start-only	
	Summary	Inactive Task	Duration-only	Finish-only	

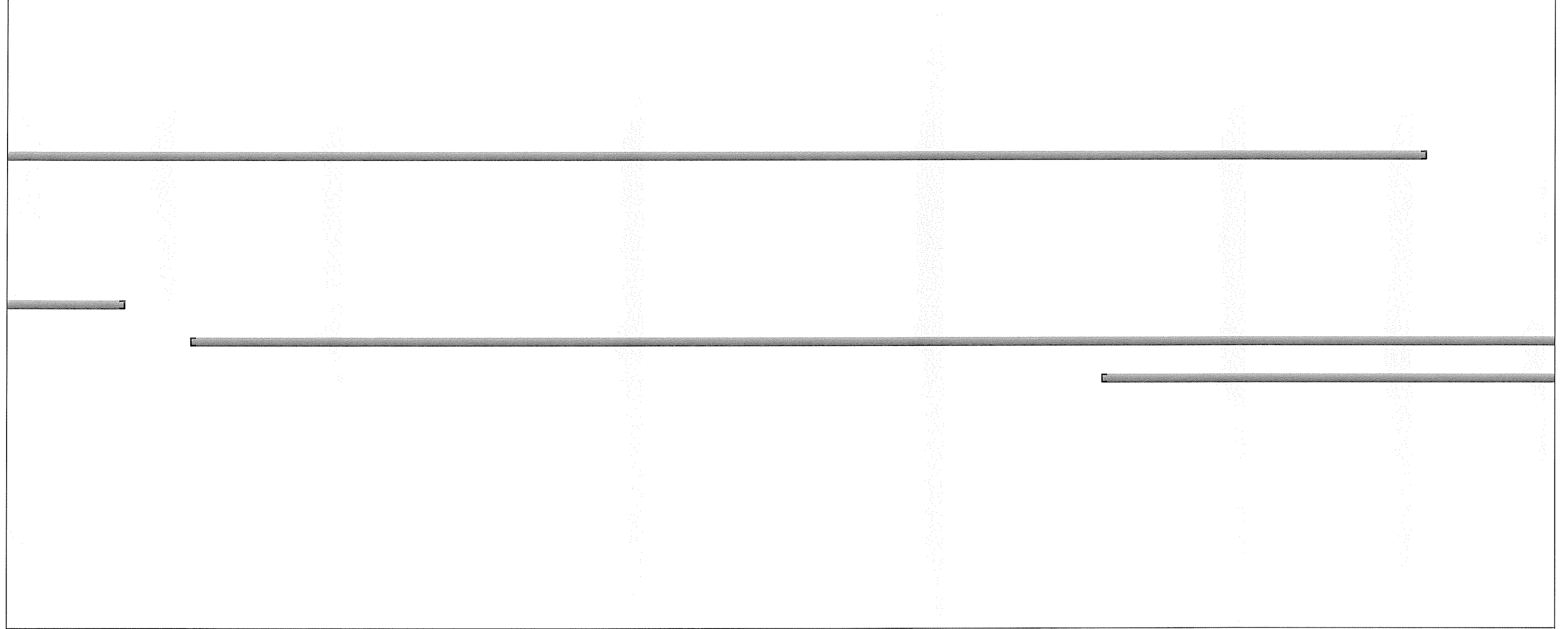
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Project: 5-yr Monitoring  
Date: Tue 8/9/16

