MSUP Operations and Maintenance Plan for Electric Facilities on the Cleveland National Forest

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Contents

Appendices and Attachments

Acronyms and Abbreviations

AGL	above ground level
ANSI	American National Standards Institute
APE	Area of Potential Effect
APM	Applicant Proposed Measure
APP	Avian Protection Plan
BIA	Bureau of Indian Affairs
BMP	best management practice
CAISO	California Independent System Operator
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CHRIS	California Historical Resources Information System
CNDDB	California Natural Diversity Database
CNF	Cleveland National Forest
CNPS	California Native Plant Society
CPUC	California Public Utilities Commission
CSP	Cuyamaca Rancho State Park
CWA	Clean Water Act
ECP	Erosion Control Plan
EEI	Edison Electric Institute
EIR/EIS	Environmental Impact Report / Environmental Impact Statement
ESA	Environmentally Sensitive Area
4WD	Four-wheel drive
FAA	Federal Aviation Administration
FDRA	Fire Danger Rating Area
FSH	Forest Service Handbook
FSS	Forest Service Sensitive Species
GEARS/eTS	Geographic Environmental Analysis & Reporting System/ environmental project Tracking System
G.O.	General Order
GIS	Geographic Information System
HCP	Habitat Conservation Plan
HFTD	High Fire-Threat District
HPMP	Historic Properties Management Plan
HRSP	Heritage Resource Screening Process
IEEE	Institute of Electrical and Electronics Engineers
IVM	Integrated Vegetation Management
kV	kilovolt

MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
MMCRP	Mitigation, Monitoring, Compliance and Reporting Program
MOU	Memorandum of Understanding
MPEs	Master Permits and Easements
MSUP	Master Special Use Permit
NCCP	SDG&E's Subregional Natural Community Conservation Plan
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Program
NESC	National Electric Safety Code
NFDRS	National Fire Danger Rating System
NFS	National Forest System
NMFS	National Marine Fisheries Service
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NRIS	Natural Resource Information System
O&M	Operations and Maintenance
PA	Programmatic Agreement
PAL	Project Activity Level
PLRP	Power Line Replacement Project
PRC	Public Resources Code
QCB HCP	SDG&E's Low-Effect Habitat Conservation Plan for Quino Checkerspot Butterfly
RCA	Riparian Conservation Area
Region 5	USFS Pacific Southwest Region
RFS	removal from service
RFW	Red Flag Warning
ROD	Record of Decision
ROW	Rights-of-Way
RPA	Regional Programmatic Agreement
RPM	resource protection measure
RWQCB	Regional Water Quality Control Board
SCC	USFS Species of Conservation Concern
SDG&E	San Diego Gas & Electric
SHPO	State Historic Preservation Office
SMARTS	Storm Water Multiple Application and Report Tracking System
SME	subject matter expert
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
the Plan	SDG&E's MSUP O&M Plan

TCM	Transmission Construction and Maintenance
TCP	Traditional Cultural Property
TVMP	Transmission Vegetation Management Program
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
WMP	Wildfire Mitigation Plan

Chapter 1
Overview

1.1 Introduction, Goals, and Background

San Diego Gas and Electric Company (referred in this document to as SDG&E) operates, repairs, and maintains electrical transmission and distribution infrastructure and associated facilities across National Forest System (NFS) lands within the Cleveland National Forest (CNF) that are managed by the U.S. Forest Service (USFS). SDG&E operates and maintains these facilities via a Master Special Use Permit (MSUP) issued on October 15, 2016.[1]

The goal of this O&M Plan (the Plan) is to facilitate efficient and economical O&M activities for electric facilities consistent with current federal laws, USFS policies and regulations, the standards and guidelines set forth in the Cleveland National Forest Land Management Plan (including amendments for the Sunrise Powerlink and the Final Record of Decision (ROD)[2] for the Master Special Use Permit, or MSUP), as well as State of California policies and regulations. USFS has established the following objectives associated with the Plan.

1. Reduce the administrative burden on both USFS and SDG&E of case-by-case authorizations for maintenance activities with low environmental risk by establishing a consistent process by which O&M activities described in the Plan are to be conducted.
2. Identify SDG&E's routine O&M activities that will be covered under the USFS authorizations for electric facilities and that can be performed without additional USFS approval.
3. Identify major construction and maintenance activities that will require additional USFS approval prior to SDG&E starting the work.
4. Identify coordination procedures to facilitate ongoing communication between SDG&E and USFS regarding O&M activities for electric facilities.
5. Ensure that SDG&E's field personnel and contractors conduct O&M activities in a manner consistent with the standards and guidelines of the Forest's land resource management plan.
6. Ensure that SDG&E's field personnel and contractors conduct O&M activities in a manner consistent with the resource protection protocols in the SDG&E Natural Community Conservation Plan (Subregional Plan), which includes an HCP for federally listed species occurring on CNF lands.
7. Empower SDG&E to prepare environmental documentation for USFS review and verification.
8. Encourage information sharing between all parties to streamline analysis (e.g., geospatial data, sensitive resource maps, etc.).
9. Standardize response times and review periods for reviewing SDG&E's O&M activities.
10. Identify reasonable and feasible standard best management practices (BMPs) and resource protection measures (RPMs) that will be implemented to reduce environmental impacts when conducting O&M activities.

[1] U.S. Department of Agriculture Forest Service 50-year Electric Transmission Easement Granted to San Diego Gas & Electric. Authorization ID DRD418600. OMB No. 0596-0082. October 15, 2016.

[2] Final Record of Decision. San Diego Gas & Electric Master Special Use Permit. U.S. Forest Service Cleveland National Forest. March 11, 2016.

This Plan describes the activities conducted by SDG&E to operate and maintain electric transmission and distribution lines. The Plan categorizes maintenance activities and new projects by classes (Class I, Class IIa, b and c, Class III, and Class IV) to describe the coordination between USFS and SDG&E in conducting those specific activities. The Plan establishes an environmental screening process that SDG&E must perform for specified O&M activities and the requirements for notifying the Forest of the results. The environmental screening process includes a comprehensive list of Forest Service Sensitive (FSS) species GIS data, among others, that are updated on an annual basis. The Plan also incorporates BMPs and RPMs that were developed collaboratively between SDG&E, Forest Service and resource agencies, and approved by USFS and resource agencies.

BMPs are standard practices SDG&E implements while carrying out O&M activities. These are practices or combinations of practices that have been determined to be effective and practicable means of preventing or reducing the negative impacts of an activity. RPMs are specific measures to avoid and minimize impacts on special-status species, sensitive habitats, and heritage resources. The 61 avoidance protocols outlined within the SDG&E Natural Communities Conservation Plan are some of the primary RPMs implemented by SDG&E during O&M activities within the Cleveland National Forest.

This Plan does not consider, review, or analyze "greenfield" projects. Greenfield projects consist of new transmission and distribution lines and associated access.

The USFS has the obligation to ensure that SDG&E operates and maintains its equipment in compliance with federal laws and regulations, including those protecting natural and heritage resources. To this end, the USFS has ensured that this Plan complies with Section 7 of the Endangered Species Act (ESA) and identifies the procedures for following the heritage resources agreements to ensure compliance with Section 106 of the National Historic Preservation Act (NHPA). The USFS conducted informal consultation with the U.S. Fish and Wildlife Service (USFWS) to arrive at a not likely to adversely affect conclusion for the CNF MSUP and determined that a National Marine Fisheries Service (NMFS) consultation was not needed because there would be no effect on anadromous fish.

Cultural resources review for all O&M activities during the on-going CNF SDG&E MSUP PLRP Project will continue to be reviewed under the SDG&E PA and as outlined in the Project's Historic Properties Management Plan (HPMP). When the SDG&E PA sunsets in February 2022, all O&M activities would then be reviewed under the Forest's Region 5 Programmatic Agreement (R5 PA)[3]. SDG&E and USFS have agreed to pursue development of a new agreement beginning in Fall 2021, beyond the terms of the current SDG&E PA and specific to this Plan, to cover SDG&E O&M activities including those that may occur within a Traditional Cultural Place (TCP). This agreement would be developed collaboratively with SDG&E, USFS Heritage Resources staff and SHPO, and amended into this Plan in 2022. These agreements (i.e., SDG&E PA, R5 PA and any new agreements) provide implementation and review protocols that comply with the National Historic Preservation Act (NHPA)[4].

SDG&E has the obligation to comply with the laws and regulations governing the safe and reliable delivery of electricity (see Appendix A). Compliance with those laws and regulations is critically important to ensure the safety of the public and the protection of property and resources from risks such as wildfire. In addition, SDG&E must implement the BMPs (see Appendix C), RPMs (see Appendices D, F, G, H and I), and heritage resource measures (See Appendix E) to avoid and minimize impacts.

[3] Historic Properties Management Plan/Historic Properties Treatment Plan for the Cleveland National Forest Master Special Use Permit and Permit to Construct Powerline Replacement Projects. SDG&E, August 2016.

[4] Programmatic Agreement Between the Cleveland National Forest and the California State Historic Preservation Office Regarding San Diego Gas & Electric Company's Master Special Use Permit and Power Line Replacement Projects (SDG&E PA). USFS 2016.

The USFS will monitor O&M activities associated with the MSUP and will conduct compliance inspection reviews of SDG&E's ongoing activities. The results of the monitoring and compliance reviews will be used to provide feedback to SDG&E at annual and quarterly meetings, as needed, as quality assurance of environmental screening and implementation of RPMs.

Chapter 2
Description of Facilities

SDG&E's facilities addressed under this Plan include 69kV electric transmission and 12kV electric distribution infrastructure, substations, internal communications equipment located with the right-of-way, helicopter pads, utility access roads and access trails, underground facilities, meteorological weather stations, fire detection equipment, and other ancillary "smart grid" equipment. All 69kV and 12kV SDG&E facilities located within NFS lands were included in the MSUP, and will be administered with this Plan, consistent with the requirements of the MSUP. As described below, the Sunrise Powerlink transmission infrastructure and associated facilities within the CNF are an exception. In addition, any new facilities added to CNF lands would be amended into the MSUP and managed consistent with this Plan.

The Sunrise Powerlink was conditionally approved in December 2010 under Special Use Permit (SUP) DRD418696 under the Federal Land Policy and Management Act, and all O&M activities for the Sunrise Powerlink are currently being managed consistent with the *SDG&E Sunrise Powerlink Operating Plan for the Cleveland National Forest* (SDG&E, August 2012). This includes 500 kV and 230kV transmission towers and associated structure pad areas and maintenance pads, permitted access roads and associated gates and barriers, as well as tower staging access pads (TSAPs) for helicopters and TSAP foot paths (trails).

Descriptions of the SDG&E facilities that are addressed under this Plan are included below.

2.1 Transmission Infrastructure

Transmission infrastructure consists of poles supporting powerlines used to transport electricity with 69 kilovolt (kV) voltages. Transmission lines allow high voltages of electricity to be carried over long distances. Transmission lines are authorized by an easement from USFS and are under operational control of the California Independent System Operator (CAISO).

Transmission lines include conductors (powerlines) supported by wood, fiberglass, concrete, engineered weatherized steel or steel poles. Typically, wood and light-duty steel poles are installed using a direct bury methodology that typically does not require concrete footings or foundations. Where necessary, anchors, guy wires, and stub poles are used to resist pole deflection. Stub poles may be wood or steel and sometimes require concrete foundations. All structure types are used to support cross-arms, braces, insulators and conductors, guying, and a variety of other electrical equipment, such as switches, lightning arresters, vibration dampers, and marking and lighting accessories as appropriate. Insulators are attached directly to the poles or to cross-arms mounted on the structures. Poles also support non-utility communication cables and equipment.

2.2 Distribution Infrastructure

Distribution infrastructure consists of poles supporting powerlines used to transport electricity with 12 kV voltages. Distribution lines are typically designed to deliver electricity to customers and end users. Distribution lines are eligible for a USFS special use permit and are generally regulated by the California Public Utilities Commission (CPUC).

Overhead distribution facilities include powerlines and other electrical equipment on wood, engineered weatherized steel or steel poles that may be supported by anchors, guy wires, and stub poles. Poles may also support utility and non-utility communication cables and equipment.

To deliver electricity to its individual customers, SDG&E must use equipment to "step down" the voltage one or more times. SDG&E does this through the use of transmission and distribution substations and local equipment such as transformers on or adjacent to distribution poles.

2.3 Substations

SDG&E operates and maintains the Glencliff Substation, a combined transmission and distribution substation, which is located in the CNF between Old Highway 80 and Interstate 8, east of Sunrise Highway. The Glencliff Substation consists of a fenced substation yard, banks of transmission and distribution transformers, and other overhead electrical appurtenances. Approximately 0.3 acre of the Glencliff Substation occurs within National Forest System lands owned and managed by the Cleveland National Forest.

2.4 Internal Communications Equipment

Non-commercial internal communications equipment, including fiber optics equipment, is necessary for SDG&E to monitor and operate its facilities in a safe and reliable manner. Examples include communications lines between substations and remote switching equipment (i.e., supervisory control and data acquisition [SCADA]). Communications equipment also consists of overhead optical ground wire or fiber optic cables that can provide the function of grounding, communications, or both. Internal communications equipment does not include infrastructure operated and maintained by third parties within SDG&E's ROW or infrastructure operated by SDG&E for commercial purposes.

2.5 Helicopter Pads

Helicopter pads or landing areas are necessary where traditional access is infeasible. Standard helicopter landing specifications include touchdown pad dimensions of approximately 20 by 20 feet and a hardened touch-down pad that is maintained to be free of vegetation and contain bare mineral soil. Additional space may be needed to ensure a safe landing zone. Federal Aviation Administration regulations will apply.

Elevated helicopter landing pad structures are also utilized, and maintained, up to and including replacement of the structures on an as-needed basis. Helicopter pads will be identified in the USFS transmission easement or distribution special use permit. Limited operating periods may be in effect to protect avian special-status species when flights are requested. Access to a transmission pole being serviced by a helicopter typically consists of a pre-designated two-foot-wide foot path originating from the helicopter landing area.

SDG&E maintains a Special Use Permit (CNF71100117) authorizing use of the Cameron Fire Station helicopter pad and the Monument Peak Landing Zone in support of O&M activities. Pre-approved uses include passenger pick-up and refueling. Additional uses require notification through the Class IIa or IIb process described in Chapter 3. SDG&E anticipates that these special uses of both the Cameron Fire Station helicopter pad and the Monument Peak Landing Zone will be amended into the MSUP in 2021 or 2022.

2.6 Access Routes

Safe and reliable access to facilities is required for operation and maintenance of the electric system and is a vital component of implementing this Plan. Access routes are required for detailed ground-based pedestrian inspections as well as unmanned aerial vehicle (UAV) or drone-based inspections of electric distribution and transmission poles and other equipment as required by federal and state regulations. Access routes are also critical for emergency response and wildland fire response near electric distribution and transmission lines.

To access all its electric facilities within the CNF, SDG&E utilizes existing public roads and highways, private roads, multi-purpose forest system roads, a network of utility-specific access roads, and access paths. This network includes a system of maintained access roads for transmission and some distribution circuits, as well as foot trails to access transmission and distribution poles and helicopter landing pads.

This utility access network is maintained in a GIS database. Management of the network includes inventory and mapping, field-based condition assessment, and applied maintenance work. SDG&E and the USFS will use annual and/or quarterly meetings, as needed, to discuss issues and opportunities associated with the utility access network including trouble spots, areas containing biological and heritage resources, seasonal use restrictions, and previous work.

2.6.1 Access Roads

Where needed, SDG&E maintains and uses roads that are not part of the USFS system roads but are permitted by the MSUP. These regularly maintained roads have exclusive motorized use by SDG&E to access its transmission and distribution infrastructure. Road widths can vary depending on the type of vehicles that need to access the structures. Standard road width is typically 10–12 feet and turning radii necessary to accommodate large maintenance equipment may exceed typical road widths by up to 6 feet. The components of an access road include locked barrier gates and pipe and rail barrier as needed, the access roadbed, spur roads leading to individual poles and maintenance pads, pipe or arch culverts at drainage crossings, as well as BMPs including water bars, drainage swales, rock-lined energy dissipators, McCarthy drains and/or gravel base. These roads will be maintained consistent with all applicable USDA USFS 2012 national core BMPs for facility and road management[5]. The Plan Road Maintenance Specifications (Attachment B-1) utilize the BMPs outlined within SDG&E's Erosion Control Plan (Appendix C). All applicable SDG&E BMPs for O&M activities on the CNF have been identified with their corresponding USFS Core BMP designation within the Erosion Control Plan. Together, the Road Maintenance Specifications and the Erosion Control Plan provide the framework for SDG&E Transmission Construction and Maintenance (TCM), district crews and/or contractors to maintain existing MSUP access roads.

SDG&E will work with USFS to determine where it should use gates, barriers, earthen berms, signage, plantings (including cacti), or other methods to restrict public motorized access to permitted roads and associated rights-of-way. Gates are kept always locked with both SDG&E and USFS-issued locks.

[5] United States Department of Agriculture Forest Service FS-990a. National Best Management Practices for Water Quality Management on National Forest System Lands. Volume 1: National Core BMP Technical Guide. April 2012.

2.6.2 Foot Trails

When road access is not available, SDG&E will use foot trails to access its facilities. The majority of electric distribution system facilities and helicopter pads within the CNF do not occur near existing access roads, so foot trails are the primary means of access for these facilities. Although not regularly maintained, the trails may require vegetation management prior to their use including physical weed control, and/or trimming and removal of brush to maintain a walkable path; standard widths for foot trails vary between two and six feet, depending upon local conditions. Where needed, the vegetation management activities required along a trail will be considered as part of the work activity's environmental screening process described in this Plan.

2.6.3 Overland Vehicular Travel

In some locations, overland vehicular travel and temporary vehicular access may be required when other safe access has not been previously established or does not exist. In these cases, the anticipated overland travel route will be described by SDG&E in its notification package, and potential impacts resulting from the access will be evaluated according to the environmental screening process described in this Plan. In areas where overland vehicle travel is regularly required but establishing or maintaining permanent access is infeasible or not permitted, SDG&E will evaluate and map these areas to identify any BMPs or RPMs needed to enable such access.

2.7 Underground Facilities

Underground facilities may include transmission infrastructure consisting of splice vaults and concrete-encased conduit duct banks with electrical conductors used to transport electricity with 69 kV voltages, as well as distribution infrastructure consisting of splice vaults and concrete-encased conduit duct banks with electrical conductors used to transport electricity with 12 kV voltages. Pull boxes, junction boxes, transformers, automation and detection devices, and other equipment may be installed below ground in a right-of-way or roadway and may often be connected to aboveground facilities with cables attached to a pole with a protective cover. Underground facilities are identified in the USFS MSUP as a transmission easement or distribution special use permit.

2.8 Weather Stations and Smart Grid Equipment

SDG&E installs and maintains meteorological weather stations, fire safety and early fire detection equipment, smart-grid system data collection equipment, or other technologies or facilities on the steel poles within existing ROWs, as needed, to collect additional information needed to further increase fire safety and service reliability as new technologies become available. Any appurtenant facilities located on the CNF will require USFS review and approval.

Chapter 3
Overview of Activity Classes and Review Process

O&M activities comprise the decisions and actions regarding the control and upkeep of property and equipment. These include but are not limited to (1) actions focused on scheduling, procedures, and work/systems control and optimization; and (2) performance of routine, preventive, predictive, scheduled and unscheduled actions aimed at preventing equipment failure or decline with the goal of maintaining or increasing efficiency, reliability, and safety. Inadequate maintenance of energy infrastructure can lead to threats of wildfire and risks to public safety.

O&M activities for transmission facilities are dictated by the inspection and maintenance requirements in the Transmission Owner Maintenance Practices Agreements between SDG&E and the CAISO. These agreements establish a priority ranking that further defines the type and frequency of inspections of poles, equipment, roads, trails, and vegetation. SDG&E considers the general age of the infrastructure, the number and types of customers on the circuit, the surrounding geography and environmental constraints, accessibility, and the impact of failures on the transmission network. Additional factors determining the frequency of inspection and maintenance activities include environmental conditions present in a particular geographic area (e.g., precipitation and vegetation growth), the level of vandalism of facilities (e.g., gunshot insulators or conductors), the severity of storms (e.g., snow, winds), other natural disasters (fires, floods, and earthquakes) and accidents, and normal aging of the facilities.

O&M activities for distribution facilities are specified by Public Resources Codes (PRC) 4292 and 4293; CPUC General Order (G.O.) 95, Rule 35; CPUC G.O. 128, and CPUC G.O. 165, among others. The timing of inspection and maintenance of distribution infrastructure generally considers the variables that are described above for transmission infrastructure, although there is no formal priority ranking as required in the CAISO agreement for transmission facilities.

SDG&Es O&M activities authorized under the MSUP are classified in this plan according to four unique classes. These activity classes are consistent with the Special Use definitions provided in 36 Code of Federal Regulations (CFR) 251.51 Definitions for Maintenance, as shown below:

1. *Emergency Maintenance* – immediate repair or replacement of any component of a powerline facility that is necessary to prevent imminent loss, or to redress the loss, of electric service due to equipment failure in accordance with applicable reliability and safety standards and as identified in an approved operating plan or agreement. SDG&E's Class IV O&M activities described in Section 3.4 below are consistent with the emergency maintenance definition.

2. *Non-Routine Maintenance* – realigning, upgrading, rebuilding, or replacing of an entire powerline facility or any segment thereof, including reconductoring, as identified in an approved operating plan or agreement. SDG&E's Class III O&M activities as described in Section 3.3 and Table 3.3 below are consistent with the non-routine maintenance definition.

3. *Routine Maintenance* – repair or replacement of any component of a powerline facility due to ordinary wear and tear, such as repair of broken strands of conductors and overhead ground wire; replacement of hardware (e.g., insulator assembly) and accessories; maintenance of counterpoise, vibration dampers, and grading rings; scheduled replacement of decayed and deteriorated wood poles; and aerial or ground patrols to perform observations, conduct inspections, correct problems, and document conditions to provide for operation in accordance with applicable reliability and safety standards and as identified in an approved operating plan or agreement. SDG&Es Class I and Class IIa, IIb and IIc O&M activities, outlined in Sections 3.1 and 3.2 and tables 3.1 and 3.2 are consistent with the routine maintenance definition.

3.1 Class I Activities – Routine Patrols, Inspections, and de Minimis Activities

3.1.1 Activity Description

Class I activities are routine O&M activities with minimal to no ground disturbance and environmental impact. These activities are considered *de minimis* – lacking significance - and are minor. Typically, they occur in routinely utilized areas of the permitted easement to inspect and maintain existing infrastructure. SDG&E includes description and discussion of all Class I activities with the CNF at biannual O&M meetings. Table 1 provides a summary of Class I O&M activities.

Table 1. Class I O&M Activities

Class I Activity
Routine Patrols
• Helicopter and UAV Aerial Patrols[1]
• Ground Patrols[2]
Routine Inspections
• Poles, Foundations, and Mounted Equipment
• Overhead Conductors, Cables, and Wires
• Underground Vaults, Conductor Banks, and Equipment
• Substations
• Access Roads, BMPs, Culverts, Barriers, and Gates
• Helicopter Pads
• Internal Communications, Weather Stations, and Smart Grid Equipment
• Vegetation within and adjacent to ROWs and Easements
Other Routine de Minimis Activities
• Land Surveys
• Outage Repairs
• Minor Pole Clearing[3] and Limbing/Pruning[4]
• Minor Road Maintenance[5]
• Anchor and Guy Wire Replacements[6]
• Intrusive Wood Pole Inspections[7]
• Substation Maintenance

[1] Helicopter patrols or repairs where SDG&E where SDG&E plans to fly below 200 feet in elevation in the vicinity of federally listed bird species must be submitted as a Class IIa or Class IIb action, and a flight plan must be submitted to the USFS local dispatch office. If a resource protection process can be established where threatened and endangered birds are mapped, and flight decks and limited operating periods are established consistent with the RPMs, SDG&E will submit as a Class I activity. Drone use is a Class I activity and SDG&E will notify the Federal Aviation Administration (FAA) regarding flight plans when required.

[2] Ground patrols must take place on system roads identified in the MSUP or other access routes agreed to by the USFS. Activities involving overland travel must be submitted to the USFS for review as a Class II activity. Overland travel does not include foot travel.

[3] Class I pole clearing applies only to poles that are currently cleared and require light weeding, or poles that were the cleared the previous year. Poles that have not been previously cleared, or that require heavy clearing or brushing will be screened for resources and submitted to the USFS as a Class II activity.
[4] Whole tree removal is not authorized as a Class I activity; large volumes of limbing and pruning will require a fuel load assessment and determination of proper disposal by the USFS. SDG&E will submit maps and schedules of pruning work prior to the biannual meetings. If the work activity does not align with the meetings, SDG&E will directly notify the USFS point of contact of such activity.
[5] Minor Road maintenance does not require motorized equipment to complete. This may include any hand-tool maintenance of the road prism, culverts and drains, existing BMPs, gates and barriers, signs or other access road features.
[6] When anchors are replaced in the same position, they will be processed as a Class I activity.
[7] Only intrusive inspections occurring within previously undisturbed soils would be processed as a Class IIa activity.

3.1.2 Review Process

Class I activities will be jointly reviewed by SDG&E and the USFS at each biannual meeting, or more frequently, if needed. The bi-annual meetings will provide the USFS with an opportunity to discuss any areas of concern, including newly identified areas where resource protection is required. During the biannual meetings, both parties will share (1) any new and relevant information to ensure that SDG&E is operating with the best available data and (2) any new RPMs or methods to better protect resources.

Class I activities are performed by implementing applicable BMPs and RPMs, and typically no further action is needed from the USFS. The USFS may monitor activities, and SDG&E will provide an overview of the proposed work to be completed in the upcoming year. Quarterly conference calls may be initiated at the discretion of USFS and/or SDG&E to discuss upcoming work.

USFS and SDG&E are committed to participating in bi-annual meetings and will make appropriate staff available to attend in person or call in via conference call. As part of the bi-annual meetings, USFS and SDG&E will discuss the effectiveness of these meetings to ensure that they are informative and useful. biannual meetings will be scheduled by the first quarter of each year.

3.2 Class II Activities – Routine Operations and Maintenance Activities

3.2.1 Activity Description

Class II activities consist of routine O&M activities that may require the implementation of standard BMPs and/or RPMs to ensure that potential impacts to environmental resources – biological, heritage, and water quality/wetland resources - are avoided or minimized. These activities may also include pre-activity, activity, and post-activity support (e.g., monitoring and analysis) to ensure impacts are avoided or minimized. SDG&E will notify the USFS of Class II activities with a notification or a complete work package that includes a description of the activity, the location, a PSR or other similar document, appropriate Heritage Resources documentation and the BMPs and resource-specific RPMs to be implemented to avoid impacts to resources (these may also be specified within the GEARS/eTS activity release package). Resource documentation and data will be provided to the appropriate resource specialists.

Class IIa Activities. As SDG&E completes its environmental screening process, Class IIa activities are those that will be conducted in areas with no environmental resources present; SDG&E will notify the USFS with a notification package and may proceed 5 business days after the CNF has been notified. SDG&E will implement applicable standard BMPs during these routine Class IIa O&M activities.

Class IIb Activities. If a potential resource area is identified during the environmental screening process in a proposed routine O&M activity area (i.e., representing a Class IIb activity), SDG&E will select the appropriate BMPs and RPMs to ensure that any impacts will be avoided or minimized. If SDG&E determines that implementing BMPs and RPMs will address impact concerns, a notification package will be submitted to the USFS that it intends to proceed with the work. The Class IIb activity may proceed 10 business days after SDG&E has notified the USFS that the work has undergone an environmental clearance process and will be conducted with implementation of relevant RPMs and BMPs. All resource measures identified in the internal clearance process will be followed. A copy of the clearance will be reviewed and implemented by the work crew, and a copy will be always maintained onsite and be made available to USFS representatives if requested.

Class IIc Activities. If there is a determination during the environmental screening process that the work cannot be performed with established RPMs and BMPs, or if the work occurs within a NRHP TCP, SDG&E will consider this Class IIc work and will submit a work approval request to the USFS that specifies how additional site-specific BMPs and RPMs will be used to avoid and minimize potential impacts to environmental resources. USFS will respond within 15 business days as to whether it concurs that the proposed site-specific RPMs and BMPs will avoid the potential impact. If USFS does not concur, it will provide SDG&E with (1) direction on what additional documentation and measures are needed to conduct the work; and (2) a timeline on when a work authorization will be issued. See Section 5.1.5, *Dispute Resolution*, for a more detailed discussion of this eventuality. Dispute Resolution, in this case, is not referring to dispute resolution contained with the R5 PA, Stipulation 12.0. Dispute resolution for heritage resources follows a similar but slightly different process, as outlined in Appendix E.

Table 2 provides a summary of Class II O&M activities.