Task		Project Summary		Inactive Milestone		Manual Summary Rollup		Deadline	
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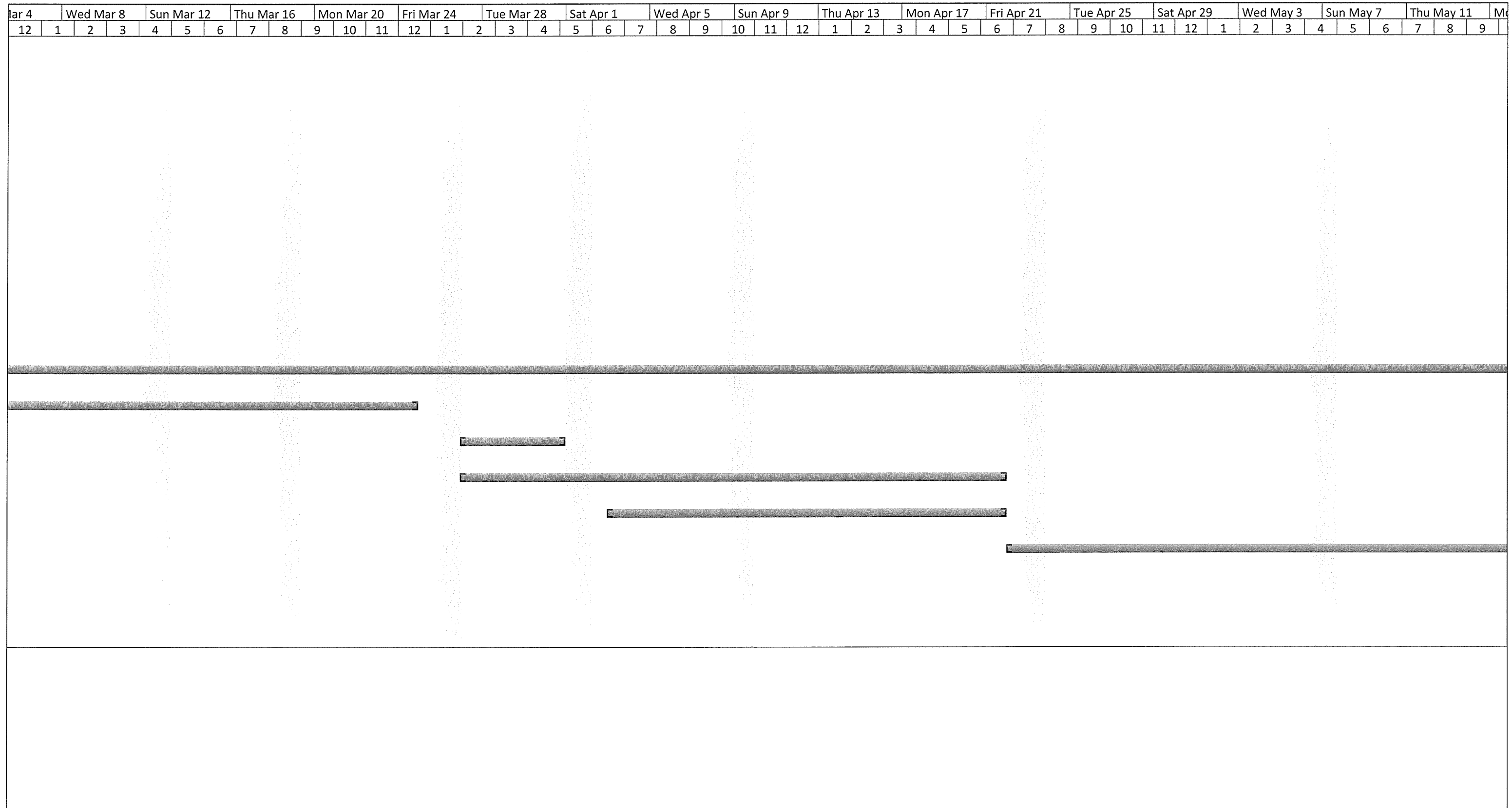
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2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11							