Table 2. Class II O&M Activities

Class II Activity [1, 2]
Routine Equipment Maintenance
• Pole and Conductor Replacements [3]
• Reconductoring/Underground Work
• Internal Communications, Weather Station, and Smart Grid Equipment Maintenance
• Installation/Replacement of Aircraft Warning Lights and Spheres
• Installation/Replacement of Avian Protection Measures
• Shoo-Fly/Interset Pole Installations
Routine Access Maintenance
• Road Maintenance (includes Grading and BMP Installations)
• Culvert/Crossing Repair and Maintenance
• Installation/Replacement of Gates, Barriers and Signage
Routine Vegetation Maintenance
• Hazard Tree Trimming and Removal
• Pole Brushing (includes Slash Treatment and Fuels Management)
• Corridor and Access Vegetation Maintenance (includes Foot Trails and Helicopter Pads)
• Pesticide and Herbicide Application [4]
• Fuels Management for Wildfire Mitigation[5]

[1] O&M activities involving overland travel or requiring helicopter support will be submitted to the USFS as a Class II activity.
[2]Any Class II activity occurring within a NHRP-registered TCP will be submitted as Class IIc activity to the USFS.
[3] To the extent possible, routine pole replacements (non-emergency) will be bundled and submitted to the USFS quarterly, understanding that SDG&E must comply with state and federal regulations that may prevent bundling (refer to Appendix A).
[4] Only pesticides and herbicides approved by the USFS will be utilized by SDG&E, and their use limited to approved areas. [6]
[5] Only wildfire fuel modification treatments that occur entirely within the MSUP permitted boundary and that can be implemented with BMPs, and RPMs will be submitted to the USFS as a Class II activity.

3.2.2 Review Process

All Class II activities undergo an internal GIS environmental screening, review and release process utilizing SDG&E's proprietary Geographic Environmental Analysis & Reporting System (GEARS) and the associated environmental project Tracking System (eTS). This screening process helps ensure SDG&E's compliance with state and federal legal requirements and the protection and avoidance of impacts on biological, heritage, and water quality/wetland resources. SDG&E also uses field-based reviews combined with the GEARS/eTS screening process to ensure that O&M activities are being implemented in ways that avoid impacts to special-status species, sensitive habitats, and heritage resources – in addition to minimizing the physical footprint of the activity. In addition, BMPs and resource-specific

[6] USDA Forest Service. July 2014. Environmental Assessment – Invasive Weed Management on the Cleveland National Forest. San Diego, Orange and Riverside Counties, California.

RPMs have been developed by SDG&E in collaboration with USFS subject matters experts (SMEs), and resource agencies for the MSUP, PLRP, the SDG&E Subregional Plan, and Quino HCP to ensure that measures are appropriate for protecting resources when performing these maintenance activities. For the Class II activities defined in this Plan, the environmental screening process may involve pre-activity, activity, and post-activity support, depending on the safety risk levels and timing of mobilization to conduct inspections, maintenance, replacements, and repairs. Three subclasses of activities are included in this screening process: Class IIa, Class IIb, and Class IIc.

As used in this plan, *special-status species* include federally listed species, candidates, or species proposed for federal listing; State-listed and state fully protected species; plants with a California rare plant rank from the California Native Plant Society (CNPS); and the Regional Foresters' list of USFS species of conservation concern (SCC). For the Class II activities defined in this Plan, the environmental screening process may include pre-activity survey reports (PSRs) or other similar documents consistent with SDG&E's Subregional Plan, or other focused surveys, review and analysis in GEARS/eTS, biological, heritage and aquatic resource monitoring during activities, and post-activity surveys and impact assessments, depending upon the timing of mobilization to conduct Class II infrastructure inspections, maintenance, replacement and repairs.

Some Class II activities have the potential for a moderate impact on resources where the environmental screening process identifies that special status species are in or near the work area. These impacts can be avoided or minimized by implementing resource-specific RPMs. These are considered Class IIb activities. This Plan incorporates resource-specific RPMs developed and approved by SDG&E, USFS and resource agencies. In addition, the Plan incorporates resource-specific RPMs developed in coordination with Region 5 and USFS subject matter experts (SMEs) to ensure that measures are appropriate for protecting resources when performing Class IIb maintenance activities. For all Class IIb activities with resources identified through environmental screening, the Utility will provide a notification package to USFS that includes a description of the activity, its location, and the resource-specific RPMs to be implemented for the work. As part of USFS's monitoring and consistency review plan, a percentage of these work packets will be reviewed as determined by USFS to provide sufficient permit compliance oversight. In addition, any individual work packet may be reviewed by USFS to determine whether additional resource protection requirements consistent with the approved resource-specific RPMs are necessary based on newly available resource data.

Class II activities that cannot be performed with established RPMs or occur within a designated TCP are considered Class IIc activities. SDG&E must consult with USFS and receive its approval prior to performing the work. For all Class IIc activities, SDG&E will submit a work authorization package that includes a description of the activity, its location, and the resource impacts that cannot be avoided or minimized using approved resource-specific RPMs. USFS will determine the need for consultation with resource agencies, SHPO and/or federally recognized tribes and will provide additional resource protection requirements for that activity.

The approach to all Class II activities ensures that the appropriate level of resource protection is in place and that USFS is maintaining the appropriate level of permit compliance oversight based on the potential for impacts on resources. This approach will reduce the burden on USFS of reviewing and approving hundreds of maintenance requests each year where approved resource-specific RPMs can be applied by SDG&E and permit compliance can be managed by USFS through the work notification process.

3.2.3 Notification Package

Class IIa, IIb and IIc notification packages will include the following:

- Project description and list of activities.
- Location, area (if applicable) with GIS coordinates (submitted electronically with the notification) and/or maps.
- Type of work, denoting all areas of ground disturbance to include, but not limited to workspace, temporary staging/assembly areas, landing zones, and/or turnaround locations.
- Anticipated schedule and/or work start/end date(s).
- Accessibility (to include access roads, navigation roads and footpaths to be traveled).
- Contact information for the lead SDG&E employee or contractor conducting the work (if available).
- Equipment to be used.
- Anticipated area of ground disturbance.
- Number, location, size, and species of trees to be cut or area polygon describing the brush unit count and key species, as applicable.
- Applicable resource information provided in the form of maps and associated GIS data from desktop review or surveys, or on-the-ground inspections.
- Confidential cultural resource reports and data meeting professional standards identified in the R5 PA and *Cleveland National Forest Recording and Reporting Standards for Archaeological Investigation* submitted to the HPM, when determined necessary by the CNF HPM.
- BMPs and RPMs to be followed (to include biological and heritage measures).
- USFS and SDG&E points of contact.

3.3 Class III Activities – Non-Routine Maintenance

3.3.1 Description

Activities that do not fit the scope and scale of Class I and Class II and are not emergencies are considered Class III. In many cases, these activities are considered non-routine maintenance because they are broader in scope and/or duration than routine O&M activities, are undertaken intermittently, and may be proposed in areas supporting resources outside of the permitted area. These activities typically require more extensive environmental analysis and review prior to initiating work.

All Class III activities require SDG&E to submit a work package and receive approval from the USFS in the form of an authorization prior to initiating work. SDG&E will provide the USFS with a complete project description; a list of proposed activities; the location including maps and GIS data; a description of the equipment to be used; desired access, including the use of Forest roads; timelines; results of the initial screening for resources; and site-specific BMPs and RPMs proposed for the O&M activity.

Table 3 provides a summary of Class III O&M activities.

Table 3. Class III O&M Activities

Class III Activity
Electric Transmission and Distribution System
• Large Reconductoring Projects
• Wood to Steel Pole Conversions
• New Pole Construction/Alignment Changes
• New Underground Projects/Underground Conversions
• Wood Pole Removals/Circuit Removals from Service
• Energy Storage and Microgrid Projects
Infrastructure Access
• Major Road Construction/Reconstruction
• Helicopter Access Pad Construction/Reconstruction
• Specialized Right-of-Way Vegetation Management
• Access Road Decommissioning
Wildfire and Operational Risk Mitigation
• Fuels Management for Wildfire Mitigation Inside/Outside Permitted Right-of-Way
• Wood Removal

Note: Class III activities may include other activities and are not limited to the descriptors in the table above. Any project proposal that is within the scope and scale of O&M activities may be proposed by SDG&E for review by the USFS under this Plan.

3.3.2 Review Process

SDG&E must screen and analyze all Class III project proposals for potential impacts on resources. The USFS will determine whether a new authorization is required and the possible need for consultation with other agencies. The USFS also may provide additional RPMs for the proposed activity. Within 30 business days of receiving SDG&E's proposal, the USFS will (1) approve the proposal as submitted; (2) approve the proposal with additional RPMs; or (3) provide guidance as to the process to be followed and a schedule for when the activity can be reviewed, analyzed, and approved.

NOTE: New activities that require USFS authorization (e.g., new permits) are not included in this Plan; these project proposals will be submitted separately and require National Environmental Policy Act (NEPA) analysis.

Section 5.1.5, *Dispute Resolution*, provides a detailed discussion of circumstances under which SDG&E and the CNF cannot agree on measures and timeline.

3.3.3 Notification Package

All Class III activities require SDG&E to submit a work authorization package and receive approval from the USFS prior to initiating work. Information provided in the authorization request will include the following:

- Project description and list of activities.

- Location area (if applicable) with GIS coordinates (submitted electronically with the notification) and/or maps.
- Type of work, denoting all areas of ground disturbance to include, but not limited to workspace, temporary staging/assembly areas, landing zones, and/or turnaround locations.
- Anticipated schedule and/or work start/end date(s).
- Accessibility (to include access roads, navigation roads and footpaths to be traveled).
- Contact information for the lead SDG&E employee or contractor conducting the work (if available).
- Equipment to be used.
- Anticipated area of ground disturbance.
- Number, location, size, and species of trees to be cut or area polygon describing the brush unit count and key species, as applicable.
- Applicable resource information provided in the form of maps and associated GIS data from desktop review or surveys, or on-the-ground inspections.
- Confidential cultural resource reports and data meeting professional standards identified in the R5 PA and *Cleveland National Forest Recording and Reporting Standards for Archaeological Investigation* submitted to the HPM.
- BMPs and RPMs to be followed (to include biological and heritage measures).
- USFS and SDG&E points of contact.

As applicable, SDG&E will submit other information as part of the Class III work package. Examples of additional information include the following:

- Description of all USFS and MSUP roads to be used and their current condition.
- Full description of any needed temporary access roads or trails, including a complete map and assessment of any overland travel to be completed.
- A draft restoration plan for the general project area, including restoration of roadbeds and temporary access points, re-establishment of native plants, post-project erosion control methods, and weed risk assessment.
- A draft monitoring plan, for the effectiveness of erosion control, noxious and invasive weed control, and success rates of native vegetation (if needed).

3.4 Class IV Activities – Emergency Response

3.4.1 Description

Emergency work is required to resolve a situation that, if not corrected, could compromise SDG&E's transmission or distribution facilities, electric system reliability, or USFS resources on the CNF. These conditions represent immediate threats to public safety, electric reliability, or property. Emergency

response can involve activities that require crews to respond immediately to address an imminent threat, as well as activities to address emergency situations that result in damage to SDG&E's infrastructure or equipment. An emergency also is considered in instances where a system failure or breakdown has occurred as a result of multiple poles or conductors not functioning correctly.

Examples of emergency repairs include replacing downed poles, reconductoring segments of circuits, pulling new conductor, removing vegetation or felling trees that pose an imminent threat to the facilities. Emergency response may include helicopter flights below 200 feet in elevation of the tree line, overland travel on non-permitted lands, and access for emergency equipment used to address hazards and restore power.

Emergency work, if occurring outside the permitted ROW and easement areas, and if a continuing occupancy, may result in a need for a separate USFS authorization or an amendment to the MSUP.

3.4.2 Review Process

Class IV activities are those actions that SDG&E must conduct immediately in response to an imminent threat or emergency. SDG&E will notify the USFS as soon as possible (typically within 48 hours). SDG&E will provide post-activity reporting, impact assessment and other information to the USFS as required within 15 business days of completing work associated with a situation posing an imminent threat (e.g., pole posing immediate threat of falling) and within 30 business days of completing work associated with activities resulting from an emergency (e.g., wildfire response).

3.4.3 Notification Process

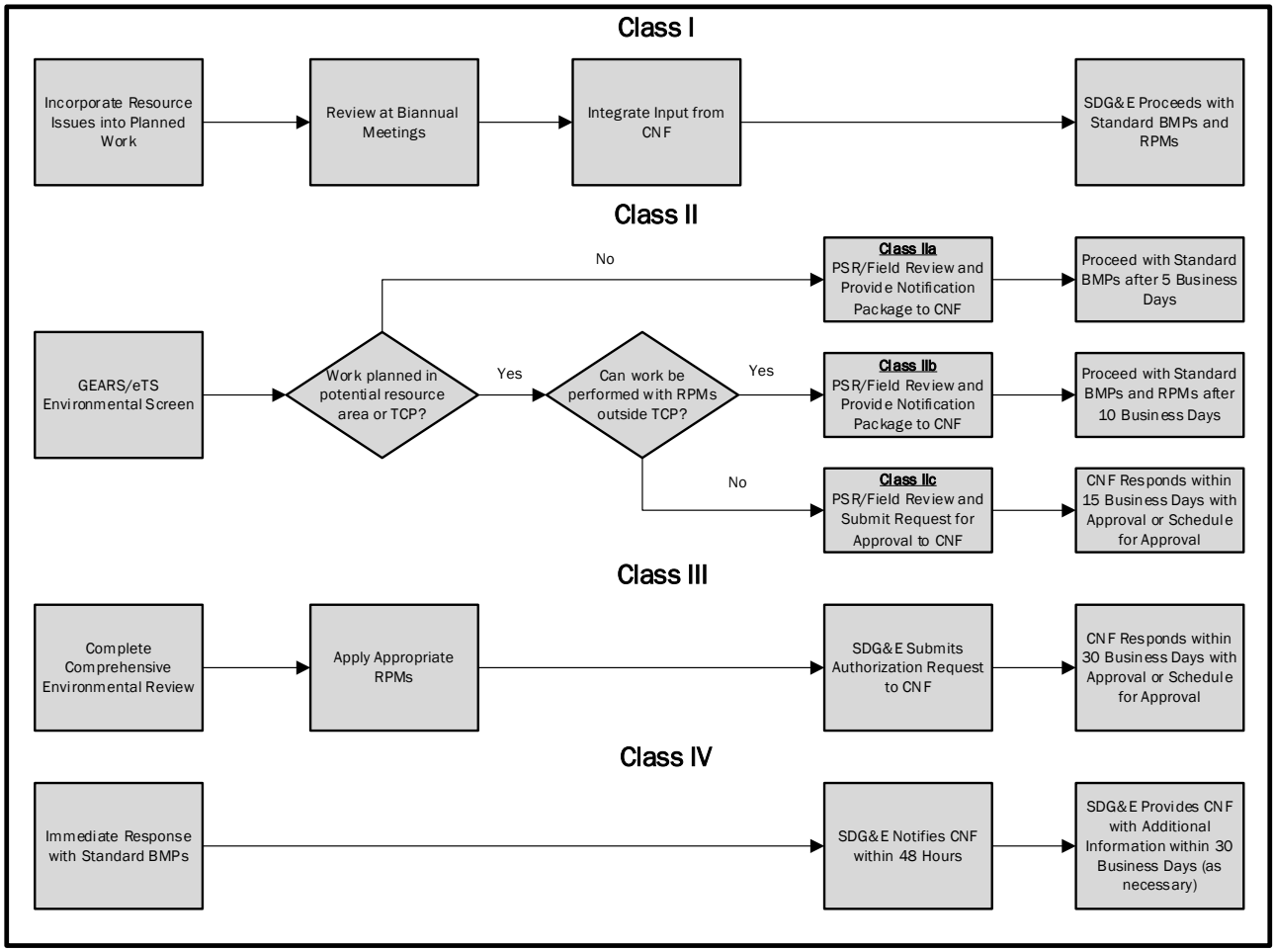
Class IV emergency work will start immediately to correct unsafe conditions and return the transmission or distribution facilities to service or de-energize them when necessary. SDG&E will notify the USFS as soon as reasonable (typically within 48 hours, or within 24-hours of completion of any Class IV activities) of an identified need for or commencement of any emergency repairs. The notice will include, if known, a brief description of the work, location of the facilities, scope of work, equipment used, access used, cause for the emergency, and BMPs and/or RPMs applied. In addition, SDG&E will conduct the necessary assessments of impacts and provide post-activity reporting and other information to the USFS as required within 30 business days from completing the emergency activities. For immediate repair work SDG&E will provide a report to the USFS within 15 business days. The USFS and SDG&E will mutually inspect and agree on any restoration work required to repair emergency work areas on a case-by-case basis. While most activities can be scheduled in advance, emergency repairs may be needed at any time.

Chapter 4
Environmental Protection Process

The following sections outline and describe SDG&E's environmental review process for all resources within the CNF, as well as the decision process and notification requirements for the four different classes of work activities under this Plan. Each class reflects distinct activities, review levels and authorization requirements.

O&M activities will be carried out according to the environmental protection processes described below. In accordance with the requirements of this Plan, SDG&E will implement BMPs for all work activities and RPMs as prescribed by SDG&E and the USFS, following the environmental protection process outlined in *Figure 1* below.

Figure 1. Overview of SDG&E O&M Activity Environmental Protection Process



4.1 Best Management Practices

BMPs are standard practices SDG&E implements while carrying out O&M activities. These are practices or combinations of practices that have been determined to be effective and practicable means of preventing or reducing the negative impacts of an activity on the environment. These measures are outlined in the MSUP Erosion Control Plan (Appendix C) and are predominantly adopted from the *California Stormwater Quality Association Stormwater Best Management Practice Handbook Portal*[7] and the *National Best Management Practices for Water Quality Management on National Forest System Lands*[8] . Any and all applicable BMPs will be utilized by SDG&E during its O&M activities within the CNF. If the USFS finds that additional BMPs must be added to ensure full environmental compliance, or existing BMPs must be modified or enhanced, then SDG&E will include those measures. BMPs specific to preventing the spread of invasive plants that SDG&E has adopted for the MSUP are provided in Attachment C-1.

4.2 Resource Protection Measures

RPMs are specific measures that SDG&E uses to avoid and minimize impacts on special-status species, sensitive habitats, and heritage resources throughout the CNF. The biological RPMs for the Plan are derived from operational protocols in SDG&E's HCPs, the Biological Opinion for the CNF MSUP, and MSUP-specific operational plans required by the final USFS ROD as summarized below:

- Operational protocols included in SDG&E's Subregional Plan[9], which are enforceable conditions of the MSUP consistent with the final USFS ROD and will be extended to include all species on the Regional Forester's SCC list for the CNF (see Appendix D). SDG&E will follow the most current consultation with USFWS during implementation of the MSUP and this Plan. The Regional Foresters SCC List is included as Attachment D-2.
- Conservation measures included in the SDG&E Low Effect Habitat Conservation Plan (HCP) for Quino checkerspot butterfly (see Appendix D).
- General conservation measures and conservation measures specified in the Biological Opinion (BO) issued for the SDG&E MSUP/PLRP for Laguna Mountains skipper, southwestern willow flycatcher, least Bell's vireo, and arroyo toad (see Attachment D-1).
- Avian protection plan operational practices, activities and measures outlined in the approved Avian Protection for the Cleveland National Forest PLRP/MSUP (see Appendix G).
- Amendments to the MSUP for Bald and Golden Eagle nest protection (see Appendix G).

SDG&E will comply with all plans that cover biological resources within the service territory. In 2022 and 2023, SDG&E is anticipating an HCP amendment, an Eagle Conservation Plan, and an NCCP amendment to be fully authorized. Those plans and all applicable RPMs will be incorporated into this Plan via amendment in coordination with USFS.

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[7] California Stormwater Quality Association Stormwater Best Management Practice Handbook Portal: Construction, November 2009. Available at www.casqa.org.

[8] U.S. Department of Agriculture Forest Service. 2012. *National Best Management Practices for Water Quality Management on National Forest System Lands.* FS-990a. April. Volume 1: National Core BMP Technical Guide.

[9] Includes all applicable Subregional Plan species-specific avoidance and minimization protocols from the current plan documents.

In addition to the biological RPMs specified in the plans above, the following plans each contain RPMs that SDG&E will implement to protect biological, aquatic, hydrologic, soil and heritage resources within the CNF:

- Erosion protection operational practices, and avoidance and minimization measures presented in the approved SDG&E Erosion Control Plan for the MSUP (see Appendix C).
- Heritage resource protection operational practices, and avoidance and minimization measures specified in the Heritage Resources Management Plan for the MSUP (see Appendix E).
- Fire prevention operational practices, and avoidance and minimization measures presented in the approved SDG&E Operations and Maintenance Fire Prevention Plan for the MSUP (see Appendix F).

4.2.1 Biological Resources and Jurisdictional Wetlands & Waters

Prior to initiating Class I, Class IIa, b and c, and Class III activities within the CNF, SDG&E completes an extensive desktop review to determine whether the activities would occur in an area(s) known to have special-status species, designated critical habitat, known non-native or invasive weed populations, or jurisdictional wetlands, waters and/or riparian habitats that are or would be designated as USFS Riparian Conservation Areas (RCAs).

The first step of the SDG&E environmental screening process compares O&M work location(s) with the historic and current resource GIS layers within the GEARS database. The resource layers reviewed include special-status plant and wildlife species, state and federal jurisdictional wetlands, waters and riparian areas, underlying land ownership, prior survey areas associated with O&M or project activities, and aerial imagery, as well as drone-based elevation, topographic, and low-elevation photographic information (if available). The second step of SDG&E's environmental screening process includes completing a pre-activity survey of the proposed work areas, consistent with the SDG&E NCCP, to verify the desktop review and collect additional real-time information about the presence or absence of biological resources and/or jurisdictional wetlands, waters and riparian habitat areas. Based on the results of these two screening steps, the work packet is then reviewed by one or more of SDG&E's SMEs including land planners, biologists, cultural resource specialists, aquatic resources specialists, air and water quality specialists, hazardous materials specialists and/or project managers. Specific applicable operations protocols, BMPs and/or additional RPMs are developed by the review team and proposed in the notification to the CNF.

The following are examples of datasets that may be included in the biological and wetlands/waterways screening:

- USFS Classification and Assessment with Landsat of Visible Ecological Groupings (CALVEG) land-cover data
- USFS Natural Resource Information System (NRIS) data
- U.S. Geological Survey National Hydrographic Dataset (e.g., waterways, water features)
- U.S. Geological Survey Biodiversity Information Serving our Nation (BISON)
- California Department of Fish and Wildlife California Natural Diversity Database (CNDDB)
- California Protected Areas Database
- California Invasive Plant Council Weed Mapper
- USFWS and National Marine Fisheries Service (NMFS) critical habitat

- GIS datasets of general and protocol surveys and occurrences of special-status species conducted by SDG&E and/or its contractors (historical and current)

SDG&E will use the best available data to prescreen its work activities and will share data updates with the USFS. Similarly, the USFS will share data updates with SDG&E. The data sources will be updated annually, as necessary, and modified to ensure that the necessary constraints are properly considered.

4.2.2 Heritage Resources

Prior to initiating Class I activities, SDG&E will review RPMs with the USFS at Heritage quarterly meetings and USFS annual meetings and discuss the application of approved standard protection measures in accordance with the SDG&E PA or R5 PA, as appropriate (refer to Appendix E). Prior to initiating Class II and Class III activities, SDG&E will conduct a Heritage Resources Screening Process (HRSP) to determine whether the activities have the potential to affect known heritage resources. The first step of the HRSP is to determine whether adequate survey coverage exists for the O&M activity's Area of Potential Effect (APE). Heritage resources data are used for this screening and may include the following.

- Heritage resource files and GIS data at the CNF
- SDG&E's cultural resource GIS data and historic project files in GEARS/eTS
- California Historical Resources Information System (CHRIS) files

A qualified staff or consultant archaeologist who meets the Secretary of Interior Standards (36 Code of Federal Regulations Part 61) will perform the HRSP, which has four potential results. Note that for 2, through 4 below tribal consultation may be required, especially if resources occur within a TCP.

1. Adequate survey with no known heritage resources in the APE. *Result:* no further work is required. Report citation is included in the notification package.
2. Adequate survey with avoidable impacts on heritage resources in the APE. *Result:* Report citation and approved standard protection measures are submitted in the notification package for the USFS Heritage Program Manager or designee validation/comment.
3. Adequate survey with unavoidable impacts to heritage resources in the APE. *Result:* Consult with the USFS Heritage Program Manager or designee.
4. New heritage resources survey is required. *Result:* No heritage resources (follow #1); avoidable impacts on heritage resources (follow #2); unavoidable impacts on heritage resources (consult with the USFS Heritage Program Manager or designee).

Heritage Program Managers or their designees will validate/comment on HRSP results that include heritage resources within or adjacent to the APE. All heritage resource management actions will be compliant with the SDG&E PA or R5 PA[10] as appropriate. Reporting standards are detailed in the *Cleveland National Forest Recording and Reporting Standards for Archaeological Investigation* 2020. HRSP results will be provided to the USFS per the conditions of the appropriate Permit for

[10]U.S. Department of Agriculture Forest Service. 2018. Amendment #1 To *Programmatic Agreement Among the U.S.D.A. Forest Service, Pacific Southwest Region (Region 5), California State Historic Preservation Officer, Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Process for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forests of the Pacific Southwest Region.* Vallejo, CA.

Archaeological Investigations/ARPA permit, and submitted in an annual report, which will include new heritage resources and surveys, associated GIS, and any impact minimization and mitigation efforts.

Appendix E is the Heritage Resources Management Plan, which includes additional information on the HRSP and the reference to the R5 PA. The SDG&E PA and the R5 PA provide guidance for SDG&E compliance with Section 106 of the NHPA (as amended) for O&M activities. Should either the SDG&E PA or the R5 PA be amended, the amended version will apply to this Plan. Note that SDG&E, CNF, SHPO, ACHP, and other consulting parties may elect to negotiate a different PA to govern the MSUP O&M activities, particularly to address consulting processes whenever a TCP is involved. Any Plan-specific PA will be incorporated by revision and amendment of this Plan.

4.3 Class III Activities

Activities that cannot be characterized as routine and ongoing, and do not fit the scope and scale of Class I and Class II activities are considered Class III. These activities typically will require more extensive environmental analysis, review, and reporting prior to initiating work activities. In many cases, these activities are considered non-routine maintenance because they are larger, of longer duration, use more equipment, and may require temporary access to other areas of the CNF beyond currently authorized areas. SDG&E will provide the USFS with a complete project description, which will include the need for the action; proposed activities; mapping and shape files; a description of the equipment to be used, access, timelines, and initial screening for resources; and the proposed BMPs and RPMs, as well as appropriate heritage resources reporting and GIS to professional standards for the USFS Heritage Program Manager review. Within 30 business days, the USFS will authorize the activity or provide SDG&E with a list of additional information needed to process and approve the request, as well as a timeline in which the USFS will review and approve the proposed work activity. As previously mentioned, Section 5.1.5 *Dispute Resolution*, provides a detailed discussion of circumstances under which SDG&E and the USFS cannot agree on measures and a timeline.

4.4 Class IV Activities

Class IV activities are those actions that SDG&E must conduct immediately in response to outages, such as storm response and imminent threats of wildfire or risks to public safety. SDG&E will notify the USFS of its activity as soon as possible (typically within 48 hours) and will provide emergency incident post-reporting and other information to the USFS as required within 15 business days of completing work associated with a situation posing an imminent threat (i.e., pole posing immediate threat of falling) and within 30 business days of completing work associated with activities resulting from an emergency (i.e., wildfire response).

Chapter 5
Communication and Monitoring

This chapter summarizes the communication practices and monitoring commitments to ensure the effective long-term implementation of this Plan.

5.1 Communication Practices

Primary communications for O&M activities will occur between the USFS and SDG&E via designated points of contact, which are discussed in some detail below under *Roles and Responsibilities*. These designated points of contact will be responsible for planning and administering meetings, distributing communications, notifications and submittals, and sharing other related information regarding the activities defined in this Plan to their respective teams for review, comment, and authorization.

SDG&E will designate an Environmental Programs Manager, O&M Program Manager and O&M Program Specialist to work directly with the USFS Permit Coordinator and team, to discuss all Class I activities at biannual meetings, submit all Class II and III work notifications for USFS review and approval and provide emergency notifications for Class IV activities, as well as post-emergency reporting.

SDG&E's SMEs will provide additional supporting information and materials to their direct counterparts on the USFS team whenever needed, to help ensure USFS has all the information necessary to facilitate timely approval of routine and non-routine O&M activities per this Plan. Heritage resources SMEs will also work with the USFS heritage program manager and SMEs to ensure confidentiality of all records are properly preserved. All feedback from the USFS and SDG&E SMEs should also be relayed to their respective points of contact, who will be responsible for discussing the information with the point of contact at the other organization.

5.1.1 Roles and Responsibilities

The major roles and responsibilities of the USFS and SDG&E teams supporting this plan are outlined below. USFS team responsibilities include:

- Uphold the MSUP and its associated requirements for notification, review and documentation, and authorization of Plan activities.
- Annually provide SDG&E updated information related to environmental and other USFS resources located along SDG&E's rights-of-way, the hazard tree removal buffer, and authorized access roads.
- Respond to SDG&E notifications promptly when activities may require additional coordination to ensure environmental and other USFS resources, assets, or public use concerns are addressed.
- Work cooperatively in good faith with SDG&E to fulfill the obligations of this Plan and the MSUP to fulfill the operations and maintenance objectives.

SDG&E team responsibilities include:

- Adhere to all conditions of the MSUP and its associated requirements for notification, reporting and documentation of Plan activities.

- Annually provide USFS updated information related to environmental and other resources located along SDG&E's rights-of-way, the hazard tree removal buffer, and authorized access roads and foot trails.
- Manage the MSUP O&M program on the CNF to be fully compliant with all applicable federal, state and local laws and regulations.
- Respond to USFS notifications promptly and ensure that ensure that environmental and other USFS resources, assets, or public use concerns are addressed.
- Work cooperatively in good faith with USFS to fulfill the obligations of this Plan, the MSUP, the USFS CNF Land Management Plan goals, strategies and objectives and SDG&E's operations and maintenance objectives for MSUP facilities.

Table 4 below summarizes the primary decision makers and points of contacts for the USFS and SDG&E teams administering this Plan.

Table 4. USFS and SDG&E Personnel Roles and Responsibilities

Role	O&M Plan Responsibility
USFS	
Forest Supervisor	Primary Decision Maker
USFS Permit Coordinator / Operating Plan Liaison	**Primary Point of Contact** for general permit and operating plan clarifications, and for submittal and receipt of operating plan communications and notifications
Resource Specialists / Supporting Personnel	Primary points of contact for resource specific direction
District Rangers	Primary point of contact for emergencies
Forest Safety and Occupational Health Manager	Required second point of contact for spills and hazardous materials controls
SDG&E	
Environmental Services Director	Primary Decision Maker
O&M Program Manager	**Primary Point of Contact** for permit and operating plan administration; secondary contact for emergencies
O&M Project Specialist	Primary point of contact for all SDG&E O&M activity notifications and project submittals
Subject Matter Experts (SMEs) / Project Managers	Primary points of contact for resource specific questions or project specific information
Environmental Programs Manager	Primary point of contact for emergencies, including spills and hazardous materials controls

5.1.2 Biannual Meetings

The USFS and SDG&E will participate in biannual meetings (at minimum) to discuss feedback on the processes outlined in this Plan, solidify those that are working well, review lessons learned, discuss projected future work, and share concerns regarding the protection of resources. The biannual meetings will also be an opportunity to discuss the communication protocols between the USFS and SDG&E and to keep the USFS informed of ongoing Class I activities such as limbing and pruning and minor road maintenance. The biannual meeting will typically be scheduled during the first and third business quarters of each calendar year. Both parties will work to ensure that the appropriate resource staff are present at these meetings. SDG&E will provide a draft agenda and information on Class I activities in advance of the meetings and will provide presentation materials/handouts in advance of the meetings when necessary.

SDG&E will also provide an updated summary of its proposed annual work plan to be discussed at the meetings. The summary will include the following information:

- Information on SDG&E's priorities and priority work in the current/upcoming year.
- Information on the location, extent, and timing of road maintenance activities (e.g., road closures, work to maintain roads to a Level 2 standard, and culvert repairs) proposed for the current/upcoming year.
- Information on the location, extent, and timing of vegetation management activities (including hazard tree removals) proposed for the current/upcoming year.
- Point of contact information for key work activities and other primary communications.
- Summary of subject poles requiring brushing and new subject poles that may be needed on the CNF.
- Information on other Class I work that is expected to be conducted over the current/upcoming year and the BMPs, RPMs, and other measures that will be implemented to avoid impacts.
- Level 2 road inventory, maintenance schedule, goals, and current status.

The USFS will provide a list of questions or issues, if necessary, in advance of the meetings. Additionally, the USFS will provide SDG&E with the following information at the biannual meetings:

- Information on USFS goals and priorities for the current/upcoming year.
- Staff and potential administrative resources.
- GIS and/or maps demonstrating resource areas of concern.
- Geographic areas of concern where impacts have occurred.
- Status and estimate of funds remaining of cost recovery agreements with SDG&E.
- Status and estimate of available habitat in the SDG&E CNF mitigation bank.

During the biannual meetings, SDG&E and the USFS may also discuss the following:

- Monitoring efforts that have been conducted during the current/prior year.
- Issues of concern related to work practices and USFS resources.
- Information pertaining to the road use agreements.
- Biological and invasive weed data to be shared and updated.

- Summaries of inadvertent effects or unanticipated discoveries with appropriate considerations for confidentiality/sensitivity related to heritage resources.
- Land rights additions or removals from the MSUP (see *Section 5.1.2.* below).
- Need for minor modifications or updates to parts of this Plan (see *Section 5.1.3* below)
- Need for a 5- or 10-year review of major components of the Plan, including operational activity-specific appendices.
- Need for a 25-year major review of any/all aspects of the 50-year MSUP.

Following the annual meetings, SDG&E and USFS will share GIS data updates with each other.

5.1.3 Correction and Addition or Deletion of Land Rights

Corrections and updates to SDG&E land rights on the CNF should be addressed annually. If facilities are expanded or if new rights are acquired, these rights will be amended into the MSUP and will also be subject to the terms of this Plan to ensure timely and consistent application of the O&M procedures and practices detailed in this document.

New, expanded or existing facilities on the CNF identified for inclusion in the MSUP and Plan will be provided to the USFS for review and verification at the biannual meetings. To include an additional facility under the MSUP, SDG&E will provide the USFS with supporting documentation of prior land rights or other regulatory approvals as well as a map and GIS spatial data sufficient to identify the facilities location(s) using currently available spatial technology. SDG&E will continue to evaluate its overall facility footprint, including the access road network to determine the condition of additional facilities that should be incorporated under the MSUP.

If SDG&E vacates or disposes of land rights within the CNF due to removal from service (RFS) or realignment of existing facilities, or changes in rights due to undergrounding or other facility modifications, SDG&E will notify the USFS and provide updates in GIS regarding which area has been transferred. SDG&E will notify and work with the USFS to ensure that any proposed RFS projects are implemented appropriately. As noted in prior correspondence with SDG&E, the USFS may choose to generate habitat mitigation credits for SDG&E where existing ROWs on the CNF are quitclaimed and include those credits in the SDG&E CNF mitigation bank.

5.1.4 Modifications, Clarifications, and Revisions

This Plan periodically may need modification, clarification, or revision based on its implementation. Changes and improvements are likely to be identified because of the multiple processes involved (e.g., notification, screening, review, consultation, and meetings) and over time, certain changes may be needed (e.g., additional RPMs are needed, additional information needs to be submitted, etc.). Such changes can take two forms: minor modifications and amendments. Any minor modifications or amendments will be made in accordance with applicable legal requirements.

5.1.4.1 Minor Modifications

Minor modifications are clerical and administrative actions or changes that do not substantially affect the Plan. These changes do not require an amendment to the Plan, but they do require approval by the USFS before being implemented. Examples of minor modifications are listed below:

- Correction of typographical, grammatical, and similar editing errors in the Plan that do not change the meaning.

- Changes to any map or exhibit to correct errors in mapping.
- Minor changes to the activity descriptions or tables.
- Minor changes to the BMPs or RPMs.
- Minor changes to monitoring or reporting protocols.
- Minor changes to the meeting protocols.
- Correction of any tables, appendices or attachments in the Plan to reflect previously approved amendments.

SDG&E or the USFS may propose minor modifications to the plan by providing written notice to the other party. Such notice will include a statement of the reason for the proposed changes and an analysis of its environmental effects, and any other information required by law. SDGE or USFS will respond in writing to the proposed minor modification within 30 business days of receipt of notice.

SDG&E or the USFS may object to a proposed minor modification for any reasonable basis. USFS may object to a proposed modification if it believes the change is substantive. Where possible, before rejecting a proposed minor modification, the USFS will first contact SDG&E and suggest reasonable conditions or alterations to the proposal. If SDG&E agrees, it can approve the proposed minor modification. If the USFS reasonably objects to a minor modification, and the objection is not resolved by any conditions or alterations, the proposed modification will be processed as an amendment.

5.1.4.2 Amendments

All changes to the Plan that do not qualify as minor modifications may be processed as amendments in accordance with all applicable laws and regulations, including but not limited to the ESA, NEPA, NHPA, Native American Graves Protection and Repatriation Act (NAGPRA) and ARPA. The party proposing the amendment will provide a statement of the reasons and the analysis of the amendment's effects. Examples of changes that would require an amendment are listed below:

- Substantial changes to the text of the Plan.
- Substantial revisions to RPMs.
- Substantial changes to the monitoring or reporting protocols.
- Actions or activities that are substantially different or larger than activities previously analyzed.
- Incorporating another SDG&E operating plan (e.g., Sunrise Powerlink) in the Plan.

5.1.5 Relationship to Other Permits

To the extent that SDG&E holds multiple permits for a specific facility or activity, SDG&E will continue to operate and maintain facilities consistent with the authorization or permit most specific to the facility or activity. For instance, SDG&E holds permit number DRD418696 to operate and maintain all the 230kV and 500kV transmission facilities associated with Sunrise Powerlink on the CNF, and for all of those transmission facilities SDG&E will continue to implement the conditions of that USFS permit.

To the extent that SDG&E permitted activities overlap with other permitted uses on the CNF, such as county roads, Caltrans, recreation residences, or other land uses, the USFS shall be the primary contact when considering overlapping uses.

5.1.6 Dispute Resolution

The USFS and SDG&E will work together to try to resolve, in a timely manner, any dispute that occurs as part of this Plan and USFS authorizations. The USFS and SDG&E will work together to try to resolve any disagreements or misinterpretations of the Plan or its appendices. Any issues that are not readily resolved will promptly be referred to the next level supervisor for resolution within both the USFS and SDG&E. If the next level of supervision is unable to resolve the conflict, the issue will be referred to the Public Services Director or equivalent within Region 5 and SDG&E's Environmental Services Director or equivalent. Issue resolution may be initiated by request of either party. Both the USFS and SDG&E are responsible for ensuring timely elevation and resolution of issues.

5.2 Monitoring and Consistency Reviews

One of the goals of this Plan is to reduce the administrative burden of case-by-case authorizations for routine O&M activities with a low environmental risk by establishing a consistent process by which O&M activities described in the Plan are conducted, pursuant to the NEPA review. Region 5 will help maintain consistency across NFS lands, including the CNF. To ensure that the environmental screening process and field activities are being carried out in a consistent manner that meets the standards of the USFS and SDG&E - and meets the goals of the Plan - the USFS and SDG&E will have an opportunity to share findings that result from monitoring and conducting consistency reviews. Periodic monitoring will be conducted to evaluate how work is classified, screened, and conducted. Findings will be shared between the USFS and SDG&E on an annual basis, or when needed, to identify processes that are working successfully and opportunities for improvement. The results of the monitoring and consistency reviews also will be used by the USFS and SDG&E to provide feedback during the annual meeting.

5.2.1 USFS Monitoring

The USFS will conduct periodic and random monitoring of SDG&E's O&M activities on an ongoing basis to determine whether the terms and conditions of the MSUP are being followed and the site-specific BMPs and RPMs are being implemented correctly, and to document the effectiveness of the BMPs and RPMs. Monitoring will also evaluate whether activities are occurring as characterized and are described accurately in notification packages submitted by SDG&E to the USFS. Monitoring will occur at the discretion of the USFS.

The results of this monitoring effort will be shared with SDG&E at the biannual meetings, or more frequently if necessary. The USFS and SDG&E will discuss the findings and, if necessary, USFS Region 5 will be involved to provide guidance and recommendations for amending the environmental screening process, BMPs, RPMs, or work practices.

Signatories

This Plan is in effect from the date of signature through the expiration of the SDG&E MSUP. Revisions and Modifications to this Plan shall be made by mutual consent of SDG&E and the USFS by the issuance of a written modification, signed and dated by all parties, prior to any changes being performed.

Plan Approved by Estela de Llanos Digitally signed by Estela de Llanos Date: 2021.12.15 14:53:49 -08'00' Date _____

Vice President of Energy Procurement and Sustainability, and Chief Environmental Officer
San Diego Gas & Electric

Plan Approved by Brittany Syz Digitally signed by Brittany Syz Date: 2021.12.15 10:15:05 -08'00' Date _____

Director of Environmental Services and Sustainability
San Diego Gas & Electric

Plan Approved by SCOTT TANGENBERG Digitally signed by SCOTT TANGENBERG Date: 2021.12.10 15:44:10 -08'00' Date _____

Forest Supervisor
Cleveland National Forest
United States Forest Service

Appendix A
Legal Obligations and Regulatory Requirements

A.1 National Forest System Land and Resource Management Plans, 16 U.S.C. Section 1

The National Forest Management (NFMA) Act of 1976 requires every national forest managed by the USFS to develop and maintain and effective Land Management Plan, also known as a forest plan, consistent with the 2012 planning rule. The Cleveland National Forest Land Management Plan (Forest Plan, revised 2005) describes the strategic direction at the broad program level for managing the land and its renewable resources for the next 10 to 15 years and specific standards and guidelines for management of Forest activities and activities authorized by the Forest. Amendments have been made to the Forest Plan to incorporate both the SDG&E Sunrise Powerlink and Operating Plan and the PLRP and the MSUP O&M Plan.

A.2 Cleveland National Forest Land Management Plan

The U.S. Department of Agriculture (USDA) USFS, Pacific Southwest Region Land Management Plan, Part 3: Design Criteria for Southern California National Forests - Angeles National Forest, Cleveland National Forest, Los Padres National Forest, and San Bernardino National Forest, is incorporated by reference into this O&M Plan. Specifically, Part III, Appendix A of the Forest Plan – Relevant Laws, Regulations Agreements and Other Management Direction is included here. Appendix A of the Forest Plan outlines the USFS Directives, Federal Statutes, Federal Regulations, Executive Orders, Executive Memorandums, Agreements, and State and Local Laws and Regulations pertinent to the Cleveland National Forest Land Management Plan.

A.3 Consolidated Appropriations Act (2018)

The 2018 Omnibus Appropriations bill added Section 512 to the Federal Land Policy and Management Act of 1976, directing the Secretary of the Interior and the Secretary of Agriculture to develop provisions for vegetation management., facility inspection, and O&M of existing infrastructure. The provisions provide utilities with the ability to perform routine maintenance activities (e.g., hazard tree removal for transmission and distribution lines rights-of-way) in a prompt manner through a consolidated, transparent, and coordinated review and approval process. (i.e., not to exceed 120 days). The bill allows the utilities to prune or remove vegetation within or adjacent to an electric transmission or distribution right-of-way if it has contacted, or presents a danger of contacting, an electric transmission or distribution line on U.S. Bureau of Land Management and National Forest System (NFS) lands. The bill limits the utility's liability for damages or injury in the event that it is not allowed to manage vegetation on U.S. Bureau of Land Management and NFS lands as a result of an agency unreasonably withholding or delaying approval of a plan or failing to adhere to a plan schedule. The liability caps currently provided under U.S Bureau of Land Management and USFS regulations (up to $2 million and $1 million per incident, respectively) remain in effect. It requires the U.S. Departments of the Interior and Agriculture to prepare and submit a report to Congress within 4 years on the liability limitation established under the bill. The provisions require a training program for the Interior Department and the USFS personnel involved in vegetation management decisions on rights-of-way that aims to ensure such individuals understand electric system reliability and fire safety requirements, and how to assist owners and operators to comply with those standards.

A.4 Title V of the Federal Land Policy Management Act (FLPMA), 43 U.S.C. 1761-1772

Title V of FLPMA establishes requirements for authorizing powerline facilities on NFS lands, including the scope and liability for special use authorizations for powerline facilities. Section 512 of FLPMA, 43 U.S.C. 1772, establishes requirements and procedures for operating plans and agreements for special use authorizations for powerline facilities on NFS lands, both within the linear right-of-way for powerline facilities and on NFS lands adjacent to either side of the right-of-way.

A.5 Special Uses Regulations, 36 CFR Part 251, Subpart B

These regulations govern issuance and administration of special use authorizations for use and occupancy of NFS lands, including review and approval of proposed operating plans and agreements for special use authorizations for powerline facilities in accordance with section 512 of FLPMA. Per Section 251.53(l)(4), the USFS has the authority to issue special use authorizations (permits, leases, and easements) under FLPMA for rights-of-way for systems and related facilities for generation, transmission, and distribution of electric energy, which must also comply with the applicable requirements of the Federal Energy Regulatory Commission. The Special Uses Regulations stipulate the application process for authorizations, terms and conditions of special uses authorizations, the use and contents of operating plans, fees and cost recovery assessments associated with such special use authorizations and operating plans, as well as definitions of special uses, including but not limited to routine and non-routine maintenance, hazard trees, and non-emergency routine vegetation management.

A.6 Vegetation Management Memorandum of Understanding

In October 2016, an updated memorandum of understanding (MOU) went into effect between Edison Electric Institute, the Utility Arborist Association, the National Park Service, the U.S. Fish and Wildlife Service, the Bureau of Land Management, and the USFS on vegetation management for powerline rights-of-way. The MOU was created to enable federal agencies and utilities to streamline and expedite management of vegetation near utility facilities, including facilities on federal lands. The purpose of the MOU is to establish a framework for developing cooperative rights-of-way IVM practices among the parties to the MOU. The MOU does not impose any binding obligation on any person. A copy of the Vegetation Management MOU is provided in Attachment H-2.

A.7. California Public Resources Code Section 4292

California Public Resources Code Section 4292 (PRC 4292) specifies brush clearance for persons who own, operate, control, and maintain electric transmission or distribution lines on any mountainous, forest-covered, brush-covered, or grass-covered lands. This section requires clearing flammable vegetation to reduce fire hazards around specific structures that support certain connectors or types of electrical apparatuses (e.g., switch, fuse, transformer, lightning arrester, and line junction) or a dead end or corner pole. The firebreak consists of clearing not less than 10 feet in each direction from the outer circumference of the structure or tower. Each year before the onset of fire season, the vegetation around subject poles or towers is removed and maintained to bare ground through the entire fire season. This law also covers all State Responsibility Areas

in California. State responsibility lands generally are outside city limits where the California Department of Forestry and Fire Protection is the Direct Protection Agency.

The USFS also adopted California PRC 4292. Refer to Attachment A-1 for a copy of the USFS concurrence letter.

A.8. Section 895.1 of California Code of Regulations, Title 14

The California Code of Regulations, Title 14, Section 895.1 defines danger trees in relations to utilities. *Danger tree* means any tree located on or adjacent to a utility right-of-way or facility that could damage utility facilities should it fall where: (1) the tree leans toward the right-of-way; or (2) the tree is defective because of any cause, such as heart or root rot, shallow roots, excavation, bad crotch, dead or with dead top, deformity, cracks or splits, or any other reason that could result in the tree or a main lateral of the tree falling.

A.9. Section 1254 of California Code of Regulations, Title 14

The California Code of Regulations, Title 14, Section 1254 (14 CCR 1254) further defines the requirements stipulated in PRC 4292. This code states that the firebreak clearance requirements in PRC 4292 are applicable within an imaginary cylindrical space (10-feet wide by 8-feet tall) surrounding each subject pole. Flammable vegetation and materials located wholly or partially within the firebreak space shall be treated as follows:

- At ground level. Remove flammable materials, including but not limited to, ground litter, duff, and dead or desiccated vegetation that will propagate fire.
- From 0 to 2.4 meters (0 to 8 feet) above ground level. Remove flammable trash, debris or other materials, grass, and herbaceous and brush vegetation. All limbs and foliage of living trees shall be removed up to a height of 2.4 meters (8 feet).
- From 2.4 meters (8 to feet) to horizontal plane of highest point of conductor attachment. Remove dead, diseased, or dying limbs and foliage from living sound trees and any dead, diseased, or dying trees in their entirety.

A.10. California Public Resources Code Section 4293

PRC 4293 requires specific clearance between conductors and vegetation. The clearance increases as the line voltage increases (with minimum clearances ranging from 4 to 10 feet based on voltages). Clearances must be maintained at all times in all conditions (e.g., sway, sag, and snow loading). This code also requires felling or pruning of hazard trees adjacent to the line that may fall into the line. PRC 4293 defines hazard trees as “dead trees, old decadent or rotten trees, trees weakened by decay or disease, and trees or portions thereof that are leaning toward the line which may contact the line from the side or may fall on the line” and further requires that the hazard trees “shall be felled, cut, or trimmed so as to remove such hazard.” The trim zone and the hazard tree zone are variable in width depending primarily on the height of trees adjacent to the distribution line, the topography, and the sway of the conductors at mid span as determined by the tension and length of the span.

The USFS also adopted PRC 4293. Refer to Attachment A-1 for a copy of the USFS concurrence letter.

A.11. California Public Utilities Commission General Order 95

The California Public Utilities Commission's (CPUC's) General Order (G.O.) 95 is the key standard governing the design, construction, and O&M activities for overhead electric lines in California. It was adopted in 1941 and updated most recently in 2006. G.O. 95 includes safety standards for overhead electric lines, including minimum distances for conductor spacing, minimum conductor ground clearance, standards for calculating maximum sag, electric line inspection requirements, and vegetation clearance requirements. Sections of particular relevance within G.O. 95 include the following.

- **CPUC G.O. 95, Rule 18**
  - Rule 18A requires establishment of an auditable maintenance program for electric facilities and lines that includes a timeline for corrective action following identification of a nonconformance. Rule 18A describes what a safety hazard is ("a condition that poses a significant threat to human life or property") and the priority levels given to safety hazards. The rule also requires companies to take appropriate corrective actions to remedy safety hazards and maintain records of the corrective action.
- **CPUC G.O. 95, Rule 35**
  - Rule 35 requires that minimum clearances be maintained between all overhead electric supply and communication facilities and that vegetation be maintained by California state and local agencies. Clearances are required between vegetation and energized conductors (wires) that range from 18 to 120 inches based on the voltage. This law covers all of California regardless of location and defines the minimum clearance required at all times. Utility vegetation management programs often must achieve greater clearance than 18 inches to address regrowth of affected vegetation and all potential weather and climatic conditions that can affect the vegetation and the conductors. The length of time between maintenance cycles also can increase the amount of clearance required.
- **CPUC G.O. 95, Rule 44**
  - Rule 44 defines safety factors for poles and line elements.
- **CPUC G.O. 95, Rule 165**
  - Rule 165 specifies inspection cycles, record keeping, and reporting requirements for electric facilities (excluding those facilities contained in a substation) in order to ensure safe and high-quality electric service.
- **CPUC G.O. 95, Rule 166**
  - Rule 166 specifies emergency and disaster preparedness standards that will facilitate the CPUC's investigations into the reasonableness of SDG&E's response to emergencies and major outages.

A.12. California Public Utilities Commission Fire Regulations and High Fire-Threat Map

The CPUC's development of fire safety regulations and a High Fire-Threat District (HFTD) map, adopted in December 2017 and January 2018, respectively, added new rules to G.O. 95, G.O. 165, and G.O. 166 that require electric utilities to:

- Prioritize correction of safety hazards based, in part, on whether the safety hazard is located in the HFTD (G.O. 95, Rule 18A).
- Correct non-immediate fires risks in Tier 2 of the HFTD within 12 months, and in Tier 3 within 6 months (G.O. 95, Rules 31.2, 80.1A, and 90.1B).

- Maintain increased clearances between vegetation and powerlines throughout the HFTD (G.O. 95, Rule 35, Table 1, Case 14).
- Maintain more stringent wire-to-wire clearances for new and reconstructed facilities in Tier 3 (G.O. 95, Appendix E).
- Conduct annual patrol inspections of their overhead distribution facilities in rural areas of Tier 2 and Tier 3 (G.O. 165, Appendix A, Table 1).
- Prepare a fire-prevention plan annually if they have overhead facilities in the HFTD (G.O. 166, Standard 1.E).

The Utility's Electric Tariff Rule 11 was amended to allow electric utilities to disconnect service to customers who refuse to provide access to their property for the removal of trees that pose an immediate threat for contacting a power line.

The HFTD map published by the CPUC identified areas across California with the highest likelihood of wildfire affecting people and property, and areas where additional action may be necessary to reduce wildfire risk. The HFTD covers 44% of California's total land areas and consists of three areas:

- Tier 1 High Hazard Zones on the USFS-CAL FIRE joint map of Tree Mortality High Hazard Zones.
- Tier 2 of the CPUC Fire-Threat Map where there is an elevated risk for utility-associated wildfires.
- Tier 3 of the CPUC Fire-Threat Map where there is an extreme risk for utility-associated wildfires.

A.13. California Public Utilities Commission Resolution ESRB-4

The CPUC Electric Safety and Reliability Branch (ESRB) issued Resolution ESRB-4 on June 12, 2014. Resolution ESRB-4 directs investor-owned utilities, like SDG&E, to "take practicable measures necessary to reduce the likelihood of fires associated with their facilities." These measures include increasing vegetation inspections, removing hazard trees near electric powerlines and poles, and clearing access roads under powerlines for fire truck access. The resolution builds on emergency declarations issued by California's Governor.

A.14. North American Electric Reliability Council FAC-003-04 Standards

The North American Electric Reliability Council (NERC) is a not-for-profit international regulatory authority whose mission is to ensure the reliability of the bulk power system (i.e., SDG&E's transmission systems) in North America. NERC develops and enforces reliability standards for investor-owned electric utilities that are under Federal Energy Regulatory Commission jurisdiction. NERC's function is to maintain and improve the reliability of the North American integrated electric transmission system, including preventing outages from vegetation located in transmission rights-of-way, minimizing outages from vegetation located adjacent to rights-of-way, and maintaining clearances between transmission lines and vegetation on and along transmission rights-of-way. As a result of the recommendations following the August 14, 2003 blackouts on the East Coast, NERC was charged with developing a vegetation management standard that would be applicable to all utilities and that would provide greater specificity than the National Electric Safety Code (NESC) and the American National Standards Institute (ANSI) described below.

Standard FAC-003-1, *Transmission Vegetation Management Program*, became effective on April 7, 2006, and is mandatory for all utilities, pursuant to Section 1211 of the Energy Policy Act of 2005. This standard applies to all transmission lines operated at 200 kV and above and to any lower-voltage lines considered critical to the reliability of the electric system in the region. The transmission owner must prepare, and keep current, a formal Transmission Vegetation Management Program (TVMP). The TVMP must identify and document clearances between vegetation and overhead ungrounded supply conductors, taking into consideration transmission line voltage, the effects of ambient temperatures on conductor sag under maximum design loading, and the effects of wind velocities on conductor sway. Minimum clearance distances shall be no less than those set forth in the Institute of Electrical and Electronics Engineers (IEEE) Standard 516-2003.

NERC adopted new standards (FAC-003-4) for clearance between conductors and vegetation for 230 kV lines and higher, and for certain other lines identified as NERC critical. The clearance requirement increases as the line voltage increases. The standard requires that these clearances be maintained at all times in all conditions (e.g., sway, sag, and snow loading). This standard is essentially the same as that in PRC 4293. The penalty for not complying with these standards could result in up to $1 million in fines per day per occurrence.

A.15. California Independent System Operator Transmission Owner Maintenance Practice

The California Independent System Operator (CAISO) adopted the Transmission Owner Maintenance Practice, Overhead Electrical Transmission Lines, which specifies the maintenance practices to prioritize, inspect, and maintain overhead electrical transmission lines placed under the control of CAISO. Transmission lines are considered to be high priority under the CAISO guidelines and require more frequent inspection.

A.16. National Electric Safety Code Rules 1977, 2006

NESC is the national code covering a variety of basic provisions regarding electric supply stations and overhead and underground electric supply and communication lines. The code contains work rules for construction, maintenance, and operation of electric supply and communication lines and equipment.

NESC Rule 218 generally requires that “trees that interfere with ungrounded supply conductors should be trimmed or removed.” The rule is generally interpreted to require utilities to perform a “reasonable” amount of utility vegetation management (UVM) work. The rule does not specify cycles, clearances, program requirements, performance objectives, or any other type of requirement that would result in meeting specific UVM objectives.

Rule 218 was revised in 2006 to note that utility experience is a key issue in developing clearance standards. Both the frequency of pruning and the distance by which vegetation is pruned back from the lines are affected by the line voltage class, the relative growth rates and failure characteristics of relevant plant species, right-of-way limitations, location of the vegetation relative to the conductors, potential movement of conductors and vegetation during routine winds, and sag of conductors due to elevated temperatures or ice loadings.

NESC Rules 232, 233, and 234 prescribe clearances of wires from ground, structures, and other installations but provide no specific information with respect to clearances from vegetation. Rule 217A4 requires supporting structures to be kept free from climbing hazards, such as vines; however, no further specificity is provided.

A.17. American National Standards Institute Standards

ANSI is the primary organization for fostering development of technology standards in the United States. ANSI developed the A300 Standards to unify and take authoritative precedence over all previously existing tree care industry standards. ANSI requires that approved standards be developed according to accepted principles, and that they be reviewed and, if necessary, revised every 5 years.