Project: 5-yr Monitoring  
Date: Tue 8/9/16

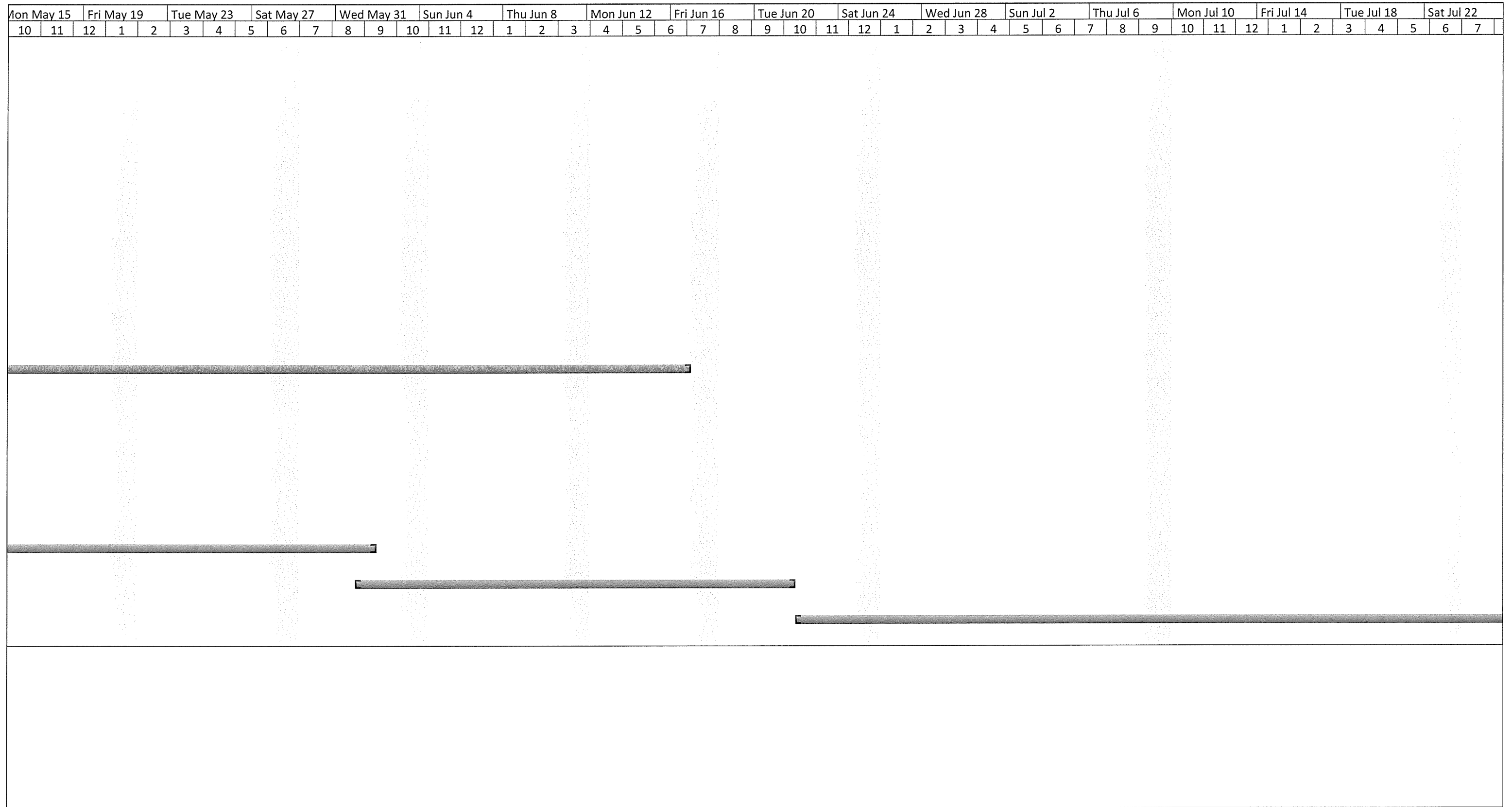
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Milestone		External Milestone		Manual Task		Start-only			
Summary		Inactive Task		Duration-only		Finish-only			