ANSI A300 standards apply to professionals who provide for or supervise the management of trees, shrubs, and other woody landscape plants. Intended users include businesses, government agencies, property owners, property managers, and utilities.

ANSI A300 Part 7 conveys integrated vegetation management (IVM) as a best management practice. IVM is consistent with the requirements in FAC-003-04 and it provides practitioners with what industry experts consider to be appropriate techniques to apply to electric right-of-way projects in order to meet or exceed the standard. IVM is a system of managing plant communities whereby managers set objectives; identify compatible and incompatible vegetation; consider action thresholds; and evaluate, select, and implement the most appropriate control method or methods to achieve set objectives. IVM identifies the correct preferred vegetation management approach within the Utility's distribution and transmission rights-of-way based on the sensitivity of resources, reliability and safety issues, and environmental laws and regulation. IVM is the practice of promoting desirable, stable, low-growing plant communities within the Utility's rights-of-way that will resist invasion by tall-growing tree species, through the use of appropriate, environmentally sound, and cost-effective control methods. The IVM approach establishes the wire and border zone, with a goal of having a low shrub-forb-grass cover type in the wire zone and a taller shrub-forb-grass cover type in the border zone. Benefits of this approach include a reduction in the frequency of disturbance due to less frequent vegetation management activities. IVM methods may include a combination of chemical, biological, cultural, mechanical, and manual treatments. To maintain the desired conditions over time, periodic inspections and maintenance will be conducted within the areas where IVM is implemented.

ANSI also developed Standard Z133-2012, *Safety Requirements for Arboricultural Operations*, the industry safety standard for working on vegetation in proximity to energized electrical apparatuses. The standard addresses arboriculture safety requirements for pruning, repairing, maintaining, and removing trees and for using equipment in such operations.

ANSI specified the minimum approach distances from energized conductors for qualified line-clearance arborists as follows:

- Between 230 a**nd 242 kV (phase-to-phase), the minimum distance is 7 feet, 11 inches between sea level and 5,000 feet in elevation and 9 feet between 5,001 and 10,000 feet in elevation.**
- **For 500 kV (p**hase-to-phase), the minimum distance is 19 feet between sea level and 5,000 feet in elevation and 21 feet, 9 inches between 5,001 and 10,000 feet in elevation.

Additionally, ANSI specified the minimum approach distances from energized conductors for persons other than a qualified line-clearance arborist as follows:

- Between 230 a**nd 242 kV (phase-to-phase), the minimum distance is 16 feet.**
- **For 500 kV (ph**ase-to-phase), the minimum distance is 26 feet.

A.18. Institute of Electrical and Electronics Engineers Standard 516-2003

IEEE is a leading authority in setting standards for the electric power industry. Standard 516-2003, *Guide for Maintenance Methods on Energized Power Lines*, provides minimum vegetation-to-conductor clearances to maintain electrical integrity, which includes the following:

- For 500 kV, the minimu**m distance is 19 feet (5.7 meters).**
- **For 230 kV, the minimu**m distance is 13 feet (3.9 meters).

A.19. Vegetation Management Memorandum of Understanding

In October 2016, an updated memorandum of Understanding (MOU) went into effect between Edison Electric Institute, the Utility Arborist Association, the National Park Service, the U.S. Fish and Wildlife Service, the Bureau of Land Management, and the USFS on vegetation management for power line rights-of-way. The MOU was created to enable federal agencies and utilities to streamline and expedite management of vegetation near utility facilities, including facilities on federal lands. The purpose of the MOU is to establish a framework for developing cooperative rights-of-way IVM practices among the parties to the MOU. The MOU does not impose any binding obligation on any person. A copy of the Vegetation Management MOU is provided in Attachment A-1.

Attachment A-1
USFS Vegetation Management MOU

**MEMORANDUM OF UNDERSTANDING
ON VEGETATION MANAGEMENT FOR POWERLINE RIGHTS-OF-WAY**

Among the

**EDISON ELECTRIC INSTITUTE
UTILITY ARBORIST
ASSOCIATION**

UNITED STATES DEPARTMENT OF THE INTERIOR
National Park
Service Fish and
Wildlife Service
Bureau of Land Management

UNITED STATES DEPARTMENT OF AGRICULTURE
Forest Service

and the

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

This memorandum of understanding (MOU) is entered into by:

- The Edison Electric Institute (EEI) and Utility Arborist Association (UAA), "the non- governmental parties," hereinafter referred to collectively as "the member companies," and

- The United States Department of the Interior, National Park Service (NPS), Fish and Wildlife Service (FWS), and Bureau of Land Management (BLM), the United States Department of Agriculture, Forest Service (FS), and the United States Environmental Protection Agency (EPA), hereinafter referred to collectively as "the Federal agencies."

This MOU addresses vegetation management for electric transmission and distribution line rights-of-way (referred to throughout this MOU as powerline ROWs) on Federal lands.

I. Authorities

The non-governmental parties are authorized to enter into this MOU by consent of their member companies.

The NPS is directed to manage all national park lands to protect and preserve natural and cultural resources, pursuant to the National Park Service Organic Act, 54 U.S.C. § 100101.

The FWS is authorized to enter into this MOU under the National Wildlife Refuge System Administration Act of 1966, as amended, 16 U.S.C. § 668dd-ee, and 50 C.F.R. §§ 29.21-4 and 29.21-8.

The BLM is authorized to enter into this MOU under Section 302(a) of the Federal Land Policy and Management Act, as amended, 43 U.S.C. § 1737(b),

The FS is authorized to enter into this MOU under the Organic Administration Act of 1897, 16 U.S.C. § 551, and the Multiple Use-Sustained Yield Act, 16 U.S.C. § 528 *et seq.*

The EPA is authorized to enter into this MOU under Section 6604(b) of the Pollution Prevention Act, 42 U.S.C. § 13103(b).

II. The Parties

EEI. This association represents all U.S. investor-owned electric utility companies. The EEI member companies provide electricity for 220 million Americans, operate in all 50 states and the District of Columbia (DC), and directly employ more than 500,000 people. With more than $90 billion in annual capital expenditures, the electric power industry is responsible for millions of additional jobs. Reliable, affordable, and sustainable electricity powers the U.S. economy and enhances the lives of all Americans. EEI has 70 international electric utility companies as affiliate member s and 250 industry suppliers and related organizations as associate members. The mission of EEI is to ensure members' success by advocating public policy, expanding market opportunities, and providing strategic business information relating to the electric power industry.

UAA. The nearly 3,000 members of this organization have an interest in and a commitment to the maintenance of trees and other vegetation in connection with powerline ROWs. The primary goal of the UAA is to ensure the safe and reliable distribution of energy, including electricity, oil, and gas, to businesses and residences through quality utility arboriculture. The mission of the UAA is to be the leading North American organization for the enhancement of utility arboriculture and vegetation management for powerline ROWs.

NPS. The NPS is responsible for managing nearly 84 million acres with over 400 units in the National Park System. The mission of the NPS is to preserve unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of current and future generations. The NPS also has management responsibilities over other areas, including parts of the National Wild and Scenic Rivers System, National Trails System, National Heritage Areas, and NPS Affiliated Areas, which are closely linked in importance and purpose to those areas directly managed by the NPS. The NPS may issue ROW permits for lands it manages only if the use or activity is specifically authorized by Congress. One of these statutory authorities, The Act of March 4, 1911, gives the NPS the general authority to issue ROW permits for national park lands for electric poles and lines for the transmission and distribution of electrical power.

FWS. The FWS manages nearly 155 million acres in more than 560 National Wildlife Refuges and Wetland Management Districts and manages National Fish Hatcheries on federally owned lands. The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. The FWS issues ROW permits under itsRights-of-Way policy (340 FW 3), (e.g., vegetation management required for a powerline corridor). The Appropriate Refuge Uses (603 FW 1) and Compatible Uses (603 FW 2) policies further guide the issuance of ROW permits on National Wildlife Refuge System lands and waters. The FWS Biological Integrity, Diversity, and Environmental Health policy (601 FW 3) establishes a process for managers to follow for maintaining and/or restoring the biological integrity, diversity, and environmental health of our lands and waters when authorizing and considering uses and activities on the National Wildlife Refuge lands and waters.

BLM. The BLM manages public lands under the principles of multiple-use and sustained yield as described in the Federal Land Policy and Management Act of 1976 (FLPMA). The BLM administers more than 245 million surface acres of Federal lands, the most of any Federal agency. This land, known as the National System of Public Lands, is primarily located in the 12 western states and Alaska. The BLM also manages 700 million acres of subsurface mineral estate throughout the United States. The mission of the BLM is to manage public lands for the use and enjoyment of present and future generations. Title V of FLPMA authorizes the BLM to grant ROWs for systems for generation, transmission, and distribution of electric energy.

FS. The mission of the FS is to sustain the health, diversity, and productivity of the national forests and grasslands to meet the needs of present and future generations. The FS achieves its mission by applying the principles of sustainable, multiple-use management to meet the diverse needs of the American people. The FS manages over 192 million acres of Federal lands and waters within the National Forest System. The FS supports America's energy needs through effective oversight and management of thousands of miles of electric utility transmission and distribution corridors and related facilities on the National Forest System lands.

EPA: The mission of the EPA is to protect human health and the environment. In support of this mission, the Office of Pesticide Programs licenses pesticides for use in the United States under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). In addition, Section 136r-1 of FIFRA provides direction to the EPA and USDA related to implementation of Integrated Pest Management, which is comparable to Integrated Vegetation Management (IVM). The Agency supports, through partnerships and regulatory processes, IVM as a means of reducing pesticide risk, protecting endangered species, and promoting pollinator protection along electric utility transmission and distribution ROW corridors. The June 20, 2014, Presidential Memorandum "Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators" established a Pollinator Health Task Force to be co-chaired by the USDA and EPA, that presents opportunities for all Federal agencies to include specific efforts to enhance pollinator habitat, including on Federal ROWs.

III. Purpose

The purpose of this MOU is to facilitate cooperation and coordination among the parties regarding vegetation management within and immediately adjacent to existing and future powerline ROWs and associated facilities. This MOU will facilitate implementation of cost-effective and environmentally sound vegetation management plans, procedures, and practices for powerline ROWs that will reduce adverse environmental and cultural impacts while enhancing the ability of utilities to provide uninterrupted electrical service to customers and address public safety. Federal agencies have established policies and procedures relating to vegetation, watershed, fire and fuels, wildlife habitat, enhancing pollinator habitat, and invasive species management that may help facilitate the MOU objectives. The Federal agencies' procedures may enhance the reliability and safety of electrical energy transmission while protecting the environment, and natural and cultural resources within and immediately adjacent to powerline ROWs on Federal lands. This MOU addresses the use of incorporating vegetation management practices into the existing and future ROW grants/authorizations across Federal lands.

IV. Mutual Interests and Benefits

Executive Order 13212, dated May 18, 2001, provides for expedited review of applications for energy-related projects on Federal lands; Section 216(h) of the Energy Policy Act of 2005, 16 U.S.C. § 824p, provides for coordinating, streamlining, and expediting Federal agency review of applications for powerline ROWs on Federal lands. Presidential Memorandum dated August 31, 2011, Speeding Infrastructure Development Through More Efficient and Effective Permitting and Environmental Review and Executive Order 13604, dated March 22, 2012, provide for Federal agencies to take all steps within their authority, consistent with available resources, to execute Federal permitting and review processes with maximum efficiency and effectiveness, ensuring the health, safety, and security of communities and the environment while supporting vital economic growth including infrastructure projects on Federal lands. Executive Order 13112, Section 2 (a)(3), dated February 8, 1999, requires each Federal agency whose actions may affect the status of invasive species, to the extent practicable and permitted by law, to not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species. These authorities provide an understanding of the roles and responsibilities of the parties to this MOU with regard to vegetation management within powerline ROWs on Federal lands and facilitate expediting Federal agency review of applications for those ROWs, which typically include a vegetation management component.

Electric utilities provide a vital service that is integral to America's security, safety, economy, and welfare. Powerline ROWs are necessary components of America's energy infrastructure and include thousands of miles of electric utility powerlines and other electric utility facilities across Federal and private lands. These powerline ROWs span across millions of acres of forestlands, grasslands, wetlands, fish and wildlife habitats, rare plant communities, and other natural and constructed features across the landscape. Efficient and environmentally safe control of undesirable vegetation along the entire span of these powerline ROWs, including around utility poles and towers, is critical for providing reliable delivery of electricity, addressing utility worker and public safety, and meeting requirements in applicable law and policy. Proper vegetation management for those ROWs can protect environmental and cultural features ofthese

areas, (e.g., by decreasing fuel loads, minimizing the spread of invasive plants, preserving and creating wildlife habitat, creating fuel breaks, maintaining the condition of the watershed, protecting habitat for pollinators, and preserving ecosystem connectivity).

Utility companies must manage vegetation in powerline ROWs on Federal lands to prevent power outages, wildfires, and the spread of invasive species and to protect human health, property, and natural and cultural resources. Power outages can occur when overhead lines stretch or sag onto vegetation due to increased load or changes in ambient conditions, (e.g., high air temperature or wind speed). Outages may occur when undesirable vegetation grows, falls, or otherwise makes contact with overhead electric powerlines. Since 1996, the presence of undesirable vegetation within powerline ROWs on Federal and private lands has been implicated in the initiation of three large-scale electrical grid failures in the United States and Canada, including the massive August 14, 2003, blackout that affected 50,000,000 people.

Vegetation that encounters powerlines and other electric transmission facilities can also start fires. Arcing can occur when any part of a bare, high-voltage line gets too close to a tree, limb, or shrub. There have been catastrophic wildfires across multiple states caused by interaction of vegetation with powerlines and other facilities within powerline ROWs on Federal lands. The spread of invasive plants, as well as other flammable native vegetation, can increase fuel loads, creating dangerous fire conditions that can threaten powerlines and other facilities within powerline ROWs on Federal lands. Properly maintained vegetation in powerline ROW s can prevent the spread of invasive species, provide habitat for pollinators, and act as an effective firebreak for the control and suppression of wildfire.

V. Coordination and Cooperation

Coordination between Federal agencies and the utility companies before and during ROW establishment and maintenance activities along the entire corridor on Federal lands may help to avoid interruptions in electric service while maintaining the environmental and cultural integrity of the lands they occupy. This coordination is important for ROW vegetation management activities across all Federal lands. Implementing a coordinated and cooperative approach to ROW vegetation management programs for utility corridors across the land scape will increase maintenance efficiencies and decrease management costs at all levels while considering potential environmental and cultural impacts.

Coordination and cooperation among the relevant Federal agencies and member companies, before and during establishment and maintenance of powerline ROWs on Federal lands, is important to enhance electric transmission reliability, increase maintenance efficiencies, reduce management costs, prevent the spread of invasive plants, reduce fuel loads, and minimize other potential environmental and cultural resource impacts and human safety risks. This coordination and cooperation may entail development of annual vegetation management plans that identify vegetation control prescriptions within a given year for each powerline ROW on Federal lands. Such vegetation management plans must comply with applicable Federal laws and policies, be consistent with operations and maintenance plans for each powerline and consider requirements for member company compliance with Federal reliability standards.

VI. Roles and Responsibilities

A. The parties to this MOU will:

1. Comply with all applicable Federal, tribal, state, and local laws, regulations, policies, executive orders, and presidential memoranda regarding electric transmission safety and reliability and environmental and cultural resource protection.

2. Consistent with their respective missions, roles and responsibilities, coordinate and cooperate to promote cost-efficient , proactive, environmentally appropriate, and safe management of undesirable vegetation in and adjacent to powerline ROWs on Federal lands to minimize the risk of vegetation-caused outages and adverse impacts on powerline facilities, human health and safety, and to minimize harm to native plants and animals in particular pollinators, soil, water, and other natural and cultural resources on Federal lands. Specifically, the parties to this MOU acknowledge that:

   a. To the extent practicable, management and maintenance of powerline, ROWs on Federal lands should be coordinated with all affected landowners to enhance operational efficiency, public safety, environmental protection, and cost-effectiveness.

   b. The spread of invasive species along powerline ROWs on Federal lands is widespread but can be prevented or controlled through a proactive and integrated management approach. Where consistent with the Federal agencies ' other obligations, appropriate prevention, mitigation, and control measures related to the non-governmental parties' activities that may cause invasive plant species to increase will be incorporated into vegetation management plans, land use authorizations, and maintenance agreements for powerline ROWs on Federal lands.

   c. Integrated vegetation management, incorporating established principles of "integrated pest management," is widely accepted in the public and private sectors. The proactive pest management approach includes a broad spectrum of integrated techniques for managing undesirable plant species. Standards for IVM plans outlined in the American National Standards Institute A300 Part 7 and best management practices for IVM compiled by the International Society of Arboriculture provide reliable, widely accepted guidance for protection and conservation of natural resources that balance benefits of control, cost, public health, environmental quality, and regulator y compliance.

   d. Programmatic environmental analysis for vegetation management for powerline ROWs on Federal lands where appropriate, will be conducted in accordance with the National Environmental Policy Act (NEPA). The NEPA decision document will provide a foundation for site-specific environmental analysis for vegetation management for powerline ROWs on Federal lands.

   e. Consistent with applicable law and agency responsibilities, each Federal agency will evaluate land use authorizations and vegetation management practices for powerline

ROWs on Federal lands. The Federal agencies will propose appropriate changes to those authorizations and vegetation management practices that would enhance pollinator habitat on Federal lands using pollinator-friendly best management practices. When related to vegetation management activities, provide supplemental existing vegetation management plans, agreements, and MOUs with holders of powerline ROWs on Federal lands to establish or enhance pollinator habitat.

3. Facilitate coordination and cooperation with each other at the local level to accelerate development of vegetation management plans and land use authorizations for powerline ROWs on Federal lands. To the extent possible, promote joint preparation of NEPA documents among the Federal agencies for vegetation management activities to maximize efficiency and coordination and to ensure consistency with applicable land management plans and policies and applicable law.

4. Promote safety during vegetation management activities associated with powerline ROWs on Federal lands. The parties to this MOU acknowledge that:

   a. In general, the safety of electric utility workers and the public at transmission and distribution facilities is the responsibility of the electric utility identified in the Federal land use authorization or permit. Electric utility companies and their affiliates will conduct their operations in accordance with the National Electrical Safety Code and Occupational Safety and Health Administration standards, and the terms and conditions in the ROWs/authorizations, and other worker protection standards where applicable.

   b. The Federal agencies will coordinate with the member companies to develop appropriate measures to ensure personal and public safety and protection of the public lands and resources during vegetation management activities on Federal lands.

5. Facilitate prompt identification of potential risks, unforeseen impacts, and deviations in implementing vegetation management plans within and immediately adjacent to land use authorizations associated with powerline ROWs on Federal lands and, to the extent appropriate and practicable, mitigate those risks, impacts, and deviations.

6. Encourage opportunities, where appropriate, to provide training and technical assistance to government agency staff, powerline ROW maintenance personnel, electric utility companies, and private landowners seeking to improve vegetation management and overall maintenance of powerline ROWs across public and private lands.

7. Work with the Association of Fish and Wildlife Agencies on separate MOUs to facilitate cooperation and coordination among the parties regarding vegetation management within and immediately adjacent to existing and future powerline ROWs and associated facilities on Federal, state and private properties.

B. The member companies will:

utilities that own, operate, or maintain powerline ROW on Federal lands.

2. Ensure that their members and affiliates that are proposing or that have a powerline ROW on Federal lands provide the necessary information for vegetation management activities, including treatment procedures, pesticide use, maps, and mitigation measures, to the administering Federal agency for review and approval of the proposed or revised vegetation management plan for ROWs/permit.

3. Ensure that their members and affiliates that have a powerline ROW on Federal lands comply with the terms and conditions of the applicable ROW/permit, including the approved vegetation management plan, and closely coordinate vegetation management activities associated with the powerline ROW with the authorizing Federal land management agency. In particular, ensure that:

    a. Vegetation management plans for powerline ROWs on Federal lands provide for the holder to give prior notice to the administering Federal agency of all proposed vegetation management activities.

    b. Vegetation management plans for powerline ROWs on Federal lands should include procedures for conducting emergency vegetation management activities to ensure the safe and reliable operation of the powerlines. Emergency vegetation management involves vegetation trimming or removal actions near powerlines that if not taken immediately would result in damage to powerline structures that interrupts service to customers. Federal agency approval is not required prior to emergency vegetation control actions; however, actions will be reported on or before the next business day or as soon as possible to the administering Federal agency.

4. Within 18 months of the effective date of this MOU:

    a. Disseminate this MOU to their members, affiliates, and other interested parties and emphasize laws, regulations, and policies associated with vegetation management for powerline ROWs on Federal lands.

    b. Work with the Federal agencies to develop a process for coordinating vegetation management for all ROWs on Federal lands; assess the effectiveness of this MOU; and document any challenges, concerns, or opportunities for improvements in connection with implementation of this MOU.

    c. Provide the Federal agencies updates on the progress of a formal agreement with Association of Fish and Wildlife Agencies that specifically addresses coordinating vegetation management of powerline ROWs on Federal land, where such operations could potentially affect state land.

C. The Federal agencies shall:

1. Promote coordination and cooperation between the Federal agencies and the private utilities that own, operate, or maintain electrical transmission line ROWs on Federal lands.

2. If necessary, take steps to modify policies and procedures to facilitate electric utility compliance with the North American Electric Reliability Corporation (NERC) standards and other regulatory and legal vegetation management requirements for those areas that require prior review.

3. Ensure that vegetation management plans for powerline ROWs on Federal lands are consistent with Federal laws, regulations, and policies.

4. Prior to issuance of powerline ROW authorizations on Federal lands and to the extent practicable and consistent with other Federal agency obligations and priorities, analyze, review, and approve the proposed annual vegetation management plan, treatment procedures, pesticide use, maps, and mitigation measures.

5. To the extent practicable and consistent with other Federal agency obligations and priorities, review requests for any required, non-emergency vegetation management for powerline ROWs on Federal lands within member companies' desired timeframes.

6. Provide to the ROW grant/permit holders a list of suitable, native ecoregion specific plants that attract pollinators for ROW areas that may require re-vegetation to mitigate vegetation management's adverse impacts.

7. When deemed appropriate, develop separate MOUs to facilitate cooperation and coordination regarding vegetation management within and immediately adjacent to existing and future powerline ROWs on Federal lands.

8. Within 18 months of the effective date of this MOU:

    a. Disseminate this MOU to Federal agency field offices, emphasize laws, regulations, and policies associated with vegetation management for powerline ROWs on Federal lands.

    b. Work with the non-governmental parties to develop a process for coordinating vegetation management of powerline ROWs on Federal lands; assess the effectiveness of this MOU; and document challenges, concerns, or opportunities for improvement in connection with implementation of this MOU.

VII. Principal Contacts

Amendments must be in writing, signed, and dated by all Parties prior to being in effect. The principal contacts for this MOU are:

Director, Environmental Activities
Edison Electric Institute
701 Pennsylvania Avenue, NW
Washington, DC 20004-2696
202-508-5647, rloughery@eei.org

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Middle Tennessee EMC
Utility Arborist Association
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Washington, DC 20240
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Chief, National Wildlife Refuge System
United States Fish and Wildlife Service
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1849 C Street, NW Room 5625
Washington, DC 20240
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Director of Lands and Realty Management
United States Forest Service
201 14th Street SW, Suite lSE
Washington, DC 20250
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Director Biopesticides and Pollution Prevention Division,
Office of Pesticide Programs
United States Environmental Protection Agency
1200 Pennsylvania Ave, NW (751lP)
Washington, DC 20460
703-308-8712, mcnally.robert@epa.gov

VIII. Implementation, Amendments, and Termination

This MOU will become effective on the date it is fully executed and will remain in effect for 5 years, unless it is terminated in writing by all parties prior to its expiration. This MOU may be amended with the written consent of all parties. Other public or private organizations may become a party to this MOU if mutually agreed to in writing by all parties. Any party may terminate its participation in this MOU in whole or in part after 30 days written notice to the other parties. Termination of one party' s participation in this MOU does not void this MOU among the remaining parties.

IX. Non-Fund-Obligating Document

Each party will fund its own participation under this MOU and will carry out its separate activities in a coordinated and mutually beneficial manner. In implementing this MOU, the Federal agencies will be operating under their own laws, regulations, and policies, subject to the availability of appropriated funds. The non-governmental parties' actions in implementing this MOU will be subject to available funds. This MOU does not obligate any party to any current or future expenditure of resources. This MOU does not authorize the parties to spend funds or enter into any contract, assistance agreement, interagency agreement, or other financial obligation, regardless of whether funds are available for that purpose. Specific projects or activities that involve the transfer of funds, services, or property among the parties require execution of separate agreements and are contingent upon the availability of appropriated funds. These activities must be independently authorized by statute. This MOU does not provide that authority. Negotiation, execution, and administration of these agreements must comply with all applicable law.

X. Endorsement

Federal agencies do not endorse the purchase or sale of any products or services provided by private organizations or their affiliates. The MOU signatories should not make any statements, based on this MOU that implies that a Federal agency endorses the purchase or use of their products or services.

XI. Limitations

This MOU is intended to improve the working relationship between the private and public sectors in connection with vegetation management for powerline ROWs on Federal lands. This MOU is not intended to and does not create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity, by a party against the United States, its agencies, its officers, or any person.

This MOU is not intended to alter, limit, or expand the Federal agencies ' statutory and regulatory authority, including the Federal agencies ' cost recovery authority for powerline ROWs on Federal lands. Cost recovery for powerline ROWs on Federal lands will be conducted, as appropriate, under applicable laws, regulations, and policies.

This MOU has no legal effect on existing or future land use authorizations for powerline ROWs on Federal lands.

This MOU does not impose any binding obligations on any party. Nothing in this MOU obligates any of the parties to engage in any activities inconsistent with their respective missions, roles, and responsibilities.

The parties will implement this MOU consistent with all applicable Federal laws and regulations, including the Federal Advisory Committee Act. Any information furnished to the Federal agencies under this MOU is subject to the Freedom of Information Act, 5 U.S.C. § 552.

This MOU in no way restricts the Federal agencies from participating in similar activities with other public or private agencies, organizations, and individuals.

No member of or delegate to Congress may benefit from this MOU either directly or indirectly.

XII. Authorized Representatives

The parties to this MOU acknowledge that each of the signatories and the principal contacts listed in Section VII is authorized to act on behalf of their respective organization regarding matters related to this MOU.

9/29/16
Date

Thomas R. Kuhn
President
Edison Electric Institute

9/21/2016
Date

Philip Charlton
Executive Director
Utility Arborists Association

7/13/2016
Date

Jonathan B. Jarvis
Director
National Park Service

7.11.2016
Date

Daniel Ashe
Director
United States Fish and Wildlife Service

6/29/2016
Date

Steven A. Ellis
Deputy Director
Bureau of Land Management

Thomas L. Tidwell
Chief
United States Forest Service

7/29/16
Date

Jim Jones
Assistant Administrator for the Office of Chemical Safety and Pollution Prevention
United States Environmental Protection Agency

8/29/16
Date

Appendix B
Descriptions of Operations and Maintenance Activities

Contents

List of Tables

List of Attachments

This appendix contains detailed descriptions of SDG&E's Class I and Class IIa, b, and c routine O&M activities, as well as descriptions of Class III non-routine O&M activities and Class IV emergency activities. The detailed discussions of each activity below are presented in the order in which they appear in Table 1, 2, and 3 within Chapter 3 of this Plan.

For reference, Class I routine O&M activities are summarized in Table 1, Class II a, b, and c routine O&M activities are summarized in Table 2, and Class III non-routine O&M activities are summarized in Table 3.

Table B-1 (at the end of the appendix) provides an overview of O&M activity classes. Road maintenance specifications are included in Attachment B-1.

B.1 Class I – Routine Patrols, Inspections, and de Minimis Activities

Class I activities include routine patrols and inspections, with some minor repairs and maintenance (e.g., replacing insulators, transformers, switches, and fuses) on SDG&Es infrastructure. Patrols and inspections are performed for either compliance and/or operations. Other routine maintenance activities include minor repairs to existing facilities (e.g., poles, fiber optic line) and road maintenance activities that do not require new ground disturbance. Class I activities also include limbing and pruning in SDG&E's corridor, hazard tree zone, and clearing out flammable vegetation around on subject poles. Subject poles contain hardware, including fuses, switches, lightening arrestors, hot tap clamps and spilt bolts, that are used to protect electrical equipment and isolate outages. The base of subject poles are cleared annually in the event that sparks fall from this equipment.

These activities occur at scheduled intervals or as needed and are conducted from authorized roads by vehicle, on foot, or by helicopter, unmanned aerial vehicles (UAV), or other aircraft. SDG&E may inspect lines as often as deemed necessary (both proactively and reactively). Other regular maintenance activities include minor repairs to the facilities (e.g., poles, fiber optic line), vegetation management (e.g., pole brushing, line clearing) in the utility corridor, and road maintenance. Brushing is the process of maintaining clearance around subject (non-exempt) poles of flammable vegetation. Subject poles contain hardware, including fuses, switches, lightning arrestors, hot tap (hot line) clamps and split bolts, which are used to protect electrical equipment and isolate outages. The base of "subject" poles must be cleared annually in the event that sparks fall from this equipment. More detailed descriptions of Class I activities are in the sections below.

Class I activities within the CNF typically are carried out by SDG&E's vegetation management, Transmission Construction and Maintenance (TCM), and distribution line and telecommunications maintenance personnel from SDG&E's North Coast, Orange County, Northeastern, Ramona and Eastern Construction and Operations (C&O) centers, as well as from the Mountain Empire Special District. Class I activities may involve de minimis disturbance of the ground surface and vegetation within SDG&E's rights-of-way and in previously disturbed areas. These activities typically do not result in new soil disturbance. Regular Class I maintenance activities and scheduling are presented to and discussed with USFS during biannual meetings.

B.1.1 Routine Patrols

B.1.1.1 Aerial Patrols

SDG&E's maintenance staff conducts periodic patrols by air. Aerial inspections are conducted from helicopters, fixed-wing aircraft, drones, and unmanned aerial vehicles (UAVs). Transmission, telecommunication, and distribution line reconnaissance is performed to assess the condition of facilities. These patrols typically are conducted annually or on an as-needed basis to ensure continued worker and public safety and system reliability. Typically, aerial patrols are flown 200 feet above the tree line, depending on land use, topography, and infrastructure requirements. In general, the aerial inspections pass over each segment of the overhead facilities within a 1-minute period. Poles are typically between 100 and 200 feet apart, with poles more closely spaced in high wind areas. Patrols where SDG&E plans to fly helicopters below 200 feet, and where known threatened and endangered birds are present, must be submitted as a Class II activity. If a resource protection process can be established where threatened and endangered birds are mapped, and flight ceilings and limited operating periods are established, SDG&E may submit as a Class I activity.

Aerial inspection also may involve the use of drones and unmanned aircraft to inspect individual pole locations or the conditions within a right-of-way. These types of devices may be used to observe environmentally sensitive areas within the right-of way without the use of trucks, helicopters, or other equipment, thus avoiding potential environmental impacts.

B.1.1.2 Ground Patrols

SDG&E's maintenance staff conducts periodic ground patrols. Routine ground patrols generally are conducted from a patrol vehicle traveling on authorized roads but may include staff walking into a location. SDG&E is authorized to use roads defined as USFS system roads in the MSUP and Sunrise Operating Plan, county roads, state highways, or roads permitted to SDG&E for exclusive use motorized access. Ground patrols of all equipment are required based on system reliability and local conditions, including the level of dirt, dust, bird activity, and other environmental factors present in a particular geographic area; the level of vandalism of facilities (e.g., gunshot insulators); the severity of storms (e.g., Santa Ana winds), other natural disasters (e.g., fires, floods, and earthquakes), or accidents; and normal aging of the facilities.

These activities typically involve patrol personnel using all-terrain vehicles or light-duty vehicles on roads to visually inspect structures, lines, hardware, and foundations. Patrol personnel visually inspect conductors, insulators, switches, lightning arresters, line junctions, fiber optic cable, aircraft warning spheres, and other electrical components. Conditions found and required maintenance items are identified and recorded during routine patrols. Minor repairs sometimes are completed immediately, but more often they are compiled and completed separately from the patrols for efficiency.

In addition to inspecting the poles, the surrounding area is checked for vegetation and tree clearances, brush and other potential fire hazards, erosion, and slides or soil covering pole footings or foundations. Permitted roads also are checked for functioning access barriers and gates, water erosion, rocks, or slides that may block access; overhanging brush; trees that intrude into the roadway; and other combustible materials that may cause a fire hazard. No surface disturbance or off-road activity occurs during routine patrols. During winter and spring months, patrol vehicles may drive through small stream crossings that contain flowing, frozen, or ponded water. These crossings are at established locations, and periodic use will not increase erosion or result in

increased soil exposure. Routine patrols will not disturb meadows or riparian vegetation associated with streambanks.

Patrols also consist of qualified vegetation management personnel examining transmission and distribution corridors annually or as needed to identify hazard trees and other vegetation that must be treated in compliance with all applicable regulations. Pre-inspectors will mark the location and record the condition of the hazard tree(s). Felling hazard trees is considered a Class II activity. To reduce any conflicts of interest, SDG&E uses different companies for hazard tree identification versus hazard tree removal.

B.1.2 Routine Inspections

In addition to ground patrols, hands-on inspections are conducted on SDG&E's distribution and transmission facilities and associated equipment to complete a close visual assessment of structures (including foundations), insulators, conductors, permitted roads and drainage systems, and vegetation for safety and reliability purposes. Access to these facilities is similar to patrols although inspections also may involve qualified personnel physically climbing poles. Repairs and minor maintenance activities typically are performed by personnel physically climbing the pole to make the repair or from vehicles parked off of the established road near the pole, structure, or conductors.

B.1.2.1 Poles, Foundations and Mounted Equipment

SDG&E routinely inspects poles and footings to verify stability, structural integrity, and equipment condition (e.g., electrical fuses, breakers, relays, cutouts, switches, conductors, insulators, lightning arresters, line junctions, fiber optic cable, transformers, aircraft warning spheres, weather stations, fire safety and early fire detection equipment, smart-grid system data collection equipment, or other technologies or facilities). Poles and footings are accessed from authorized roads or may require overland travel on foot. Examples of minor maintenance and repairs on poles, and equipment include the following activities.

Insulator Washing: In areas with relatively high levels of atmospheric moisture, condensation combined with dust on porcelain insulators can create an electrical discharge known as arcing that can result in outages. Insulator washing on transmission and distribution lines is necessary in dusty areas (e.g., agricultural fields, near processing buildings). Insulators may require periodic washing with water to remove a buildup of dust and reduce the possibility of arcing. Washing activities generally take place from a vehicle on an established road or from a helicopter. For washing insulators on poles, a boom truck or pumper tanker pumps water through a hose or pipe to the conductor level of the structure.

A qualified electrical worker attaches a wash gun to the hose or pipe and washes the insulators. Boom trucks, or "pea-shooters," also are used. These trucks have a hose attached to the boom, and an articulating wash gun controlled from the operator platform. The wash gun is controlled remotely to apply water to and clean the insulators. For any pole to be washed, water is discharged for approximately 1 to 5 minutes, with the over-spray mostly confined to the area immediately around the structure. The rate of over-spray discharge is equivalent to a heavy mist and often evaporates before it reaches the ground. There are no chemical additives in the water used for spraying. The frequency of insulator washing is region specific and is based on the build-up of contaminants. It generally occurs every 6 to 8 weeks but can be significantly less or more frequent, depending on field conditions.

Pole Equipment Repairs and Replacements. Normal wear and tear on powerlines and associated equipment requires SDG&E to routinely make minor repairs such as repairing or replacing equipment (e.g., cross-arms, insulators, pins, transformers, wires, cables, guys, anchors, switches,

fuses, and paint) when it fails, becomes unsafe, outlasts its usefulness, or is identified for replacement. Other minor maintenance activities that may occur on SDG&E's poles include repairs made to aircraft warning spheres, bird guards and other avian protection equipment, structure mile markers, antennas, wood or steel crossarms, and brace repairs. Pole equipment repair and replacement activities typically take place using a line truck on existing public, USFS system, or MSUP permitted roads and previously disturbed designed work areas. Tools used to perform these activities, including various hand tools, ladders, ropes, and slings, are transported to and from the work location by line truck, utility truck, or helicopter, or carried to the location by personnel on foot.

Wood Poles. Wood pole inspection is also a necessary maintenance activity to evaluate the condition of wood structures both above and below ground level across SDG&E's grid, and to verify that the poles are structurally sound and appropriately loaded.

In some cases, poles also are evaluated for potential exceedance of allowable pole loading requirements, as specified in CPUC G.O. 95. Wood poles are evaluated for their structural integrity based on the load imposed upon the pole by its cross-arms, pole-mounted equipment (i.e., transformers, conductors), and environmental conditions (i.e., potential winds, icing during winter, soil moisture). Wood poles deemed insufficient to withstand the current pole loading requirements may need to be replaced. The process involves completing a visual inspection on each pole where the physical characteristics (i.e., significant holes), inventory of all equipment on the pole, and measurements are recorded.

Steel Truss Installations. Installation of a steel truss may be necessary when the structural integrity of a wood pole is compromised but generally not to the point where a pole replacement is warranted. Some steel trusses are installed to support a wood pole when a replacement is warranted but cannot occur within sufficient time to protect public health and safety and electric system reliability. Steel trussing allows a pole to be remediated with less disturbance to the environment. SDG&E has specifications that allow certain poles to be repaired with a steel truss.

Trussing of wood poles is conducted from existing public, USFS system or permitted roads and designated work areas whenever it is feasible and safe. Some pole locations and lay down areas may be in previously undisturbed areas and may result in minor ground or vegetation disturbance; however, attempts will be made to use previously disturbed areas to the greatest extent possible. If ground-disturbing activities are required to complete trussing, the activity must be submitted and reviewed as a Class II activity. Pole trussing is accomplished using a light line truck, depending on the location and local conditions. Existing roads and trails are used for access to the pole locations, and minimal ground disturbance occurs during installation of the steel, which is attached to the existing pole.

B.1.2.2 Overhead and Underground Conductors, Cables, and Wires

Regular inspection of both aboveground and underground facilities, instrumentation and controls, and support systems is critical for safe, efficient, and economical electric system operation. SDG&E inspects aboveground components periodically for common mechanical problems. Additionally, the underground portion of the line is inspected at vault locations. Inspections are performed on an as-needed basis from authorized roads or may require overland travel on foot. Repairs of overhead and underground conductor, cable, and wire typically are categorized as Class II activities and are described in further detail in Section B.2.1.2

B.1.2.3 Underground Vaults, Conductors Banks and Equipment

Regular inspection of both aboveground and underground facilities, instrumentation and controls, and support systems is critical for safe, efficient, and economical electric system operation. SDG&E

inspects aboveground components periodically for corrosion, equipment misalignment, loose fittings, and other common mechanical problems. Additionally, the underground portion of the line is inspected at vault locations. Inspections are performed on an as-needed basis from authorized roads or may require overland travel on foot. Repairs of overhead and underground conductor, cable, and wire typically are categorized as Class II activities and are described in further detail in Section B.2.1.2.

B.1.2.4 Substations

SDG&E inspects transmission and distribution substations periodically to verify equipment operation and conduct safety inspections. Substations typically are accessed from authorized roads in vehicles, by qualified personnel certified to safely enter and maintain substation equipment.

B.1.2.5 Access Roads, BMPs, Culverts, Barriers and Gates

SDG&E inspects transmission and distribution substations periodically to verify equipment operation and conduct safety inspections. Substations typically are accessed from authorized roads in vehicles.

B.1.2.6 Helicopter Pads

Helicopter pads are inspected as part of the normal patrol process. A 20-foot by 20-foot graded pad is maintained, as well as a 100-foot-wide area surrounding the pad where vegetation is trimmed to a height of approximately 2- to 3-feet above ground level. At some pads, a 2- to 4-foot-wide foot path also may be maintained from the helicopter pad to the associated pole(s). Hand and power tools are used for maintenance activities. Due to various environmental conditions (e.g., snowpack, monsoon rains, etc.), periodic replenishment of site hardening material may be required. Access to helicopter passenger pickup, refueling and landing areas occurs on an as-needed basis. Flight plans for air operations under 200 feet will be provided to the USFS Dispatch Office for Class II work.

B.1.2.7 Internal Communications, Weather Stations and Smart Grid Equipment

Inspections occur at communication sites, weather stations and other pole- or ground-mounted smart grid equipment on a regular basis. Activities performed include regular inspections of buildings, poles, pads, and other associated equipment. SDG&Es crews will visit most sites at least once a year to assess buildings for general maintenance needs, refill propane tanks, maintain generators, inspect air conditioning systems and batteries, or clean, paint and replace building fixtures. For microwave equipment, microwave alignment or waveguide replacement involves climbing the structure, which may occur up to 5 times per year. Return trips are required if extensive repairs are warranted. The equipment used for repairs ranges from vehicles and light duty trucks to heavy equipment. Hand tools and power tools are used as required. Some communication sites also involve fiber optic or copper cables that are either overhead or underground and provide telecommunication interconnections.

Fiber optic and copper cables are inspected and tested periodically (typically up to 4 times per year). Minimal overhead sections may need to be replaced to facilitate repairs. Vehicles, light-duty trucks, and telecom line trucks are used to perform these activities.

B.1.2.8 Vegetation Within and Adjacent to ROWs and Easements

SDG&E must perform ongoing vegetation management inspections, including identifying tree pruning/limbing and vegetation clearing or brushing (around subject poles) that must be completed

to be in compliance with existing state and federal laws and regulations; this is crucial for maintaining reliable service, especially during severe weather or disasters. Tree limb and branch contact with energized conductors is a potential cause of power outages and a possible ignition source for fires. Vegetation inspection within and adjacent to the ROW and border zone, as well as annual subject pole brushing inspection are Class I routine inspection activities for this Plan.

Clearance between conductors and vegetation must be maintained at all times in all conditions (e.g., sway, sag, and line loading) throughout the year. An added benefit to clearing vegetation is that SDG&E rights-of-way may act as fire breaks to help mitigate large, potentially devastating wildland fires. Pruning must be done before limbs and branches grow to within the minimum clearance distances and will result in greater than the minimum distances to allow for new growth. In addition, the clearances between lines and vegetation must be visible from the ground, and sufficient for personnel working around lines to keep themselves and their tools away from danger. CPUC, the Northern American Electric Reliability Corporation (NERC), CAISO, and the California Department of Forestry and Fire Protection monitor compliance with the clearance standards and take prompt enforcement action when clearances are not maintained.

SDG&E performs vegetation management work annually or as needed on every transmission and distribution line located within the CNF. Inspections are completed by qualified SDG&E personnel and contractors using vehicles on authorized roads and ground and aerial patrols as described above in B.1.1. Class I limbing/pruning and pole clearing/brushing are described in detail below in B.1.3.

B.1.3 Other de Minimis Activities

B.1.3.1 Land Surveys

When new construction is proposed by a property owner or land developer, SDG&E conducts land surveys of facilities and facility rights-of-way for construction layouts and other purposes. Data collected include precision measurements regarding length and slope and other geology-related information. Access is by vehicles on authorized roads but may include overland travel or surveys on foot.

B.1.3.2 Outage Repairs

After outages occur because of weather, accidents, equipment failure, or other reasons, SDG&E inspects lines to determine the location and probable cause of the outage. Lines are accessed from authorized roads or may require overland travel on foot and may utilize drones or UAVs for rapid inspection of lines to determine or confirm probable causes for outages.

B.1.3.3 Minor Pole Clearing and Limbing/Pruning

SDG&E is required to maintain minimum clearances of vegetation around certain poles for fire protection. Brushing is the practice used to maintain clearance around subject (non-exempt) poles of flammable vegetation for compliance with California Public Resources Code (PRC), Section 4292. SDG&E also maintains clearances in some Local Responsibility Areas per CPUC G.O. 95, Rule 35, which includes locations where the local fire department (not the State) has primary fire suppression responsibility.

For wood poles a 10-foot radial clearance around non-exempt poles is maintained in compliance with existing state and federal laws, rules, and regulations. For steel poles, SDG&E clears to bare ground an approximately 5-foot radius around the poles that have exposed, external ground wires, and trims all encroaching trees or other vegetation within approximately 10 feet of the pole.

Vegetation typically is hand-cleared with power brush cutters (chain saws, weed whackers or string trimmers, rakes, shovels, and brush hooks). Brush and tree pruning will be lopped and scattered or chipped at site locations or removed to a permitted disposal location offsite. Placement of debris on sensitive resources, such as known sensitive plant populations, streams or archaeological sites, would be avoided to minimize environmental impacts. Pole brushing and clearing activities typically occur annually or as needed based on local conditions.

Maintaining clearance around non-exempt poles is a Class I activity for those poles that are currently cleared of vegetation. Poles that are not currently cleared, or exempt poles that require clearance due to changes in classification, must be submitted for review as a Class II activity for initial clearing activities. Class II Pole Brushing is discussed in B.2.3.2. Once initially cleared of vegetation, all non-exempt poles may be maintained thereafter under Class I activities for the duration of the MSUP.

Woody vegetation around the footings or foundations of steel poles are cleared to allow a 100% visual inspection of the structure footing(s) and to maintain the integrity of the pole. Work is performed as follows:

- All woody or vine material capable of growing to a mature height greater than 3 feet is removed to a distance of 5 feet around the structure.
- All woody or vine material capable of growing to a mature height of greater than 10 feet is removed to a distance of 10 feet around the structure.
- Any limbs or branches growing into contact with a structure are removed to a minimum distance of no less than 10 feet from any portion of the structure.

Limbing or pruning refers to pruning, trimming, and maintaining trees and brush that is near poles and energized powerlines. SDG&E regularly maintains vegetation near primary electrical powerlines to prevent electrocution during a storm or accident, reduce the risk of fire due to arcing or sparking, and prevent power outages. Regular tree pruning also must be performed to comply with existing state and federal laws, rules, and regulations, including PRC 4923 and CPUC G.O. 95. The line clearances can vary depending on the voltage of the line, type of construction, and field conditions. At a minimum, the clearances shown in Table B-1 must be maintained for transmission and distribution circuits. These clearances are based on current regulations and subject to change as the regulations are modified or updated.

Table B-1. Required Clearances for Transmission and Distribution Circuits

Voltage	Clearance[1]
500 kV	25 feet
220 kV	25 feet
115 kV	15 feet
33 to 66 kV	12 feet
<33 kV	4 feet

1. Enhanced trim scope per the 2019 SDG&E approved WMP includes maintaining 25-foot line clearances where possible on conductors of all voltage ratings.

Note that SDG&E is implementing an enhanced trim scope within the CPUC's HFTD as part of its Wildfire Mitigation Plan (WMP) approved by the CPUC in June 2019, which includes work within the CNF. Where achievable, SDG&E will be targeting a 25-foot clearance post-trim between trees and all electric distribution and transmission facilities. State regulations require that minimum distances are kept at the time the vegetation is pruned; that is, pruning must be done before limbs and branches grow to within these distances and must result in greater than the minimum distances to

allow for new growth. SDG&E's standard approach to line clearing is to obtain the maximum amount of clearance possible and for the longest period of time possible, while taking into consideration the overall health of the tree where possible. Line clearing work typically takes place annually but sometimes more frequently if needed.

Class I limbing/pruning activities for transmission and distribution facilities occur in two distinct zones. The first is within the designated right-of-way (wire zone) where lines, poles, and related facilities are located. The actual right-of-way width, and subsequently the vegetation management zone, may vary, depending on the line voltage and particularly at mid-span to accommodate the maximum sway of the conductors. This zone will be kept clear of trees that can grow into or come within the flashover zone of the conductors. This includes felling trees up to 8 inches diameter at breast height within the authorized right-of-way.

The second vegetation management zone is variable in width and extends out from the edge of the right-of-way. The width of the border zone is determined by terrain, tree height, and sway of the conductors. Incompatible vegetation will be cleared from the border zone to reduce the risk of trees or branches falling onto lines, or lines sagging or swaying into trees. However, some small, low-growing shrubs and plants may be permitted. Additionally, trees within the border zones should not have any portion of their canopies growing adjacent to the lines.

A third vegetation management zone, known as the hazard tree zone, is beyond the right-of-way and border zone. SDG&E typically will not operate in this area unless a hazard tree is identified that is at risk of falling onto SDG&E's powerlines and related equipment. Hazard tree removal work is categorized as a Class II activity and is described in further detail in Section B.2.3.1.

The clearances between lines and vegetation must be visible from the ground and sufficient for personnel working around lines to keep themselves and their tools away from danger. The CPUC, California Department of Forestry and Fire Prevention, and other agencies or groups monitor compliance with the clearance standards and take prompt enforcement action when clearances are not maintained.

Tree pruning is completed with power and hand tools, including chainsaws, pole pruners, and hand saws. Debris may be lopped and scattered or chipped onsite or removed to a permitted disposal location offsite. Placement of debris on sensitive resources, such as known sensitive plant populations or streams, would be avoided to avoid impacts. Appropriate methods for debris disposal will be determined based on the field conditions and in coordination with USFS. All use of internal combustion engines will be operated in compliance with federal and state requirements, and the Fire Prevention Plan in Appendix F.

All Vegetation Management activities under Class I must be discussed at the USFS and SDG&E biannual meeting to identify any required limited operating periods or other RPMs to avoid impacts to special-status species during these Class I activities.

B.1.2.4 Minor Road Maintenance

Class I minor road maintenance is required to keep roads clear and functioning at a Level 2 standard. These activities typically occur in late winter, spring or early summer to clean up debris and maintain drainage structures and facilities. Maintaining the roadbed and drainage features prevents significant erosion in the future due to poor roadbed conditions. These maintenance activities occur within the existing roadbed prism and do not require new ground disturbance. Additionally, Class I road maintenance activities do not produce significant spoils, sedimentary runoff, or erosion. They typically are performed as a single pass through. More comprehensive road maintenance activities within the roadbed prism will be submitted as a Class II activity as described in Section B.2.2.1.

Class I minor road maintenance activities include the following:

Clearing Obstructions. Clearing obstructions involves removing downed trees, rocks, and other debris present on the roadbed prism.

Drainage and Culvert Cleaning. Drainage and culvert cleaning involve removing wood, accumulated debris or sediment from the inlet using hand tools such as shovels to ensure proper hydrologic function.

Vegetation Clearing. Vegetation clearing involves cutting and disposing of vegetation growth from the road surface and right-of-way using hand tools such as weed whackers and string trimmers to clear obstructions on the road prism.

Miscellaneous Structure Maintenance. Miscellaneous structures include retaining walls, guard rails, cattle guards, fences, gates, barriers, and any other similar existing structures that have been installed to provide safe and efficient operation of the road. Maintenance of these structures includes cleaning and other repair work necessary to ensure that all structures remain fully functional and in conformance with the Manual on Uniform Traffic Control Devices (MUTCD) and EM7100-15 Sign and Poster Guidelines for the USFS standards. All materials used in the maintenance of miscellaneous structures will conform by type and specification to the material in the structure being maintained.

Signage and Traffic Services Maintenance and Installation. Maintenance of signage and traffic services includes maintaining and installing signage and traffic-related regulatory, warning, and directional signs, as well as roadside delineators, markers, and other such devices.

Snow Removal. Snow removal includes blading, shoveling, or otherwise removing snow, ice, and associated debris from permitted roads and will be conducted in a manner that protects roads; ensures safe and efficient transportation of materials; and prevents erosion damage to roads, streams, and adjacent lands.

B.1.2.5 Anchor/Guy Wire Replacement

Routine anchor/guy wire replacements or additions are necessary when a structure or hardware modification requires additional support to accommodate increased loading, higher voltages, repair damages, and maintain worker and public safety. Existing roads and trails typically are used for access to existing locations inside the designated right-of-way, with minimal ground disturbance for installation of the anchor. Anchor/guy wire replacements are completed on an as needed basis and may involve the use of light-duty vehicles and trucks, and occasionally heavy line trucks. Anchor (and associated guy wire replacements) occurring within the same general position as the original anchor may be completed as a Class I routine maintenance activity.

B.1.2.6 Intrusive Wood Pole Inspections

SDG&E identifies the line segments for inspection and testing based on their age and condition. Transmission and distribution wood poles are evaluated to determine whether they are suitable candidates for replacement or trussing. Crews excavate soil and bore holes at the axis of the pole. Wood poles are intrusively inspected at least every 10 years after 15 to 20 years of service. Intrusive inspections require the temporary removal of soil around the base of the pole, usually to a maximum depth of 20 inches, to check for signs of deterioration. Small holes also may be bored into the pole to assess its structural integrity and strength. Existing roads and trails are used for access to poles. In some cases, crews will hike to poles that cannot be easily accessed by authorized roads and trails. As part of the inspection, a sample of the pole is removed and analyzed for its remaining strength capacity. A visual inspection also is conducted to determine whether there is a split or decay in the

pole and, in some cases, to catalog the equipment and loading on the pole. Once the inspection is complete, the removed soil is replaced and compacted. Return trips are required if the results of the analysis indicate that the poles need modifications or replacement.

B.1.2.7 Substation Maintenance

Substation maintenance is completed at regular intervals and as needed to ensure delivery of safe and reliable electricity. Substations are accessed via authorized roads, and substation equipment is tested and maintained as scheduled, and repaired or replaced when necessary. Class I maintenance activities include performing minor limbing/pruning to maintain pole and overhead line clearances adjacent to the substation and maintaining the perimeter fence and a defensible space around the facility.

B.2 Class II – Routine Operations and Maintenance

Class II work consists of routine O&M activities. Class II activities include repairs to existing facilities, such as replacing poles; pruning limbs or portions of trees to maintain clearance distances; felling hazard trees, including roadside trees; removing small trees and brush; replacing conductors, and completing minor underground repairs. All Class II activities undergo an environmental screening process through SDG&E's GEARS/eTS system to ensure compliance with state and federal legal requirements, and the protection and avoidance of impacts on biological, heritage, and water quality/wetland/riparian resources. SDG&E also performs field verifications prior to the activity and produces PSRs or other similar documents consistent with the NCCP. These office and field reviews together ensure that O&M activities are being implemented in ways that avoid impacts on special-status species, sensitive habitats and artifacts – in addition to minimizing the disturbance footprint of the activity.

Class II activities occur at scheduled intervals or as needed (both proactively and reactively) and are conducted from roads or trails, on foot via overland travel, or by aircraft. More detailed descriptions of Class II activities are in the sections below.

B.2.1 Routine Equipment Maintenance

B.2.1.1 Pole and Conductor Replacement

Pole and/or conductor replacements occur within the existing right-of-way. Replacement in-kind of wooden, composite, concrete, or steel poles or other materials is conducted from authorized roads and designated work areas whenever it is feasible and safe to do so. Conductor can be replaced in-kind or with insulated or coated conductor. Pole replacements also involve removing the powerline conductor and equipment for an existing pole and installing it on a new pole. Poles are typically replaced like-for-like or wood for steel per existing standards on an as-needed basis.

Some pole locations, such as interset poles and lay down areas may be in previously undisturbed areas and may result in ground and vegetation disturbance, although attempts will be made to use previously disturbed areas to the greatest extent possible. Pole and/or conductor replacement is accomplished using a backhoe, track machine, crane, bucket truck, heavy line truck and/or helicopter, depending on the location and local conditions. (Helicopter use under 200 feet requires flight notification.) If access is limited or environmental sensitivities exist, other construction methods will be used to minimize ground and vegetation disturbance to the greatest extent possible (e.g., performing work from roadside, helicopter set, same hole set). When feasible, these methods are used to avoid impacts on resources close to the project area.

The typical construction work area for a pole and conductor replacement is within a 10- to 20-foot radius around the pole. Pole replacement activities typically involve installing the new pole within the right-of-way and within 10 feet of the existing pole. Once the new pole is placed, the conductor and equipment are transferred to the new pole. The old pole is removed after all equipment (including telecommunications equipment of other utilities) is transferred to the new pole. New conductor installed on the new pole is done before the removal of the old pole and conductor. To minimize and avoid impacts, under some circumstances the new pole may placed within the boring of the existing pole (same hole set), if the structural integrity of the original hole can be maintained.

B.2.1.2 Reconductoring/Underground Work

Existing conductors may require re-stringing (replacement) to accommodate increased loading or higher voltages, or to repair damages. Replacement of existing conductors, and any necessary structure reinforcements or replacements is known as "reconductoring." Existing insulator, transformer, and hardware assemblies also may be replaced or upgraded as part of these activities. Poles may be replaced as part of this work, and their heights and/or diameter may be increased slightly. Poles may be increased from 5 to 20 feet from their original height to accommodate new conductors or regulatory conductor clearance requirements in NFS areas that are not categorized by the USFS as high or very high scenic integrity objective. These increases in height/diameter are achieved through replacement of poles. Class II reconductoring is defined and classified as a low environmental risk if (1) the wire stringing/replacement activities are generally limited to and contained within authorized roads; pole locations, including interset locations; and designated work areas; and (2) the conductor does not come into contact with any vegetation as it is pulled/lifted to its destination. In some cases, a helicopter is necessary to install poles, conductor, and equipment. Helicopter use under 200 feet requires a flight plan notification and may require RPMs. Reconductoring projects are completed on an as-needed basis.

Work crews install bare conductors by temporarily splicing them to the ends of the existing conductors and pulling them through travelers (pulleys) attached to the pole cross-arms. Travelers are installed at each pole using a boom truck. Where a boom truck cannot be used, a winch is used to install the travelers. Tensioning equipment is used to pull the conductors through the stringing blocks and to achieve the desired sag and tension condition. During the stringing operation, temporary guard structures or boom trucks will be placed at road and highway crossings and at crossings of existing SDG&E lines to ensure public safety and continued operation of other utility equipment. Coated, insulated or other conductor is installed by laying the cable on the ground and lifting it to the cross-arm or bracket rather than pulling the conductor through the travelers.