Project: 5-yr Monitoring  
Date: Tue 8/9/16

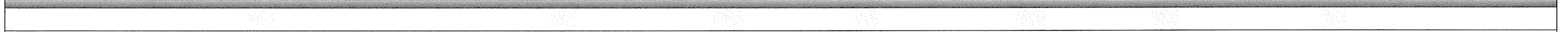
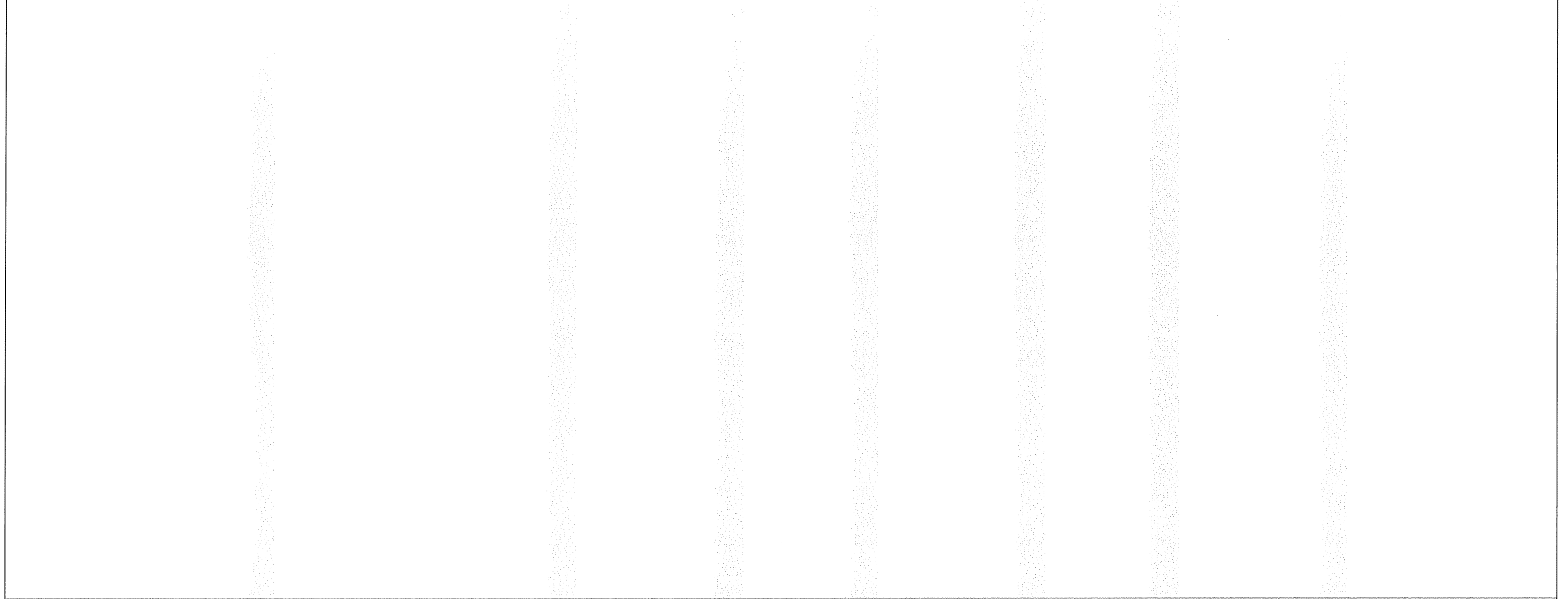
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Milestone		External Milestone		Manual Task		Start-only			
Summary		Inactive Task		Duration-only		Finish-only			



Project: 5-yr Monitoring  
Date: Tue 8/9/16

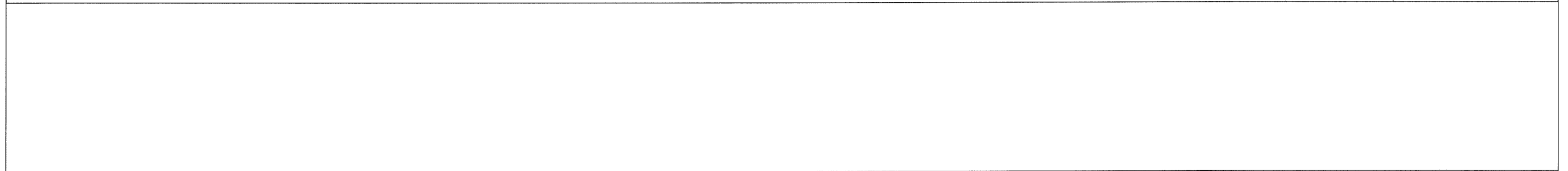
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Milestone		External Milestone		Manual Task		Start-only			
Summary		Inactive Task		Duration-only		Finish-only			

Wed Jul 26			Sun Jul 30			Thu Aug 3			Mon Aug 7			Fri Aug 11			Tue Aug 15			Sat Aug 19			Wed Aug 23			Sun Aug 27			Thu Aug 31			Mon Sep 4			Fri Sep 8			Tue Sep 12			Sat Sep 16			Wed Sep 20			Sun Sep 24			Thu Sep 28			Mon Oct 1							
8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6



Project: 5-yr Monitoring Date: Tue 8/9/16	Task		Project Summary		Inactive Milestone		Manual Summary Rollup		Deadline	
	Split		External Tasks		Inactive Summary		Manual Summary		Progress	
	Milestone		External Milestone		Manual Task		Start-only			
	Summary		Inactive Task		Duration-only		Finish-only			

2	Fri Oct 6			Tue Oct 10		Sat Oct 14		Wed Oct 18		Sun Oct 22		Thu Oct 26		Mon Oct 30		Fri Nov 3		Tue Nov 7		Sat Nov 11		Wed Nov 15		Sun Nov 19		Thu Nov 23		Mon Nov 27		Fri Dec 1		Tue Dec 5		Sat Dec 9		Wed									
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Project: 5-yr Monitoring Date: Tue 8/9/16	Task		Project Summary		Inactive Milestone		Manual Summary Rollup		Deadline	
	Split		External Tasks		Inactive Summary		Manual Summary		Progress	
	Milestone		External Milestone		Manual Task		Start-only			
	Summary		Inactive Task		Duration-only		Finish-only			



## Appendix B

# MULE FAT SCRUB REFERENCE DATA



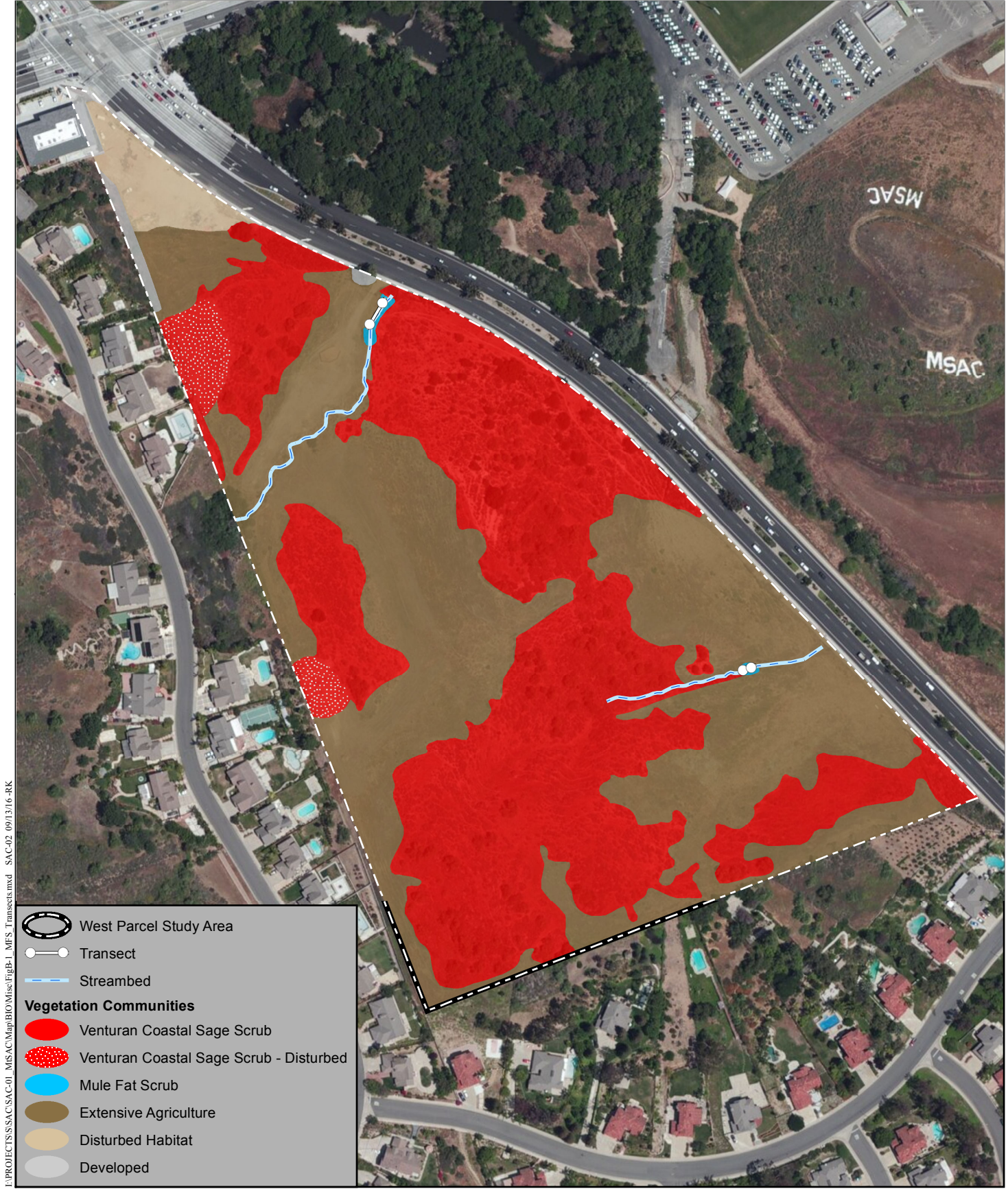
Appendix B. Mule Fat Scrub Reference Data