Underground work includes activities in areas previously disturbed to install a piece of equipment (e.g., subsurface vault) or to repair or replace the equipment as needed. These activities also may include replacement or repair of cables within an existing underground conduit where no to minimal ground impacts may occur in already disturbed areas. Underground work is completed on an as-needed basis and may include use of light-duty vehicles, trucks, and heavy line trucks. Backhoes and compactors also may be used for underground repairs.

B.2.1.3 Communications, Weather Station and Smart Grid Equipment Maintenance

Maintenance of internal communications equipment, weather stations or smart grid equipment may involve repairing and replacing optical ground wires, fiber optics, communications cables, and related equipment (e.g., remote fault indicators, packet routers). These activities occur on a regular basis to ensure that the infrastructure can provide the automation and information needed to operate SDG&E's power system in a safe and reliable manner.

Helicopter, cranes, rigging, and boom trucks may be used to complete microwave maintenance work. Vehicles used for communication lines and site maintenance may include bucket/reel trucks (without outriggers); various-sized pick-up trucks, boom trucks; cable dollies; a single drum puller; a two-axle trailer; and a splice lab truck. Vehicles used to receive and load out materials include a 5-ton forklift and various-sized pick-up trucks. If the maintenance activities require sky wrap cable, special equipment—including a helicopter, a tugger, and a spinner—may be used. Helicopter use under 200 feet requires flight plan notification to USFS.

B.2.1.4 Installation/Replacement of Aircraft Warning Lights and Spheres

Installation and replacement of aircraft warning lights and spheres may require both ground and aerial crews. Helicopters, rigging, climbing crews and/or boom trucks may be used to install and replace aircraft warning devices. Helicopter use under 200 feet requires flight plan notification to USFS.

B.2.1.5 Installation/Replacement of Avian Protection Measures

Installation and replacement of avian protection measures installed on poles, conductors, and other equipment occurs as needed to ensure avian protections as outlined in the Avian protection plan in Appendix G. Installation and replacement of these measures may require bucket trucks, boom trucks, various sized pick-up trucks and trailers.

B.2.1.6 Shoo-Fly/Interset Pole Installations

SDG&E needs to replace or repair poles and equipment (e.g., anchors, cross-arms, insulators, wires, cables, guys, and switches) when they fail or become unsafe. New additions to existing transmission line facilities or tap lines from the old facilities may require installation of a shoo-fly.

Shoo-fly installations involve adding temporary poles or structures around existing permanent facilities to limit service interruptions until work crews can make permanent repairs. Shoo-flies consist of a number of poles and anchors supporting conductors to bypass facilities needing repairs or upgrades. In some cases, existing conductors are removed from the old poles or structures and reattached to the shoo-fly structures. In most cases, this is accomplished with one or two poles for every circuit attached to the structure being shoo-flied. Shoo-fly supports are removed when the repair or construction work is complete. A work area of approximately 25 by 100 feet typically is required.

SDG&E may also need to install a new interset pole between existing poles to support new infrastructure and equipment. Interset poles are installed in existing rights-of-way.

Shoo-fly/interset installations are completed on an as-needed basis and may include the use of a backhoe, crane, bucket truck, heavy line truck, and helicopter. Poles typically are delivered via truck or helicopter. Varying construction methods may be used to minimize ground and vegetation disturbance to the greatest extent possible (e.g., helicopter set, same hole set). (Helicopter use under 200 feet requires flight plan notification and may require RPMs.)

B.2.2 Routine Access Maintenance

B.2.2.1 Road Maintenance

Class II routine road maintenance includes activities undertaken to (1) ensure that roads provide safe and reliable access to powerlines and facilities for maintenance and inspections crews; and (2) minimize impacts on the CNF. Most O&M activities occur from authorized roads, including Forest

System roads, MSUP permitted roads, and other public or municipality roads. SDG&E is responsible for properly maintaining and using its MSUP permitted roads according to USFS road maintenance standards. Road maintenance activities requiring ground disturbance can include roadbed restoration, vegetation management, erosion control, cleaning culverts and drainage structures, snow removal, and any other requirements to keep the roads at a Level 2 standard, or if a system road to the designated standard of that road.

Road conditions vary based on impacts from weather and usage. Access road maintenance is conducted on an annual or as-needed basis to maintain the road's original line and grade; provide a safe, drivable surface; maintain a vegetation-free travel corridor; and minimize impacts on CNF lands. In general, road grading and recontouring occur every two years, with inspections, BMP maintenance and minor road work occurring in between those full maintenance visits. SDG&E has the ability to install, maintain, and use gates and fences in the easement area with the prior written approval of the CNF. Gates and fences already in use for existing facilities do not require prior written approval.

Typical road maintenance activities are described below. Standard provisions for their implementation are described in the road maintenance specifications included as Attachment B-1.

Class II routine road maintenance activities include the following:

Road Surface Blading. Road surface blading involves keeping the native or aggregate surface of the road in a condition to facilitate traffic, minimize additional future maintenance, reduce erosion, and provide proper drainage. Road surface blading also includes maintaining the crown, inslope or outslope of the traveled way and shoulders, drainage dips, leadoff ditches, berms, and turnouts; and removing minor slides and slumps and other irregularities that prevent normal runoff from the road surface.

Rolling Dip and Waterbar Repair and Maintenance. This activity includes all work necessary to restore the rolling dip to its original shape and form. Upon completion of the work, the roadway will be shaped to provide for removal of surface water and passage by high-clearance vehicles. Berms existing prior to maintenance operations will be repaired or reinstalled. Maintenance includes excavating, placing, and compacting replacement surface material.

Slide Removal and Slump Repair. Slide removal and slump repair includes all work necessary to restore the road to its original cross section, as may be necessary following a slide or slump event, to facilitate use and provide drainage. This work typically cannot be accomplished by a grader during surface blading and ditch cleaning operations due to the size of the slide or slump. Slide removal and slump repair may include excavation, loading, hauling, placing, and compacting replacement material, and removing and disposing of waste material at approved locations.

Road Surface Repair. Road surface repair consists of using surface aggregate or other materials to patch potholes and depressions. It includes all surface preparation activities, furnishing and placing all surfacing materials, and other work necessary to patch the road surface. It will also include slump repair and slide removal incidental to other repairs being made to roads.

Surface Rock Replacement or Spot Surfacing. Surface rock replacement or spot surfacing consists of adding rocks, gravel, or other surfacing materials to the road to re-establish existing conditions and allow for a drivable surface and appropriate drainage control.

B.2.2.2 Culvert/Crossing Repair and Maintenance

Class II routine culvert and water crossing maintenance activities may be conducted during road maintenance activities, or independent of scheduled road maintenance. Culvert and water crossing maintenance activities the following:

Cleaning Drainage Structures. Drainage structures are constructed passages with single or multiple waterways designed to promote efficient water flow without damaging surrounding resources; examples include drains, culverts, bridges, and other structures that permit water flow under the roadway. Maintenance of these structures includes repairing erosion and cleaning around inlets, outlets, related channels, existing riprap, rock gabions, trash racks, delineators, object markers, rails, and timber; bridge inspections; and other work necessary to maintain the structures. All materials used in the maintenance of drainage structures shall conform by type and specification to the material in the structure being maintained.

Ditch Cleaning. Ditch cleaning involves removing and disposing of all slide or slump material from roadside ditches to provide an unobstructed waterway conforming reasonably to the previous line, grade, and cross-section. These activities may require heavy equipment as well as recontouring the ditch.

Culvert Cleaning. Culvert cleaning involves cleaning and reconditioning of culverts, catch basins, dissipators, and other small drainage structures. These activities may require heavy equipment as well as recontouring the drainage to restore flow patterns.

Culvert and Rock Ford Crossing Repair and Maintenance. Repair and maintenance of culverts and rock ford crossings includes adding and stabilizing rock or aggregate at a road crossing to improve drainage control and minimize erosion, adjusting culverts to match upstream and downstream channel elevations, and installing erosion protection at inlets and outlets. Culvert replacement or new culvert installation is a Class III activity.

Bridge Maintenance. Bridge maintenance may involve clearing debris lodged on the bridge structure, repair of scour or erosion, or stabilization of bridge footings, repair of bridge decking, or other bridge related maintenance tasks required for safe bridge use. Bridge replacement or new bridge installation is a Class III activity.

B.2.2.3 Repair/Replacement of Gates, Barriers and Signage

Repair and replacement of gates, barriers and signage installed and maintained by SDG&E on the CNF is a Class II routine maintenance activity. Repairs may include welding, cutting and grinding to repair damaged gates and barriers, or full replacement of gates, locking mechanisms, hinge posts or pipe rail barriers and posts. Repair or replacement of SDG&E signage mounted on gates, barriers and along access roads is included as a Class II activity in this Plan.

B.2.3 Routine Vegetation Maintenance

B.2.3.1 Hazard Tree Trimming and Removal

A hazard tree is a tree located on or adjacent to the SDG&E right-of-way or facility that could damage SDG&E facilities should it fall where (1) the tree leans toward the right-of-way; or (2) the tree is defective because of any cause, such as heart or root rot, shallow roots, excavation, bad crotch, dead or with dead top, deformity, cracks or splits, or any other conditions that could result in the tree or a main lateral of the tree falling. This may include dead, diseased, dying or green trees. Class II activities including felling hazard trees located in or beyond the SDG&E right-of-way (in the wire-zone, border-zone or hazard tree zone).

Hazard tree work may include individual trees or larger groups of trees that meet the definition of a hazard or danger tree as a result of landslides, storms, wildfire, drought, insects, opening the stand from adjacent timber harvesting, or erosion. It also may include green trees that have characteristics prone to causing outages such as long limbs near lines that tend to blow or break out in storms, low

trunk diameter-to-height ratios that tend to bend over under snow loads, shallow root systems that uproot under saturated soils, and exposed roots along road or stream banks.

Trees usually are removed with chainsaws, pole pruners, and hand saws. Work may be conducted from ground-level, by tree climbing or from lift trucks.

SDG&E will coordinate with USFS on fuel management requirements within the CNF or other specific measures to fell and treat hazardous trees, including measures to protect other sensitive resources known to occur in the vicinity of the hazard tree(s). All use of internal combustion engines will be operated in compliance with federal and state requirements, including Program Activity Levels (PALs) and in compliance with the Fire Prevention Plan in Appendix F.

Vegetation Management is not considered a commercial activity and is not subject to stumpage or settlement sale as a Forest Product, unless SDG&E is attempting to recuperate costs by selling hazard trees as a by-product of their operation.

B.2.3.2 Pole Brushing

SDG&E is required to maintain minimum clearances of vegetation around certain poles for fire protection. Brushing is the practice used to maintain clearance around subject (non-exempt) poles of flammable vegetation for compliance with California Public Resources Code (PRC), Section 4292. SDG&E also maintains clearances in some Local Responsibility Areas per CPUC G.O. 95, Rule 35, which includes locations where the local fire department (not the State) has primary fire suppression responsibility.

For wood poles a 10-foot radial clearance around non-exempt poles is maintained in compliance with existing state and federal laws, rules, and regulations. For steel poles, SDG&E clears to bare ground an approximately 5-foot radius around the poles that have exposed, external ground wires, and trims all encroaching trees or other vegetation within approximately 10 feet of the pole. Vegetation typically is hand-cleared with power brush cutters (chain saws, weed whackers or string trimmers, rakes, shovels, and brush hooks). Brush and tree pruning will be lopped and scattered or chipped at site locations or removed to a permitted disposal location offsite. Placement of debris on sensitive resources, such as known sensitive plant populations, streams or archaeological sites, would be avoided to minimize environmental impacts. Pole brushing and clearing activities typically occur annually or as needed based on local conditions.

Maintaining clearances around non-exempt poles is a Class II activity for those poles that are not currently cleared annually as part of SDG&E's vegetation maintenance program, or for exempt poles that require clearance due to changes in classification. For these poles, initial clearing activities must be submitted as a Class II activity. Once initially cleared of vegetation, all non-exempt poles may be maintained thereafter under Class I activities for the duration of the MSUP

B.2.3.3 Corridor and Access Vegetation Maintenance

Class II routine vegetation maintenance activities may be conducted during other schedules Class II maintenance activities such as road maintenance activities, or independent of other scheduled maintenance activities. Class II corridor and access vegetation maintenance activities the following:

Corridor Vegetation. Vegetation and trees can create access problems, fire hazards, and clearance hazards when they encroach on the minimum clearance distances. Vegetation adjacent to previously cleared corridors and areas tends to resprout quickly and intrude into the wire and border zone areas. Many transmission corridors require maintenance clearing at 2- to 5-year intervals to manage low-growing vegetation communities before they approach conductor distance clearance

requirements. Vegetation may be cleared with chainsaws and hand saws as well as by mechanical mowing to control brush and small trees in wire zones and border zone areas.

Foot Trails and Helicopter Pads. Vegetation occurring within and immediately adjacent to foot trails leading to and from helicopter pads and associated poles, as well as the perimeter of helicopter pads may be cleared annually or as needed with loppers, chainsaws, hand saws, or weed whips, and the vegetation disposed of to ensure a safe pedestrian path is maintained for routine inspections and patrols, or any other routine or non-routine maintenance required at helicopter pads or associated poles.

Clearing Roadside Vegetation. Clearing roadside vegetation consists of cutting and disposing of all vegetative growth from the road surface and right-of-way, including trees that reduce the operational capability and sight distances of the road. Vegetation removal is required if growth during the authorization period causes unacceptable reduction of sight distance or operational capability, impedes the flow of water, or diverts water from drainage structures. In some cases, this involves using mechanical equipment, such as a mower, to remove weeds or vegetation growing in the road or from the side of the road. Roadside vegetation may be cleared during regularly scheduled road maintenance, or independent of road maintenance.

Vegetation Establishment. Vegetation establishment consists of applying seed, fertilizer, mulch, and/or plantings—singularly or in specified combinations—to cut or fill slopes, slides, slumps, disposal areas, or other areas disturbed during SDG&E's routine and non-routine maintenance activities. The work area may be limited to designated portions of the roadway and roadside or may include treatment of the entire area bounded by the outer limits of the right-of-way. This activity requires the review by the SDG&E Habitat Restoration Specialist to ensure that materials used comply with all weed-free and native plant initiatives for the local area.

B.2.3.4 Pesticide and Herbicide Application

Pesticide and herbicide applications are a Class II activity that must be conducted consistent with the CNF Invasive Weed Management Environmental Assessment (EA) (USFS 2014) and can only be utilized when and where specifically approved by the USFS. Only pesticides and herbicides specifically approved within the CNF Invasive Weed Management EA may be used. Any use of herbicides or pesticides by SDG&E on the CNF will include notification to the USFS Heritage Program Manager, to ensure that appropriate tribal notifications for the application areas can be completed.

B.2.3.5 Fuels Management for Wildfire Mitigation

Many of SDG&Es MSUP facilities on the CNF occur in Tiers 2 and 3 of the CPUC's HFTD, so SDG&E may submit fuel management projects (or programs) within the permitted ROW and easement areas of the CNF to mitigate or reduce the potential for wildfire ignition adjacent to poles and/or conductors consistent with SDG&E's most recent approved Wildfire Mitigation Plan (WMP). Any plan for activities that would be submitted as a Class II activity will occur entirely within the NEPA analyzed permitted boundary and will be developed in coordination with the USFS and the wildlife agencies to ensure avoidance and minimization of impacts to environmental resources, including heritage resources.

B.3 Class III – Non-Routine Maintenance

Activities that cannot be characterized as routine and ongoing, and do not fit the scope and scale of Class I, Class II, or emergencies are considered Class III. In many cases, these activities are considered non-routine maintenance because they are broader in scope, encompass areas outside of

the permitted boundary, and may be proposed in areas of the CNF supporting environmental resources. These activities typically require more extensive environmental analysis, review, and reporting prior to initiating work. Projects require USFS review to determine the extent to which additional permits, documentation, or surveys may be required in order to comply with NEPA.

Class III work generally includes large replacement projects and multiple planned pole replacements; line extension or line relocation projects; major tree removal projects; and fuel-loading reduction projects, not including the follow-up maintenance to support reduction of re-grown fuels and to maintain wire zone-border zone conditions that do not require ground disturbance. Other examples of Class III work include new road construction within the permitted ROW or reconstruction of a new route. This category of work also has a higher likelihood of ground disturbance in undisturbed areas. Construction and major reconstruction project plans will be submitted to the CNF for review.

More detailed descriptions of Class III activities are in the section below.

B.3.1 Electric Transmission and Distribution System

B.3.1.1 Large Reconductoring Projects

Reconductoring projects that exceed the parameters of the reconductoring work described in Class II are typically much larger and may have temporary effects due to work taking place outside the right-of-way. Reconductoring projects may occur over multiple sections that vary in length. Pull and tension sites (pull sites) are used, and work areas or lay down areas on CNF lands outside of the authorized right-of-way are required. Pull sites are temporary construction areas that are used during removal of existing conductors and placement of new conductors along the transmission line. Pull sites may be used to stage materials and provide work areas for pole work. Pull sites typically are located within relatively flat areas that are in line with the conductor. Several pieces of equipment are used at the pull sites, including tensioners (rope trucks) to feed out the new conductor and adjust tension, conductor reels to receive the existing conductor as it is removed, and reels of new conductors. Trailers pulled by semi-trucks, which also are parked onsite, typically deliver and remove the reels. Onsite cranes move the conductor reels on and off of the semi-trucks.

Pull sites are generally rectangular and vary in size, from approximately 50 to 350 feet wide for small pull sites and approximately 100 to 1,250 feet long for large pull sites. Distances between pull sites vary, but on average, approximately 3 miles of conductor separates pull sites. Vegetation mowing and minor grading may be required to prepare pull sites for use. Other equipment that may be needed include four-wheel drive trucks, boom trucks, line trucks, helicopters, and large tractors. (Helicopter use under 200 feet requires flight plan notification and may require RPMs.) These projects are completed on an as needed basis.

Before pulling the conductor, SDG&E's crews install clearance structures at road crossings and other locations (where necessary) to prevent conductors from contacting existing electric or communication facilities or passing vehicles. These temporary structures consist of wood poles.

After the conductors are pulled into place, they are tensioned by pulling them to a predetermined sag and tension. The conductors are then permanently attached to the insulators and existing conductors.

One-third of all reconductoring work requires a pull site; the remaining reconductoring work requires installation and removal of travelers on a two-circuit line, resulting in disturbance. Electric transmission reconductoring also requires a 25- by 25-foot work area. Larger reconductoring projects also may require replacement and upgrade of one or more utility poles and construction activities that would result in temporary ground disturbance beyond the designated right-of-way.

B.3.1.2. Wood to Steel Pole Conversions

Converting wood electric distribution and transmission poles to steel is a non-routine Class III activity that supports SDG&E's wildfire hardening program. New steel poles are installed via direct bury or with concrete or micro-pile foundations near the existing wood pole, and conductors and other equipment are transferred to the new pole, and the wood pole is removed. This work typically can be completed within the existing rights-of-way but may require new rights-of-way or an amendment of existing land use authorizations. Staging may also occur in previously undisturbed areas. Equipment that may be needed include four-wheel drive trucks, excavators, boom trucks, line trucks, helicopters, rough terrain cranes, and large tractors. (Helicopter use under 200 feet requires flight plan notification and may require RPMs.)

B.3.1.3 New Pole Installation/Alignment Changes

Constructing new poles or extending existing overhead distribution and transmission lines may be needed to provide additional service to existing customers or new service to new customers. These new lines would be supported by wood poles, light-duty steel poles, or tubular steel poles installed via direct bury or with concrete or micro-pile foundations. This work typically can be completed within the existing rights-of-way but may require new rights-of-way or an amendment of existing land use authorizations. Staging may occur in previously undisturbed areas. These projects may be constructed in natural vegetation and on agricultural lands that contain suitable habitat for special-status species. Equipment that may be needed include four-wheel drive trucks, excavators, boom trucks, line trucks, helicopters, rough terrain cranes, and large tractors. (Helicopter use under 200 feet requires flight plan notification and may require RPMs.) These projects are completed on an as-needed basis.

B.3.1.4 New Underground Projects/Underground Conversions

Extensions or replacements of existing underground electric facilities, conversions of existing overhead electric transmission or distribution to underground electric, and new construction of electric transmission or underground facilities may occasionally be necessary with the CNF. For both transmission and distribution lines, underground cable installation is accomplished using a cut-and-cover construction method (open trenching) for the underground power line, duct banks, and splice vaults. The length of the construction area for the covered activity varies based on the length of the line. During construction, trench excavation spoil is removed and stored. If hazardous material is present, construction crews haul the material offsite and dispose of it appropriately.

This work typically requires establishment of new rights-of-way or amendment of existing land use authorizations, but often removes overhead electric facilities from service in areas of the CNF that support environmental resources. These Class III non-routine activities are completed on an as-needed basis and may involve the use of trenching equipment, trucks, and excavators, cranes and other heavy equipment.

B.3.1.5 Wood Pole Removals/Circuit Removals from Service

Wood poles occurring on portions of circuits, or entire circuits that are converted to underground or relocated may be removed from service (RFS). These Class III non-routine RFS activities are completed on an as-needed basis to support SDG&E's CPUC approved Wildfire Mitigation Plan (WMP) and may involve the use of four-wheel drive trucks, excavators, boom trucks, line trucks, and helicopters, and other equipment as needed. (Helicopter use under 200 feet requires flight plan notification and may require RPMs.) RFS of poles and circuits typically removes overhead electric facilities from service in areas of the CNF that support environmental resources and may include areas of SDG&Es easements that can be quitclaimed by SDG&E for habitat mitigation credit by USFS.

B.3.1.6 Energy Storage and Microgrid Projects

Battery energy storage and microgrid projects may support grid resiliency, reduce or eliminate public safety power shutoff events in critical areas of the CNF and provide solutions to optimize use of renewable energy. These Class III non-routine activities may be completed within the existing rights-of-way but may require new rights-of-way or an amendment of existing land use authorizations to be completed. Staging for construction may also occur in previously undisturbed areas outside of existing rights-of-way. Equipment required for these non-routine activities is highly variable depending upon the specific infrastructure being installed and the configuration (e.g., flow batteries, solar PV, etc.) but may include four-wheel drive trucks, excavators, boom trucks, line trucks, rough terrain cranes, and large tractors.

B.3.2 Infrastructure Access

B.3.2.1 Major Road Construction/Reconstruction

Class III road construction activities may include, but are not limited to, work outside of the road existing road prism, road realignment projects, re-construction of roads to meet safety and compliance standards, and installation of new road facilities (e.g., culverts, water diversions, hardened or stabilized at-grade crossing, bridges, curbs, etc.).

Class III access road maintenance also may include repair, replacement and installation of storm water diversion devices on an as-needed basis. Storm water diversion devices are used to protect structures or roads in areas that are susceptible to erosion caused by water run-off. Examples of these types of storm water diversion devices include McCarthy Road over side drains (Mac drains), culverts, water bars and stormwater dissipators, “V” ditches, “V” ditches with splash wall, berms, sacked concrete, and visqueen with sandbags and rebar. Equipment that may be needed for these activities include four-wheel drive trucks, graders, excavators, water trucks, and large tractor vehicles.

Major road construction/reconstruction work occurs on an as-needed basis and may be completed within existing or new rights-of-way. Work extending beyond the existing road prism may require a amendment to existing land use authorizations and change in grade or slope or change in condition. Staging may occur in previously undisturbed areas.

Dust abatement is conducted as a component of conducting other road maintenance work and is typically conducted for large work (i.e., Class III); it consists of preparing the road surface; furnishing all necessary materials; and applying products, chemicals or materials such as water, bituminous products, lignin sulfates, and chloride products to reduce dust generated from traffic on the road surface.

Coordination with the CNF Forest Engineer is required to determine if a road use agreement is needed for work on Forest System roads.

B.3.2.2 Helicopter Access Pad Construction/Reconstruction

New helicopter pad installation and reconstruction or removal of existing helicopter pads may be required, and these non-routine maintenance activities will be submitted to the USFS as a Class III activity. New installations may require new rights-of-way and amendment to existing land use authorization, and will typically include vegetation clearing, grading, excavation and installation of the platform base and supports, as well as establishment of a compacted, cleared space around the platform and any foot trails to and from the platform. Reconstruction or removal may require welding, cutting, excavation and removal of the platform, supports, and associated materials.

Removals may also require decompaction and vegetation establishment. Equipment used to complete these activities include helicopters, motorized augers and blades, welding and cutting equipment, fire support and equipment staging.

B.3.2.3 Specialized Right-of-Way Vegetation Management

Specialized transmission and distribution line right-of-way projects focus on infrequent long-term vegetation management strategies to increase safety and system reliability. These activities help to protect the facilities in the event of a fire and allow for more timely restoration of service during emergency conditions. Specialized right-of-way vegetation management projects use the wire zone/border zone method, in which the wire zone (including the right-of-way area lying under the conductor plus 10 to 50 feet on both sides depending on pole height) is managed for low-growing vegetation, while the border zone (the portion of the right-of-way that extends from 10 to 20 feet outside of the wire to the edge of the right-of-way) is managed for taller vegetation.

Specialized right-of-way vegetation management may include the following:

- Removal of structurally unsound, incompatible or selective vegetation and trees from outside of the authorized right-of-way.
- Right-of-way widening, reclamation of overgrown corridors that have only had pruning for many years, forest fuel reduction, or access improvement projects.
- Use of helicopters with a vertical, multi-blade apparatus that is suspended from the helicopter may be used to trim back branches growing in the right-of-way.

The use of helicopters includes Heli-Saw, Heli-Feller, and other similar equipment. Heli-Saw is a vertical, multi blade apparatus that is suspended approximately 100 feet below the helicopter. Typically, it is used to trim back branches growing into the right-of-way. This prevents branches from growing into the conductor and reduces snow loading in winter that can cause trees to fall into the conductor. Heli-Feller is an apparatus that is suspended approximately 75 feet below the helicopter. The pilot maneuvers it up against the trunk of the tree and a set of hydraulic arms grabs the trunk. A saw, positioned between the upper and lower arms, extends out and cuts through the trunk of the tree and then retracts back. The pilot then releases the cut portion and directs it to an appropriate place on the ground. The typical cut piece will be between 5 and 15 feet, depending on the size of the tree. This process is repeated until the tree is short enough that it will not strike the line if it falls. Authorization for these activities will be coordinated with the CNF and would occur on an as-needed basis. (Helicopter use under 200 feet requires flight plan notification and may require RPMs.) Other equipment that may be used during these activities include logging equipment, hydro-axes, masticator equipment, and large tractors.

B.3.2.4 Access Road Decommissioning

Existing transmission access roads may be decommissioned after RFS of electric transmission and distribution overhead, and these non-routine maintenance activities will be submitted to USFS as Class III activities. Depending upon the existing condition of the access road and the required establishment of vegetation once decommissioned, these activities may require heavy equipment such as graders and bulldozers to decompact soils, reestablish slope contours and remove roadbed cuts, culverts and other manufactured crossings. SDG&E will develop and access road decommissioning activities with USFS to ensure that the minimum level of disturbance required to successfully complete the activity will be utilized.

B.3.3 Wildfire and Operational Risk Mitigation

B.3.3.1 Fuels Management for Wildfire Mitigation Inside/Outside ROW

Many of SDG&Es MSUP facilities on the CNF occur in Tiers 2 and 3 of the CPUC's HFTD, so SDG&E may submit fuel management projects (or programs) within the permitted ROW and easement areas of the CNF to mitigate or reduce the potential for wildfire ignition adjacent to poles and/or conductors consistent with SDG&E's most recent approved Wildfire Mitigation Plan (WMP). Any plan for fuels management activities that cannot be completed entirely within the permitted boundary and/or with BMPs and RPMs, would be submitted as a Class III activity. These fuels management projects or programs would include areas that occur outside of the NEPA analyzed permitted boundary, may require repeated treatments over time, will likely require more extensive environmental analysis and to ensure avoidance and minimization of impacts to environmental resources, including heritage resources, and will be developed in coordination with the USFS and the wildlife agencies.

B.3.3.2 Wood Removal

When large groups of trees are removed for rights-of-way widening, safety reasons, large-scale tree die-off, wildfire damage, or other reasons, the large wood may be removed from the project area as a fuel reduction measure or to make use of the wood resource as firewood, wood chips, or lumber. If SDG&E removes forest products from the CNF to be traded, bartered or sold, a timber settlement sale may be executed. Service contracts with no stumpage fees may be agreed to where wood products are not commercially valuable but are removed to reduce fuel loading.

Downed logs generally are left on the ground to meet large woody material requirements for wildlife habitat. In addition, due to the widespread presence of Golden Spotted Oak Borer (GSOB) throughout the CNF, material is chipped in place to prevent the spread of beetles to unaffected areas. If safe access and a lack of GSOB infestations allow salvage of the marketable material, the USFS may request that SDG&E provide a summary of timber volume; and the material may be sold to SDG&E under a timber settlement sale. Activities may include felling trees whole, skidding logs or wood chunks to a landing, loading them on trucks, and removing from the site. Hazard tree felling and pruning operations generally require vehicle access to the vicinity of the work area. Additional equipment that may be necessary include logging equipment, hydro-axes, masticators, and large tractors. Timber contractors are used to fell or trim hazard trees. This work would be completed as needed when authorized.

B.4 Class IV – Emergency Response

Emergency work is required to resolve a situation that has compromised the transmission or distribution facilities, electric system reliability, or USFS resources. These situations represent immediate threats to public safety, electric reliability, or property. Emergency response can involve activities that require crews to respond immediately to address an imminent threat (i.e., hazards that could cause serious accidents under present conditions). Emergency response can also involve addressing emergency situations that result from conditions such as high winds, storms, wildfires, other natural disasters (e.g., slumps, slides, surface fault ruptures, erosion, major subsidence, earthquakes, and floods), and other accidents that damage SDG&E's infrastructure and equipment

Emergency repairs may include replacing downed poles, reconductoring segments of line, pulling new line, removing vegetation, and felling trees that pose an imminent threat to facilities. While most activities can be scheduled in advance, emergency repairs may be needed at any time.

Access for emergency repairs is primarily on authorized roads, although some overland access with small trucks or sport utility vehicles is expected. Emergency response may include helicopter flights below 200 feet of the tree line, overland travel on non-MSUP permitted roads, and access for emergency equipment used to address the hazards and restore power. Required equipment varies but typically involves four-wheel drive trucks, boom trucks, line trucks, and helicopters. Repair may entail activities ranging from reclosing a switch to replacing a transformer or pole. New conductors may be installed using string blocks and tensioning equipment.

Emergency work will start immediately to correct unsafe conditions and return the transmission or distribution facilities to service. SDG&E will notify the USFS as soon as reasonable (typically within 48 hours) of an identified need for or commencement of any emergency repairs. The notice will include a description of the work, location of the facilities, and cause of the emergency, if known. In addition, if the emergency repair activity is located within a jurisdictional wetland or waterway, SDG&E will notify the appropriate federal or state regulatory agencies in accordance with current regulatory requirements. Roads damaged by SDG&E during emergency use will be repaired to pre-use levels. The USFS and SDG&E will mutually inspect and agree on any restoration work required to repair emergency work areas.

SDG&E will provide post-reporting and other information to the USFS as required within 15 business days of completing work associated with a situation posing an imminent threat (e.g., a pole posing an imminent threat of falling) and within 30 business days of completing work associated with activities resulting from an emergency (i.e., wildfire response).

While most activities can be scheduled reasonably well in advance, emergency repairs may be needed at any time.

Table B-2. Overview of Operations and Maintenance Activity Classes

Class I	Class II	Class III	Class IV
Routine Patrols, Inspections, and de Minimis Activities	*Routine Operations and Maintenance*	*Non-Routine Operations and Maintenance*	*Emergency Response*
Overview			
Class I routine O&M activities include routine ground and aerial patrols and inspections, with some minor repairs and maintenance (e.g., replacing insulators, transformers, switches, and fuses) on SDG&E's infrastructure. Patrols and inspections are performed for compliance and/or operations. These activities occur at scheduled intervals or as needed and are conducted from MSUP-permitted roads by vehicle, on foot, or by aircraft. SDG&E may inspect lines as often as deemed necessary. Class I activities also include vegetation management in SDG&E's rights-of-way, hazard tree zone, and on subject poles and powerlines. Other regular maintenance activities include land surveys, minor outage repairs to the facilities (e.g., poles, fiber optic line), vegetation management (e.g., pole brushing, line clearing) in the right-of-way, minor road maintenance, anchor and guy wire replacements, intrusive wood pole inspections and substation maintenance. Class I activities typically are carried out by SDG&E's transmission construction and maintenance staff (TCM), distribution line maintenance, and vegetation management personnel. Class I activities may involve de minimis disturbance of the ground surface and vegetation within SDG&E's rights-of-way, in previously disturbed areas.	Class IIa, b, and c routine O&M activities for existing facilities include replacing existing poles and conductors, reconductoring and underground work, maintenance of communications, weather stations and smart grid equipment, installation or replacement of aircraft warning spheres and lights, installation and replacement of avian protection measures, shoo-fly and interset pole installations, routine road maintenance, culvert repair and maintenance, gate, barrier and signage installation and replacement, felling hazard trees, pole brushing new subject poles, routine vegetation management for access road, helicopter pads and foot trails, routine vegetation maintenance to maintain wire zone and border zone conditions, pesticide and herbicide application and wildfire mitigation fuel treatments. The need for these activities primarily is identified as a result of Class I inspections or patrols and may occur on a frequent (more than once a year) basis. Class IIa, b or c activities may involve disturbance of the ground surface and vegetation within the SDG&E's rights-of-way.	Non-routine O&M activities include large reconductoring activities, wood to steel pole conversions and multiple planned pole replacement or realignments, new underground or underground conversion activities, wood pole and circuit removals from service, energy storage and microgrid projects, major road construction or reconstruction activities, helicopter access pad construction and reconstruction or removal, specialized right-of-way vegetation management, access road decommissioning, wildfire mitigation fuels modification activities and wood product removal. This activity class is more likely to result in ground disturbance. This class also includes those Class II activities that cannot be performed within established parameters of the O&M Plan and require approval prior to commencing activities.	Emergency work addresses immediate threats to public safety, electric reliability, or property. Emergency situations generally result from high winds, storms, wildfires, other natural disasters (e.g., slumps, slides, surface fault ruptures, erosion, major subsidence, earthquakes, and floods), and other accidents that damage SDG&E's transmission and distribution lines. Emergency repairs may include replacement of downed poles, reconductoring segments of line, or pulling new line. An emergency also is considered in instances where a system failure "breakdown" has occurred, as a result of multiple poles, and conductors being down. Repairing the damage requires immediate attention.
Notification			
To the extent possible, Class I O&M activities are reviewed with the USFS during annual meetings. SDG&E will notify the USFS and will proceed with this work using standard BMPs and RPMs when no resources are present. Patrols and inspections require no notification. If SDG&E utilizes motorized vehicles to access its facilities via off-highway vehicle routes, it must comply with the requirements discussed in *Section 2.6.3* in the Plan.	Based on the established screening process, Class IIa O&M activities require that SDG&E submit a notification package at least 5 business days prior to commencing work activities that include standard BMPs. The USFS will have 5 business days to review the notification and provide additional feedback, and SDG&E proceeds with work after 5 business days. Class IIb O&M activities require that SDG&E submit a notification package at least 10 business days prior to commencing work activities that include standard BMPs and RPMs. The USFS will have 10 business days to review the notification and provide additional feedback on the work activities and may require additional BMPs and RPMs. Class IIc O&M activities (including those Class I activities occurring within a TCP) require that SDG&E submit a notification package at least 15 business days prior to commencing work activities that include standard BMPs and RPMs. The USFS will have 15 business days to review the notification and provide approval or a timeline for approval.	SDG&E submits detailed work packet to USFS prior to initiating work that includes the proposed work activities, BMPs, and RPMs to be implemented. The USFS has 30 business days to approve, approve with additional protection measures, provide a schedule for approval.	Emergency work activities start as soon as possible to correct unsafe conditions and return SDG&E's facilities to service. BMPs and RPMs are implemented as feasible. SDG&E notifies the CNF as soon as reasonable (typically within 48 hours) once emergency work is identified as needed or has been initiated. SDG&E will provide post-reporting and other information to the USFS as required within 15 days of completing work associated with an imminent threat and within 30 days of completing work associated with an emergency.

Attachment B.1
Road Maintenance Specifications

Road Surface Blading Standard Provisions

1. Perform all aspects of surface blading as often as discussed in the annual meeting; and to the standards required by the USFS to facilitate traffic and proper drainage.
2. Perform surface blading in such a manner as to preserve the existing road profile and cross section, and to conserve surface materials.
   i. On gravel surfaced roads, the base must not be disturbed, and no surface material may be bladed into the ditch or onto the road shoulders, except when needed to achieve other road maintenance objectives.
   ii. On native surfaced roads, perform blading so that no base material under four (4) inches in the greatest dimension is lost.
3. Remove all ruts, holes, or other surface flaws by scarifying and/or cutting to the bottom of any surface irregularities. Remove any oversize material brought to the surface during the scarification process. Replace surface material that has been displaced to the shoulders, turnouts, outside of curves, etc., so as to leave a uniform depth on the traveled way at completion of blading. Apply water during blading if moisture is insufficient to prevent segregation.
4. Prevent undercutting of existing roadside cut slopes and berms.
5. Grade the roadbeds of intersecting side roads for a reasonable distance to ensure proper blending of the two travel surfaces.
6. Clean and continually maintain drainage dips and leadoff ditches to conform reasonably to their original constructed lines, grade, and cross section.
7. Promptly repair damage to existing road berms by placing selected material as needed to restore the berm to its original condition.
8. Do not push material over the side of the road or into creeks.
9. Materials resulting from blading shall not remain on or in structures such as culverts, cattleguards, or drainage dips.

Dust Abatement Standard Provisions

1. Prepare the road surface in accordance with Road Surface Blading.
2. Obtain advance approval (annual meeting) from the USFS for the type and rate of application of the product(s), chemical(s) or other material(s) to be used for dust abatement.
3. Application of chemical products shall not be applied when rain is anticipated within 24 hours of treatment application.
4. Obtain and apply approved dust abatement product(s), chemical(s) or other material(s) as necessary to control surface loss and provide for intervisibility between vehicles within their stopping distances.
5. Ensure dust abatement product(s), chemical(s) or other material(s), including water, are not applied excessively such that they run off the road surface resulting in pollution or unnecessary waste.

6. Maintain dust abatement procedures as required throughout operation and use of the road.

Slide Removal and Slump Repair Standard Provisions

1. Deposit slide/slump material at a location approved by the USFS. SDG&E will not dispose of slide/slump material on road fills, nor establish any borrow, sand or gravel pits, stone quarry, or permanent material storage areas unless specifically authorized by the USFS.
2. Repair/reshape the slope which contributed the slide/slump material as much as practicable to reduce future sliding/slumping.
3. Fill slumps and depressions using selected material, placed in layers, and compacted to conform with or exceed the density of existing subgrade.
4. Salvage and replace existing aggregate surfacing after slumps have been filled.
5. Reshape roadway following slide/slump removal so it reasonably conforms to its original subgrade template.
6. Seed slump, waste, and borrow areas as required.

Road Surface Repair Standard Provisions

1. Prepare the road surface in accordance with Road Surface Blading.
2. Perform surface repair in a timely manner to prevent further road surface deterioration.
3. Ensure native material or aggregate is distributed uniformly and properly compacted; feather the edges to conform to the original road profile and provide a seamless running surface.
4. Dispose of excess patching materials in an approved manner off NFS land or as otherwise specified by the USFS at biannual meetings

Ditch Cleaning Standard Provisions

1. Native surfaced roads: Remove slough material from ditches along native surfaced roads and, where suitable, replace and blend such material into the existing road surface or shoulders, or place it in a designed berm during surface blading.
2. Aggregate surfaced roads: Prevent mixing of slough material and other ditch-cleaning debris with aggregate surfacing. Do not place such waste material on aggregate surfaced roads.
3. Dispose of slough material in an approved manner off NFS land or as otherwise specified by the USFS at biannual meetings.

Culvert Cleaning Standard Provisions

1. Clear inlet and outlet of loose material that could cause plugging or prevent the free flow of water.
2. The transition from the ditch line to the catch basin shall be cleaned a distance of ten (10) feet. Outlet channels and lead-off ditches shall be cleaned a distance of six (6) feet. Debris and vegetation shall be removed and placed so as to not enter the channel or ditch or obstruct traffic. Debris and vegetation shall be disposed of by scattering, chipping, or hauling to designated disposal areas, or as otherwise determined by the USFS at biannual meetings.
3. *Hydraulic flushing of drainage structures must be approved by the USFS as a Class II activity*.
4. Reconditioning of culvert inlet or outlet shall be by field methods such as jacking out or cutting away damaged metal which obstructs flow. All cut edges and damage to galvanized coating shall be cleaned and treated with zinc rich coating. Exercise safety precautions and BMPs associated with this work as described in the Fire Plan.

Cleaning Drainage Structures Standard Provisions

1. Maintain all drainage structures in accordance with the following specifications during spring break up and runoff, following any other significant runoff event, and prior to the beginning of fall/winter storms.
2. Clear inlet and outlet channels, inlet trash racks, bridge deck drains and settling ponds of loose material that could cause plugging or prevent the free flow of water.
3. Remove logs, limbs or other drift from inlets, trash racks, piers, abutments and bridge decks without causing damage to the structures.
4. Dispose of all debris removed from structures off NFS land, or only at those locations on NFS land specifically authorized by the USFS at biannual meetings.
5. Make necessary minor repairs to ensure the proper functioning of headwalls, aprons, inlets, overside drains, riprap, trash racks, settling ponds and other related drainage structures.
6. Tighten loose bolts and other anchoring devices on all authorized structures.

Reestablishing Rolling Dips Standard Provisions

1. Remove any sediment that may have deposited in toe of the dip.
2. Repair roadway as shown in Rolling Dip Detail. Maintain a 2% cross slope on the drain portion of the dip to drain water from road.
3. Salvage and replace existing aggregate surfacing after dip has been re-established.
4. Ensure native material, or aggregate is properly compacted. Feather the break from dip to conform to the original road profile and provide a seamless running surface.
5. Maintain existing berms or repair/reinstall as needed.

Miscellaneous Structure Maintenance Standard Provisions

1. Retaining walls: Ensure retaining walls are structurally sound and performing their intended function. Report cracks or other readily evident appearance of potential failure to the USFS.
2. Guardrails: Tighten anchors and ensure guardrail posts and rails are stable and secure.
3. Cattle guards: Ensure cattle guards are signed in accordance with the MUTCD, and EM7100-15. Ensure tie-in fences are sound and secured to the cattle guard wings. Weld or bolt loose rails back in place. Remove and properly dispose of debris deposited into the cattle guard during road use and maintenance operations. Maintain proper drainage into and away from cattle guards.
4. Fences: Tighten loose or sagging wires and re-splice broken wire fences, as necessary. Replace broken metal or wooden posts, wood railings or other supports.
5. Gates: Re-install specified gates (or other barriers) according to existing type, form, and function. Ensure SDG&E -installed and/or existing gates/barriers are signed in accordance with MUTCD, and EM7100-15; gate/barrier posts are stable; locking mechanism is in proper working order; and the gate swings easily. Repair or replace broken or malfunctioning hinges, latches and locking mechanisms. *Installing new gates or other barriers requiring plans, drawings, or other specifications to be provided or approved by the USFS is a Class II activity.*

Clearing Roadside Vegetation Standard Provisions

1. Remove and properly dispose of all vegetative matter from the road surface, or within the road right-of-way, which reduces sight distance, impedes vehicular travel, or interferes with road maintenance operations such as surface blading and ditch and culvert cleaning.

2. Merchantable Timber: Cut timber meeting utilization standards into specified lengths and deck it along the roadside at locations specified by the USFS. *Cutting and disposition of merchantable timber requiring additional USFS notification or approval is a Class II activity.*
3. Cut low shrubs and brush only when they restrict sight distance, impede road maintenance, and are not necessary to help reduce erosion. In general, do not cut low shrubs and brush if the road surface can be adequately maintained without doing so. Dispose of shrubs, brush, nonmerchantable timber and other vegetation by scattering, chipping, hauling to designated disposal areas, or as otherwise determined by the USFS at biannual meetings.

Vegetation Establishment Standard Provisions

1. Provide and apply the materials including seed, plantings, mulch, and fertilizer as specified by the USFS or approved in biannual meetings.
2. Ensure surfaces of areas to be treated are in a loose and roughened condition favorable to the retention and germination of seed.
3. Ensure all planting materials, including but not limited to seed, plantings, mulch and fertilizer, are certified to be free of noxious weed/exotic plant materials and seeds.
4. Perform vegetation establishment treatments when the ground is not frozen or excessively dry. SDG&E will suspend application operations during periods when wind, precipitation, or other factors are likely to cause inconsistent treatment rates or ineffective vegetation establishment.

Traffic Services Standard Provisions

1. Ensure all signs, delineators and markers consist of materials approved by and are installed in conformance with the MUTCD, and EM7100-15.
2. Clean sign faces to restore legibility when they have become obscured by dust, road film, mud or other debris (use water and nonabrasive detergents or other suitable cleaners).
3. Ensure replacement materials for all signs, delineators and markers are similar to the original materials being replaced, unless such original materials are not in conformance with the MUTCD, and EM7100-15, or USFS sign standards.
4. Ensure new and replacement sign faces have retroreflective sheeting. Repair any defaced or damaged signs using materials conforming to the MUTCD, and EM7100-15.
5. Treat all signposts for decay resistance using chemical solutions approved by the USFS.
6. Clear an area a minimum of six (6) feet in diameter around all traffic signs or devices, and keep the area free of weeds, grass, brush, limbs, etc. (greater clearing distances may be necessary depending on viewing direction and sight distances).
7. Install and maintain standard red and white barricade markers, type 2 object markers, and end-of-roadway or “Road Closed” markers on all gates, barriers, and barricades. Ensure reflective material is clean, in good repair and replaced when necessary.

Snow Removal Standard Provisions

1. Remove snow from the entire width of the road surface, including turnouts.
2. Remove snow slides, earth slides, fallen timber, and boulders that obstruct the road surface.
3. Remove snow, ice, and debris from ditches and culverts so that the drainage system will function efficiently at all times.
4. Deposit all debris, except snow and ice, removed from the road surface and ditches at locations approved by the USFS and away from stream channels.

5. Leave at least 2 inches of snow to protect the road.
6. Restore any damage resulting from snow removal in a timely manner.
7. Do not undercut constructed slopes or remove gravel or other surfacing material from the road surface.
8. Do not leave snow berms on the road surface. Berms on the shoulder of the road will be removed or drainage holes will be opened and maintained. Drainage holes shall be spaced as necessary to obtain satisfactory surface drainage without discharge on erodible fills.
9. Snow removal using cleated or tracked equipment requires prior written approval from the USFS and is a Class II activity.

Appendix C
SDG&E Erosion Control Plan

Contents

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1.0 Introduction

This Erosion Control Plan (ECP) describes the measures that will be taken by San Diego Gas & Electric Company (SDG&E) and its contractors to ensure that the Cleveland National Forest (CNF) Power Line Replacement Project (PLRP) Post-Construction activities and Master Special Use Permit (MSUP) authorized Operations and Maintenance (O&M) activities in the CNF will avoid and minimize soil erosion to the greatest extent feasible, and repair it whenever required.

This ECP was prepared in accordance with Mitigation Measure (MM) Hydrology 1 (HYD-1), as described in the MSUP Final Environmental Impact Report/Environmental Impact Statement's (EIR/EIS) Mitigation Monitoring, Compliance, and Reporting Program (MMCRP) and the United States (U.S.) Forest Service (USFS) Record of Decision (ROD).

2.0 Objectives

This ECP provides erosion control methods and procedures that will be implemented during authorized routine and non-routine O&M activities. Erosion control practices and measures in this ECP are specifically intended to accomplish the following objectives:

- Prevent and control soil erosion during O&M activities occurring throughout the MSUP permitted areas of the CNF, including all authorized Class I and II, III and IV activities.
- Utilize the USFS's National Best Management Practices (BMPs) for Water Quality Management on National Forest System Lands in support of those authorized activities to prevent, control and repair soil erosion, as described in Section 4 – Soil Erosion Control Practices and Procedures.
- Provide consistency between the ECP and SDG&E's Subregional Natural Community Conservation Plan (NCCP, Subregional Plan) Operational Protocols and SDG&E's Standard BMPs.
- Complement the habitat enhancement and restoration activities occurring throughout the post-construction phase of the PLRP project.
- Ensure effective watershed stewardship and protection of water quality within all MSUP permitted rights-of way, easements and use areas, consistent with the CNF Land Management Plan

3.0 Regulatory Requirements

Applicable regulations for this ECP include MM HYD-1, which is outlined in the PLRP MMCRP and referenced the USFS ROD and requires preparation and implementation of this ECP for both the PLRP and MSUP O&M activities. MM HYD-1 and the methods described in this ECP are thus applicable during all post-construction activities and authorized O&M activities.

MM HYD-1 states:

"SDG&E shall develop and implement an Erosion Control Plan (ECP) for construction, operations, and maintenance activities in order to prevent and control soil erosion and gullying. The ECP shall include USFS best management practices specific to revegetation requirements (e.g., scarifying the soil, and fertilizing, seeding and/or mulching, as required to achieve proper post-construction site stabilization) and incorporate Construction General Permit (CGP) SWPPP requirements for each construction segment as the SWPPP(s) for that segment are completed. Additionally, the ECP shall complement restoration goals and objectives identified in the Habitat Restoration Plan, as required under MM BIO-4. The ECP shall be updated for each construction segment and provided to the CPUC and the federal agencies for review and approval prior to each agency's Notice to Proceed issuance for that construction segment.

As required by the CGP, SDG&E shall develop a Storm Water Pollution Prevention Plan (SWPPP) for the Project or for individual construction segments, as required, to prevent and control reduce the amount of sediment and other pollutants in storm water discharges associated with land disturbing activities during construction. The SWPPP(s) and verification of submittal to the RWQCB shall be submitted to the CPUC and USFS prior to Notice to Proceed issuance for the respective construction segment. SDG&E shall provide the CPUC and USFS with subsequent amendments to the SWPPP as part of SDG&E's weekly compliance reports. In weekly construction compliance reports, SDG&E shall note when Storm Water Construction Site Inspection Report Forms have been posted to the Storm Water Multiple Application and Report Tracking System (SMARTS) following storm events."

4.0 Soil Erosion Control Practices and Procedures

Specific erosion control methods that will be implemented during post-construction and in support of applicable authorized O&M activities to mitigate soil erosion are described in the following subsections. The erosion control methods described herein are consistent with the operational protocols contained within Section 7 of SDG&E's Subregional Plan[11], which outlines Operational Protocols. Specifically, Section 7.1.4 Maintenance, Repair and Construction of Facilities of the Subregional Plan contains operational protocols that pertain to this ECP, and includes the following:

- "Maintenance, repair and construction activities shall be designed and implemented to minimize new disturbance, erosion on manufactured and other slopes, and off-site degradation from accelerated sedimentation, and to reduce maintenance and repair cost."
- "Erosion will be minimized on access roads and other locations primarily with water bars. The water bars are mounds of soil shaped to direct flow and prevent erosion."
- "Hydrologic impact will be minimized through the use of state-of-the-art technical design and construction techniques to minimize ponding, eliminate flood hazards, and avoid erosion and siltation into any creeks, streams, rivers, or bodies of water by use of Best Management Practices."

[11] Applicable operational protocols included in future revisions to the SDG&E Subregional Plan will be amended into this Plan when they are approved by the wildlife agencies.

4.1 Erosion Control Methods

The erosion control methods described in the following subsections are consistent with the USFS's Soil and Water Conservation Handbook (R5 FSH 2509.22) for the Southwest Region (Region 5) (USFS Handbook) and the National Core BMP Technical Guide (Volume 1, FS-990a) (USFS National Core BMPs).

BMPs from the USFS that are relevant to this ECP are included the USFS Soil and Water Conservation Handbook Erosion Control BMPs.[12] The USFS Soil and Water Conservation Handbook provides guidance to effectively limit and mitigate erosion during road maintenance and operations, as well as during and immediately following vegetation manipulation associated with Project activities. Additionally, the USFS National Core BMP Technical Guide contains National Core BMPs that will be implemented as necessary during Project construction, operation, and maintenance activities to minimize and control erosion.

The structural and non-structural erosion control methods proposed for implementation during post-construction of the PLRP and O&M activities are summarized in Table 1 below. Table 1 lists the SDG&E soil erosion control BMP, the applicable USFS Handbook BMP, and the corresponding USFS National Core BMPs[13] for each erosion control method.

Attachment C.1, BMPs for Invasive Plants and Attachment C.2, SDG&E Soil Erosion Control BMP Details provide a thorough description of the erosion control methods that will be utilized for O&M activities on the CNF, as well as installation and maintenance procedures and representative photographs. The soil erosion control BMP details are sourced from the SDG&E BMP Manual for Water Quality Construction (BMP Manual). The SDG&E BMP Manual integrates the best and most practical pollution prevention features that are applicable to utility construction activities from several sources (e.g., the State Water Resources Control Board [SWRCB], the California Stormwater Quality Association, local municipalities, and the California Department of Transportation BMP manuals), which are also compliant with applicable regulations and ordinances. Additionally, the implementation of the erosion control methods described within this document will satisfy the CGP's (Order No: 2009-0009-DWQ as amended by 2010-0014-DWQ) SWPPP requirements.

[12] USFS Handbook BMPs are programmatic and are intended to lead to on-the-ground, site-specific BMP prescriptions, but are not intended to be such prescriptions themselves. The USFS programmatic BMPs include practices and standards, rather than specific erosion control structures or methods.

[13] National Core General Planning BMPs (i.e., Plan-1, Plan-2, and Plan-3) are applicable to all structural and nonstructural BMPs proposed for implementation on the Project.

Table 2: Erosion Control Methods

Erosion Control Method	Corresponding SDG&E BMP(s)	Applicable USFS Handbook BMP(s)	Applicable USFS National Core BMP(s)
Preservation of Existing Vegetation	BMP 4-01 – Preservation of Existing Vegetation	BMP 2.4 – Road Maintenance and Operations	• AqEco-2 – Operations in Aquatic Ecosystems • Fac-9 – Pipelines, Transmission Facilities, and Rights-of-Way • Veg-1 – Vegetation Management Planning • Veg-2 – Erosion Prevention and Control • Veg-4 – Ground-Based Skidding and Yarding Operations • Veg-8 – Mechanical Site Treatment • Road-9 –Parking and Staging Areas
Waterbars	BMP 4-09 – Diversion Berms and Drainage Swales	BMP 2.4 – Road Maintenance and Operations	• Fac-9 – Pipelines, Transmission Facilities, and Rights-of-Way • Road-4 – Road Operations and Maintenance
Velocity Dissipation Devices	BMP 4-10 – Velocity Dissipation Devices	BMP 2.4 – Road Maintenance and Operations	• AqEco-4 – Stream Channels and Shorelines • Fac-9 – Pipelines, Transmission Facilities, and Rights-of-Way • Road-4 – Road Operations and Maintenance • Road-11– Road Storm-Damage Surveys
Decompaction	BMP 4-13 – Soil Preparation	BMP 5.1 – Soil-disturbing Treatments on the Contour	• Fac-9 – Pipelines, Transmission Facilities, and Rights-of-Way • Road-6 – Road Storage and Decommissioning
Fiber Rolls	BMP 4-02 – Temporary Soil Stabilization	BMP 5.1 – Soil-disturbing Treatments on the Contour	• Fac-9 – Pipelines, Transmission Facilities, and Rights-of-Way • Road-4 – Road Operations and Maintenance
Erosion Control Matting	BMP 4-07 – Geotextiles, Plastic Covers, and Erosion Control Blankets/Mats	BMP 5.4 – Revegetation of Surface-disturbed Areas	• AqEco-4 – Stream Channels and Shorelines • Fac-9 – Pipelines, Transmission Facilities, and Rights-of-Way • Road-4 – Road Operations and Maintenance

Erosion Control Method	Corresponding SDG&E BMP(s)	Applicable USFS Handbook BMP(s)	Applicable USFS National Core BMP(s)
Hydraulic Mulch and Hydroseeding	BMP 4-03 – Hydraulic Mulch BMP 4-04 – Hydroseeding BMP 4-05 – Soil Binders	BMP 5.4 – Revegetation of Surface-disturbed Areas	• Fac-9 – Pipelines, Transmission Facilities, and Rights-of-Way
Wind Erosion Control	BMP 4-08 – Dust (Wind Erosion) Control	BMP 2.4 – Road Maintenance and Operations	• Fac-9 – Pipelines, Transmission Facilities, and Rights-of-Way

4.1.1 Preservation of Existing Vegetation

Preservation of existing vegetation is a procedural erosion control method that maximizes the preservation of existing trees, shrubs, forbs, and grasses during construction activities. Implementation of this erosion control method will ensure that limits of disturbance and areas to be preserved are clearly demarcated prior to clearing and grubbing or other soil disturbance activities. SDG&E's designated O&M staff and/or contractors will clearly define work areas, when necessary to avoid adjacent vegetated resources, with flagging, signage and/or fencing, and will ensure through pre-activity surveys, environmental constraints, monitoring and/or post-activity impact assessments that vegetation is preserved to the maximum extent feasible. Where feasible, SDG&E will preserve vegetation within the defined work areas and leave root systems intact during operations and maintenance activities.

4.1.2 Waterbars

Waterbars (i.e., slope breakers, diversion berms, rolling dips, and earthen dikes) are intended to reduce the slope length and divert run-on and runoff from O&M work areas (e.g., access roads, road decommissioning areas, etc.) to adjacent stable areas. If installed properly, waterbars are one of the most effective ways to reduce erosion during O&M activities. Table 2 below provides guidelines for waterbar spacing. Actual spacing will depend on suitable outlets that are available. The location of waterbars and diversion swales will be identified by SDG&E's designated O&M staff and/or contractors, who will stake the uphill and downhill ends of the diversion feature prior to installation so that the outslope can be verified. Waterbar gradients will range between two and eight percent to ensure a favorable outflow is achieved.