HELIX Environmental Planning, Inc. biologists Benjamin Rosenbaum and Talaya Rachels collected transect data in the two stands of mule fat scrub on the West Parcel on June 28, 2016 (Figure B-1). Due to the small size of these stands the combined transect lengths totaled 34.0 meters. Vegetation data was collected along the 2 transects using the point intercept line transect sampling methods described in the California Native Plant Society’s Field Sampling Protocol (Sawyer and Keeler-Wolf 1995). Species cover data was collected by recording all of the species intercepted at each 0.5-meter interval along the length of each transect. Data was recorded separately for herb (0 to 0.6 meter), shrub (0.6 to 2 meters), and tree (greater than 2 meters) layers.

The mule fat scrub at these locations has been subject to many years of grazing, which has resulted in minimum cover in the shrub and herb layers (Table B1). Species richness in mule fat scrub is typically low and that aspect of the habitat at these locations is minimal, with only 2 species observed along the transects—mule fat (*Baccharis salicifolia*) and short-pod mustard (*Hirschfeldia incana*). The lack of species richness may also be partly a function of the timing of the survey, which was favorable for perennial wetland species but less so for annual species.

<b>Table B1</b>					
<b>MULE FAT SCRUB REFERENCE DATA</b>					
<b>LAYER</b>	<b>COMPONENT</b>				<b>TOTAL</b>
	<b>MULE FAT</b>	<b>SHORT-POD MUSTARD</b>	<b>LEAF LITTER</b>	<b>BARE GROUND</b>	
Herb	--	2%	58%	40%	100%
Shrub	--	9%	--	--	9%
Tree	100%	--	--	--	100%

Mule fat is the tree layer defined for this habitat based on its size. The herb layer was essentially unvegetated and shrub layer had very low cover of a weed species.



## Mule Fat Scrub Reference Transect Locations

WEST PARCEL SOLAR PROJECT



## Appendix C

# COST OF LONG-TERM MANAGEMENT





Long-Term Management Budget for the Mt. SAC Wildlife Sanctuary Mitigation Lands				Date:	1-Sep-2016			
				Prepared By:	WLS			
Annual Management & Maintenance Cost Table								
Item #	Activity Category	Activity/Expense	Frequency (times per year)	Hours/event	# events/year	Hourly Cost	Annual Cost	Notes
1	Site Maintenance							
		Signs & fence replacement	semi-annually	2	2	65	\$260	
		fence and sign supplies	semi-annually	1	2	350	\$700	
2	Habitat Maintenance							
		Weed control	semi-annually	16	2	65	\$2,080	
		Herbicide Use	semi-annually	1	2	75	\$150	
		Trash removal	semi-annually	3	2	65	\$390	
		Replanting and Reseeding	semi-annually	4	2	65	\$520	
		Dump Fees	annually	4	1	250	\$1,000	
		Container stock and seeds	semi-annually	1	2	200	\$400	
3	Habitat Monitoring							
		Write memo	semi-annually	2	2	90	\$360	
		Inspect fence	semi-annually	2	2	90	\$360	
		Map weeds	semi-annually	8	2	90	\$1,440	
		Map remedial planting and seeding areas	semi-annually	4	2	90	\$720	
4	Biotic Surveys							
		Site visit	annually	8	1	125	\$1,000	
		Photodocumentation	annually	1	1	125	\$125	
		Report	annually	12	1	125	\$1,500	
		CAGN Survey	1/5 years	12	0.2	125	\$300	
		Site visit	1/5 years	6	0.2	125	\$150	
		Equipment	annually	1	1	200	\$200	
		5-yr report	1/5 years	24	0.2	125	\$600	
5	Adaptive Management	Unscheduled maintenance and monitoring	annually	1	1	73	\$ 73	1% of annual maintenance and monitoring. This should be allowed to accumulate.
6	Mileage	mileage to site	10 trips	50	10	0.58	\$290	
<b>Subtotal</b>	<b>Direct Costs</b>	<b>sum of items 1-6</b>					<b>\$12,618</b>	
7	Project Management/ Administration	Program oversight, bookkeeping	semi-annually				\$1,262	10% of direct costs
8	Contingency						\$1,262	10% of direct costs
<b>Total</b>							<b>\$15,141</b>	