Table 3: Maximum Waterbar Spacing

Slope Steepness	Diversion Spacing (feet)
< 5%	Not required
5%	125
10%	80
15%	60
> 25%	50

Source: SDG&E 2010

Waterbars will serve to mitigate erosion along access roads during O&M activities where rilling and downstream sedimentation is observed. Suitable outlets for waterbars include vegetated areas that are not susceptible to erosion, and velocity dissipation devices may be required to protect adjacent properties and prevent downstream sedimentation. Velocity dissipation devices are further discussed in Section 4.0.2 Velocity Dissipation Devices.

When required for access to work areas, swale or drainage crossing sites will be selected at right

angles to minimize impacts to the natural water flow and drainage patterns. Additionally, drainage crossings will be avoided during periods of stormflow to avoid downstream sedimentation. All stream or wetland crossings will adhere to the requirements dictated under the applicable resource agency permits, which include, but are not limited to, the following:

- California Department of Fish and Wildlife (CDFW) Fish and Game Code Section 1602 Streambed Alteration Agreement
- Clean Water Act (CWA) Section 404 Nationwide Permits issued by the U.S. Army Corps of Engineers
- CWA Section 401 Water Quality Certifications issued by the Regional Water Quality Control Board (RWQCB)

4.1.3 Velocity Dissipation Devices

Velocity dissipation devices composed of rock or riprap may be required to prevent scour and erosion caused by concentrated, high-velocity flows at existing culverts, channels, or constructed waterbars. Generally, the size to control flow velocity is based on the evaluation of erosion risk, soil types, and site-specific flow patterns and rock apron lengths. The size of rock placed will be determined based on estimated discharge rates. Rock apron lengths for flows conveyed in open channels (e.g., ditches, swales, or along waterbars) are detailed in Table 3 below. Filter fabric will be placed underneath the rock or riprap apron to prevent scour.

Inspection of velocity dissipation devices and implementation of corrective actions in accordance with O&M access road maintenance standards (or CGP requirements, as described in Section 4.1.0 Erosion Control Inspection and Maintenance Requirements, if work is being conducted pursuant to a SWPPP) will ensure that the dissipation devices are functioning as intended and that downstream resources are protected from erosion and sedimentation.

Table 4: Discharge Rate, Apron Length and Rock Diameter

Approximate Discharge Rate (feet/second)	Approximate Apron Length ($feet^3$/second)	Minimum Riprap D_{50} Diameter (inches)
5	10	4
10	10 to 13	6 to 8
20	16	8 to 12
30	16 to 23	8 to 16
40	26	8 to 16
50	26	16
60	30	8

Source: SDG&E 2010

Armoring of stream channels is not anticipated to be needed during O&M activities. However, if the installation of temporary low-water crossings or hardening of stream crossing bottoms or approaches is required to protect downstream resources, no work will be conducted without a

permit or authorization from the applicable resource agencies (i.e., CDFW, USACE, and RWQCB) and the CNF.

4.1.4 Fiber Rolls

A fiber roll (i.e., straw wattle) consists of straw, flax, or other similar materials that are bound into a roll. The fiber roll lets water through but prevents the majority of sediment from passing through. Additionally, fiber rolls placed perpendicular to slopes reduce erosion by intercepting and slowing the flow of runoff. Only certified weed-free and seed-free rice straw will be used for fiber rolls to avoid the spread of non-native seed on the CNF. In addition, only fiber rolls bound with biodegradable materials will be utilized on the CNF. Fiber roll manufacturer information will be specified in environmental releases and verified by SDG&E O&M staff and/or contractors prior to use for authorized O&M activities. Fiber rolls will be installed along steep slopes and/or adjacent to jurisdictional waterways. The fiber rolls will generally be spaced between 10 and 20 feet apart, as detailed in Table 4 below.

Table 5: Fiber Roll Spacing for Slope Application

Slope Grade	Spacing (not-to-exceed sheet flow length)
0 to 25 percent	20 feet
25 to 50 percent	15 feet
> 50 percent	10 feet

Source: SDG&E 2010

Fiber rolls may be required at stringing sites, pole work areas, and where ground disturbance occurs in association with trenching or undergrounding activities. Additionally, they will be installed prior to seeding efforts and hydraulic mulch application, where rilling has been observed; and prior to the installation of temporary erosion control matting on graded or disturbed slopes of 10 feet or greater.

4.1.5 Erosion Control Matting

Erosion control matting or fabric (e.g., rolled erosion control products) is a loosely woven burlap-type material or other biodegradable plant fiber (e.g., coconut fiber). Jute matting and/or other approved erosion control matting prescribed by qualified SDG&E O&M staff and/or contractors will be used during O&M activities where rolled erosion control products are deemed necessary to control erosion. Generally, jute matting will be installed on slopes greater than 30 percent, and after the area has been track walked and after waterbars and straw wattles have been installed. Jute matting applications for erosion control will ultimately be determined in the field based on site conditions. The matting will be properly anchored in all areas and tightly fitted around straw wattles and waterbars to ensure ground contact. Jute matting will serve to protect exposed soil from wind and rain and will reduce the speed at which water moves across the soil surface, primarily along moderate to steep slopes where access and stabilization are difficult.

Applications for jute matting may also include installation on disturbed slopes associated with access roads, staging areas, stringing sites, pole work areas, trenching activities, road decommissioning areas, or habitat restoration areas. Jute matting will be utilized to stabilize

disturbed channel bottoms or erosional features adjacent to waterways. Jute matting within channel bottoms will serve to retain seed and prevent erosion during periods of storm flow. Matting must be anchored with soil staples or geotextile pins, and the upstream extent of the matting must be keyed into the stream bed and banks to ensure the matting remains intact during periods of storm flow.

Following seed application along slopes greater than 30 percent or within temporarily disturbed drainages, jute matting will be installed as deemed necessary by qualified SDG&E's O&M staff and/or contractors based on site conditions and the potential for concentrated runoff.[14]

4.1.6 Hydraulic Mulch and Seeding

Hydraulic mulch can be used to reduce soil erosion during precipitation events by intercepting the impact of raindrops on areas with disturbed soils. Prior to vegetation establishment, hydraulic mulching serves to reduce soil erosion, regulate soil temperatures, and protect seed from wildlife and wind. Hydraulic mulch application may be used in conjunction with acrylic polymers or soil amendments to ensure soil stabilization. Hydraulic mulch application rates will be site-specific, based on the manufacturer's recommendations, and verified by qualified SDG&E O&M staff or contractors prior to application.

Hydraulic mulch in conjunction with hydroseed application will be applied to disturbance areas that are larger than 0.10 acre to achieve post-construction stabilization. As a temporary erosion control measure, hydraulic mulch will be applied to disturbed slopes associated with trenching activities and stringing sites, as well as soil stockpiles, prior to anticipated storm events to satisfy CNF erosion control requirements (or CGP requirements if O&M activities are occurring under a SWPPP). In support of long-term stabilization efforts, hydraulic mulch will be applied in conjunction with hydroseed application, or after seed has been applied and achieved soil contact.

Hydraulic mulch and seeding applications may include disturbance areas less than 0.10 acre that are within or in close proximity to Riparian Conservation Areas (RCAs) or watercourses. Disturbance areas resulting from O&M activities within or adjacent to these resources will be evaluated by qualified SDG&E O&M staff and/or contractors and approved by CNF prior to hydraulic mulch and seed application.

4.1.7 Wind Erosion Control

Wind erosion control consists of applying water to prevent or alleviate fugitive dust generated by ground disturbance or construction-related traffic. USFS Handbook BMPs for road management specifically require road surface treatment to stabilize roadbeds, reduce dust, and control soil erosion. Soil covers, plastic sheeting, and erosion control matting may also satisfy dust control and local air quality requirements with regard to soil stockpiles and pole work areas on the Project. SDG&E will limit the use of plastic materials when more sustainable, environmentally friendly alternatives exist, in accordance with the CGP. Water applied for dust control will be applied evenly and in a manner that does not generate runoff. Wind erosion controls will be implemented during construction of all Project components to prevent fugitive dust.

[14] Habitat enhancement activities will occur under the direction of an HRS, as further described in the Project HRP.

4.2 SWPPP Implementation / Erosion Control Inspection

Erosion control methods included in this ECP support O&M activity compliance with the CGP, where required. Most routine Class I and II O&M activities are not anticipated to require a SWPPP, but some Class III or Class IV activities may in fact require a SWPPP due to the overall size of disturbance area(s) during non-routine O&M activities, including emergencies. SDG&E will develop a SWPPP when required by the CGP to address storm water pollutants and will incorporate and implement the erosion control methods included in this ECP.

Prior to authorized Class III non-routine O&M activities that require CGP coverage, permit registration documents will be submitted to the SWRCB's SMARTS. CGP coverage will be effective once a Waste Discharge Identification number is issued by SMARTS. For any Class IV activities that require a SWPPP, the permit registration documents will be submitted as soon as possible after initiation of the emergency activities.

BMPs will be implemented in accordance with the SWPPP to prevent erosion and minimize sedimentation during the covered O&M activities and will be maintained in accordance with the SWPPP and relevant USFS and SDG&E guidance. Construction BMP site maps depicting the locations of erosion controls to be implemented will be incorporated into the SWPPP.

O&M activity covered under a SWPPP will include BMP site maps that depict the following elements as they relate to this ECP:

- site boundaries;
- the location of all soil-disturbing activities;
- the location of drainage areas, watercourses, drainage structures, and sensitive habitats;
- storm water discharge locations;
- sampling locations, as applicable; and
- the location and type of proposed erosion controls to be installed.

The implementation of erosion control measures during these O&M activities will be led by qualified SDG&E O&M staff and/or contractors.

4.2.1 Erosion Control Inspection and Maintenance Requirements

All erosion controls installed for Class III non-routine O&M activities will be inspected and maintained in accordance with Attachment A to the CGP - Linear Underground/Overhead Requirements of the CGP.[15] Each site-specific SWPPP will include a proposed schedule for erosion control implementation and

[15] Attachment A: Linear Underground/Overhead Requirements of the CGP regulates all construction activities from linear underground/overhead projects (LUPs). LUPs include, but are not limited to, any conveyance, pipe, or pipeline for the transportation of any gaseous, liquid (including water and wastewater for domestic municipal services), liquescent, or slurry substance; any cable line or wire for the transmission of electrical energy; any cable line or wire for communications (e.g., telephone, telegraph, radio or television messages); and associated ancillary facilities.

maintenance, inspection requirements, and a Monitoring and Reporting Program. Implementation of the Monitoring and Reporting Program for each Project segment will be determined by CGP risk type.[16]

Visual inspections and sampling collection will be conducted in accordance with the CGP, as noted in Table 5 below. Visual inspections will serve to identify and record erosion control BMPs that require maintenance to operate effectively or that have failed or identify corrective actions necessary for the erosion control devices to operate as intended. The qualified SDG&E O&M staff or contractor will complete inspection checklists to document site conditions before, during, and after rain events, and as required by Attachment A: Linear Underground/Overhead Requirements of the CGP. Site inspection and visual observation forms will be maintained by the QSD within each site-specific SWPPP for the Project.

Table 6: CGP Inspection Requirements for Linear Underground/Overhead Projects

LUP Type	Visual Inspections				Sample Collection		
	Daily Site BMP	Pre-Storm	Daily Storm	Post-Storm	Storm Water Discharge	Receiving Water	Non-Visible (when applicable)
1	X						X
2	X	X	X	X	X		X
3	X	X	X	X	X	X	X

[16] Attachment A: Linear Underground/Overhead Requirements of the CGP establishes three types (i.e., Types 1, 2, and 3) of complexity for areas within an LUP or project section based on the threat to water quality. The project area or project types are determined through Attachment A.1 of the CGP.

4.3 Post-Construction Long-Term Stabilization

Post-construction long-term stabilization of PLRP work areas will be achieved through implementation of the ECP and the HRP, and will satisfy post-construction stabilization requirements, as described by the CGP and the applicable resource agency permits.

Following replacement pole installation and line reconductoring, all temporarily disturbed PLRP areas will be restored to pre-construction conditions, or equivalent to undisturbed areas adjacent to the work area if erosional features were observed prior to Project activities. As discussed in Section 4.0 Erosion Control Methods, structural erosion controls and non-structural erosion controls will support long-term stabilization efforts. Post-construction erosion controls and revegetation will assist in satisfying final stabilization requirements under the CGP for each Project segment. CGP coverage for the PLRP will be terminated once a Notice of Termination (NOT) is filed and approved by the San Diego RWQCB.

A primary goal of long-term stabilization and restoration is to prevent off-site sedimentation by controlling erosion. However, until disturbed PLRP areas become stabilized through revegetation, sediment controls may be necessary to prevent sediment transport off Project work areas. In general, sediment control (e.g., silt fence and fiber rolls) will be installed where there is the potential for sediment to be deposited in waterbodies or sensitive resource areas. The location of sediment barriers along each Project segment will be determined by SDG&E's designated QSP for the PLRP and in accordance with each respective SWPPP, and by the HRS and/or qualified SDG&E O&M staff or contractors once SWPPP coverage is terminated.

4.3.1 Decompaction

Soil compaction can increase surface runoff, reduce the water-holding capacity, and increase the potential for wind erosion and seed loss. Prior to initiating final grading, the construction contractor and the HRS will coordinate to determine if soil decompaction is necessary by comparing the work area to adjacent, non-disturbed areas. The use of a penetrometer, per the manufacturer's specifications, will be required to assess soil compaction. If necessary, decompaction will be performed with a deep-tillage instrument, the teeth of a backhoe bucket, a bulldozer ripper, or a similar method prior to re-spreading topsoil. The preferred decompaction method will be determined by the HRS based on penetrometer readings and the confines of the work area. In some cases where compaction is only on the surface, scarifying during seedbed preparation will be sufficient.[17]

4.3.2 Revegetation

Revegetation of PLRP work areas will be conducted in accordance with the HRP. The HRP promotes long-term stabilization of work areas and specifically describes the measures that will be taken by SDG&E and its contractors to ensure that areas affected by ground disturbance during construction are restored to near pre-construction conditions, or equivalent to undisturbed areas adjacent to the affected area if erosional features were observed prior to Project activities.

[17] Scarification is the process of loosening the surface layer. The process improves soil-to-seed contact and permeability and facilitates seed cover when the soil is back-dragged after the seed is applied.

Revegetation efforts will be implemented once construction activities have been completed at any given work area or when an entire segment has been completed. In some cases, when completion of a PLRP component occurs outside of the recommended planting season, it may be necessary to implement temporary soil stabilization (e.g., application of a soil tackifier, hydromulch, an erosion control seed mix, etc.) until the planting season begins. Appropriate seed mixes approved for use on USFS-administered lands and application techniques are identified within the Project's HRP, and application will be conducted under the supervision of the designated HRS.

Several factors affect the end of the site preparation period and the commencement of seeding, including forecasted rainfall throughout the year, the site's response to weed control strategies, and observations of vegetation growth. Seeding will generally occur in mid-November through mid-January to maximize natural rainfall patterns that occur within the Project area. Additionally, interim seeding may be deemed advantageous by qualified SDG&E O&M staff or contractors to prevent erosion and satisfy CGP requirements.

4.3.3 Revegetation Maintenance and Monitoring

After initial revegetation has been completed, the HRS will monitor the restoration effort as it relates to post-construction stabilization and restoration of temporary work areas. In accordance with the HRP, [2] the HRS will collect pertinent information through direct observation during annual site visits, including data on germination success, plant density, survivorship, and diversity. Post-construction monitoring of all restored temporary work areas will ensure that restoration efforts meet the success criteria described in the HRP.

Per the HRP, it is anticipated that maintenance visits will occur on a semi-annual basis for five years following the implementation of revegetation efforts. Maintenance visits will occur once in the fall and spring of each monitoring year. Additional maintenance visits may be conducted throughout the year by SDG&E's maintenance contractor, if needed. As recommended by the HRS, maintenance activities will include weed treatment, maintenance of post-construction erosion controls, remedial seeding, or other requirements needed to facilitate post-construction stabilization and meet success standards contained within the HRP.

4.4 Operation and Maintenance Activities

SDG&E's ongoing routine and non-routine O&M activities are listed in Chapter 3 of the SDG&E MSUP O&M Plan and described in detail in Appendix B. These O&M activities will be implemented consistent with this ECP and utilize the BMPs presented in Table 1 in Section 4.0.

[18] Revegetation maintenance and monitoring protocols included in this ECP are subject to final approval of the HRP.

5.0 REFERENCES

Dudek. 2015. Environmental Impact Report/Environmental Impact Statement and Master Special Use Permit and Permit to Construct Power Line Replacement Projects. Online. http://www.cpuc.ca.gov/environment/info/dudek/CNF/Final-EIR-EIS.htm. Site visited October 2015.

Insignia Environmental. 2015. Habitat Restoration Plan for the San Diego Gas & Electric Company Master Special Use Permit and Permit to Construct Power Line Replacement Projects.

SDG&E. 1995. Subregional Natural Community Conservation Plan.

SDG&E. 2010. Best Management Practices and Drainage Control Guidance Manual for Maintenance Roads.

SDG&E. 2011. Best Management Practices Manual for Water Quality Construction.

USFS. 2000. Water Quality Management for Forest System Lands in California Best Management Practices.

USFS. 2011. USFS Handbook Southwest Region (Region 5) Vallejo, CA. R5 FSH 2509.22 – Soil and Water Conservation Handbook Chapter 10-Water Quality Management Handbook, Amendment Number 2509.22-2011-1.

USFS. 2012. National Best Management Practices for Water Quality Management on National Forest System Lands. Volume 1: National Core BMP Technical Guide.

USFS. 2014. Restoration of Forests, Grasslands, and Wetlands Damaged by Off-Highway Vehicles.

Attachment C.1
BMPs for Invasive Plants

The attached checklist is modified from *Preventing the Spread of Invasive Plants: Best Management Practices for Transportation and Utility Corridors* and is intended to provide general guidance on avoiding the spread of invasive plants. (Cal-IPC Publication 2012-01.) California Invasive Plant Council, Berkeley, California. Available at www.cal-ipc.org.

Checklist A: Routine Maintenance and Facility Inspection

BMP Statements	Management	Project Management	Supervisors	Crews	Completed	Comments
Identify prevention priorities with resource, facility, or corridor managers prior to starting work.						
Develop brush control policy along Permitted roads to minimize the introduction and spread of invasive plants.						
Provide prevention training and appropriate invasive plant identification resources to staff and contractors prior to starting work.						
Carry portable cleaning tools that can be used without water.						
Identify travel direction and cleaning locations prior to starting work.						
Document invasive plant findings and communicate to resource or facility managers.						
Designate lay-down and staging areas outside of infested areas prior to starting work.						
Designate specific areas for cleaning tools, vehicles, equipment, clothing and gear.						
Designate waste disposal areas for invasive plant materials and contain invasive plant materials during transport.						
Minimize soil disturbance when maintaining Permitted roads.						
Clean tools, equipment, vehicles and animals to remove soil, seeds, and plant parts before transporting materials and before entering and leaving worksites.						
Clean clothing, footwear, and gear to remove soil, seeds and plant parts before leaving infested areas.						
Maintain facility site to limit the introduction and spread of invasive plants.						

Attachment C.2
SDG&E Soil Erosion Control BMP Details

Soil Erosion Control

What is Erosion?

Erosion is the detachment of soil particles by water or wind. Erosion is a natural process that can be accelerated by construction activities such as grading and trenching. For example, when a site is cleared and grubbed, protective vegetation is removed and the disturbed soil is directly exposed to wind, rain, and flowing water.

Why is Erosion Control Required?

Water or wind can transport soil particles to water bodies where they can cause damage to, or destruction of, aquatic animals and plants by burying them or reducing oxygen and/or sunlight that is necessary for their survival. Erosion control is required by regulatory agencies to minimize the potential additional erosion and damage to the environment from construction activities.

What is Erosion Control?

Erosion Controls are methods used to protect the soil surface and prevent the soil particles from being detached and transported by rain, flowing water or wind. Erosion controls include limiting soil or vegetation disturbance to reduce erosion. Preservation of Existing Vegetation is an example of an Erosion Control BMP.

Soil Stabilization is the most widely used and most effective method of erosion control. Preventing or reducing erosion potential by directing or controlling drainage runoff, as well as preparing and stabilizing disturbed soil areas protects the exposed soil surface from rain and wind thereby preventing erosion. Diversion Berms and Drainage Swales is an example of an erosion control BMP that intercepts and conveys run-on around or through the project reducing erosion potential. Hydroseeding is also an example of an erosion control BMP that stabilizes the soil. Erosion control BMPs used in this Manual to direct or control runoff and/or stabilize soil include:

- BMP 4-01 Preservation of Existing Vegetation
- BMP 4-02 Temporary Soil Stabilization (General)
- BMP 4-03 Hydraulic Mulch
- BMP 4-04 Hydroseeding
- BMP 4-05 Soil Binders
- BMP 4-06 Straw Mulch
- BMP 4-07 Geotextiles, Plastic Covers, and Erosion Control Blankets/Mats
- BMP 4-08 Dust (Wind Erosion) Control
- BMP 4-09 Diversion Berms and Drainage Swales
- BMP 4-10 Velocity Dissipation Devices
- BMP 4-11 Slope Drains
- BMP 4-12 Streambank Stabilization
- BMP 4-13 Soil Preparation

What

Preservation of Existing Vegetation is a procedural BMP that maximizes the preservation of existing trees, shrubs, bushes, and grasses on a construction or operations and maintenance activity site.

When

This BMP is applicable to utility activities when there is existing vegetation.

Where

All construction and operations and maintenance activity sites where:

- There are areas on site where no activity is planned or will occur later.
- There are areas with vegetation that can be preserved to protect against soil erosion, such as on steep slopes, watercourses, and building sites in wooded areas.
- There are areas designated as ESAs, or where federal, state, or local government regulations require preservation, such as wetlands, vernal pools, marshes, etc.

How

Use the following measures as applicable:

- Preserve existing vegetation whenever possible.
- Identify areas to be preserved in the immediate vicinity of the construction or activity site, and mark as appropriate before clearing and grubbing or other soil disturbance activities.
- If necessary, contact the project Field Environmental Representative for any clarification regarding areas to be preserved.
- Whenever possible, minimize disturbed areas by locating temporary roadways to avoid stands of trees and shrubs and follow existing contours to reduce cutting and filling.
- Construction materials, equipment storage and parking areas should be located outside the drip line of any tree to be retained.
- Consider the impact of grade changes to existing vegetation and the root zone.
- Remove any markings, barriers, or fencing after project is completed.

Maintenance and Inspection

- Maintain the clearly marked limits of disturbance during construction to preserve vegetation.
- Inspect barriers regularly during construction.

Pictures

Vegetation to be preserved is marked and outside the work area.

Corresponding CASQA Fact Sheet

Fact Sheet EC-2

What

Temporary Soil Stabilization is a procedural BMP utilizing protective materials to cover exposed soil, where the soil exposure is caused by construction or operation and maintenance activities. Materials may include hydraulic mulch and seeding, soil binders, straw, geotextiles, plastic covers and erosion control blankets.

Temporary soil stabilization BMPs and their associated materials include:

- BMP 4-03 - Hydraulic Mulch
- BMP 4-04 - Hydroseeding
- BMP 4-05 - Soil Binders
- BMP 4-06 - Straw Mulch
- BMP 4-07 - Geotextiles, Plastic Covers and Erosion Control Blankets/Mats

When

This BMP, and the situation appropriate BMPs listed above, is applicable when slopes are constructed or disturbed and/or where there are inactive soil disturbance areas that will not be worked for 14 days or more. The procedures are to be implemented after slope construction activity is complete and then prior to the onset of precipitation.

Where

- Slopes, soil stockpiles, and inactive disturbed soil areas.
- Soil binders (BMP 4-05) may be applicable to areas where there is light traffic that would minimize the effectiveness of other temporary soil stabilization BMPs.

How

- Sediment control BMPs used to break up the slope lengths, such as fiber rolls (BMP 1-03) or gravel bag berms (BMP 1-04) should be spaced in accordance with the CGP requirements (see installation for BMP 1-03 “Fiber Rolls”)
- Permanent erosion control shall be applied to areas deemed substantially complete during the project’s defined seeding season window.
- Refer to individual temporary soil stabilization BMPs for specific instructions for use (see BMP 4-03 through BMP 4-07).

Maintenance and Inspection

- Refer to individual temporary soil stabilization BMPs listed above for maintenance and inspection requirements.

Pictures

Applying a tackifier using a trailer mounted pump and hose.

Applying soil stabilization manually in harder to reach areas.

Corresponding CASQA Fact Sheet

Fact Sheet EC-2

What

Hydraulic Mulch is a procedural BMP for applying mulch to protect the soil surface from wind and rain erosion.

Mulch consists of a mixture of shredded wood fiber or other fiber in water and a stabilizing emulsion, or tackifier. The mulch is applied with hydro-mulching equipment (water mixture spraying equipment).

When

Hydraulic mulch is typically applied when a temporary soil cover is required for protection until permanent vegetation is established, or to disturbed areas that must be re-disturbed following a period of inactivity of 14 or more days.

Where

- To disturbed areas requiring temporary protection.
- Do not apply to active work areas where the mulch would interfere with or be destroyed by immediate earthwork activities or construction traffic. Consider using soil binders instead (BMP 4-05).

How

- Prior to application, roughen embankment and fill areas with a crimping or punching type roller or by track walking. Track walking shall only be used where other methods are impractical and slope angle allows safe equipment operation. Track walking must be performed upslope so that equipment tracks traverse the slope horizontally along the slope.
- Avoid mulch over-spray onto the traveled way, sidewalks, lined drainage channels, and existing vegetation.
- Avoid use of mulch without a tackifier component, especially on slopes.
- Hydraulic Mulches:
    - Apply as liquid slurry using a hydraulic application machine (i.e., hydroseeder) at rates of mulch and stabilizing emulsion recommended by the manufacturer. Wood fiber hydraulic mulches are generally short-lived (only last a part of a growing season) and must be applied no less than 24 hours before rain events to dry and become effective.
        - Hydraulic Mulch with Binder (Matrix):
    - Apply a combination of wood fiber and/or paper fiber mixed with acrylic polymers as binders. Apply the mulch matrix as liquid slurry using a hydraulic application machine (i.e., hydroseeder) at rates recommended by the manufacturer. Hydraulic matrices must be applied no less than 24 hours before a rain event to dry and become effective.
        - Bonded Fiber Matrix (BFM):
    - Apply BFM using a hydraulic application machine (mulch and tackifier are pre-mixed in a single bag) in accordance with manufacturer's instructions. Do not apply immediately before, during, or after a rain event.
    - Note that cellulose fiber mulches alone may not perform well on steep slopes or in coarse soils.

Maintenance and Inspection

- Maintain an unbroken, temporary mulched ground cover throughout the period of construction when the soils are not being reworked. Inspect before expected rain and repair any damaged ground cover and re-mulch areas of exposed soil (e.g., weekly, or in compliance with the frequency specified in the project specific SWPPP, if applicable).
- After any rain event, maintain all slopes to prevent erosion.

Pictures

Applying hydraulic mulch.

Close-up of bonded fiber matrix

Corresponding CASQA Fact Sheet

Fact Sheet EC-3

What

Hydroseeding is a procedural BMP for the application of vegetation seed in a protective mixture for both soil and seed. The seed then sprouts, providing vegetation that provides additional soil erosion control (holds the soil in place and shields the soil from erosion). Hydroseeding material typically consists of a mixture of fiber, seed, fertilizer, and stabilizing emulsion.

When

- When temporary protection is needed until permanent vegetation protection can be established. Temporary vegetation should not be used for more than 3 to 6 months.
- Avoid using hydroseeding during dry weather periods, unless supplemental irrigation is used.

Where

- Use on disturbed soil areas that must be re-disturbed following construction inactivity of 14 or more days.
- Avoid use of hydroseeding in areas where the BMP would be incompatible with site conditions. These conditions include:
  - Slopes steeper than 1:3 vertical: horizontal. Steep slopes are difficult to protect with temporary seeding.
  - Traffic areas, where construction or other traffic would prevent seed sprouting or vegetation growth. Consider using soil binders instead (see BMP 4-05).

How

- Hydroseeding can be accomplished using a multiple-step (with straw mulch) or a one-step process (mixed with hydraulic mulch, hydraulic matrix, or bonded fiber matrix). When the one-step process is used to apply the mixture of fiber, seed, etc., the seed rate shall be increased to compensate for all seed not having direct contact with the soil. Confirm with your project Field Environmental Representative the appropriate seed mix to be used.
- Prior to application roughen the slope, fill area, or area to be seeded with the furrows trending along the contours.
- Apply straw mulch as necessary to keep seeds in place and to moderate soil moisture and temperature until the seeds germinate and grow.
- Follow-up applications shall be made as needed to cover weak spots, and to maintain adequate soil protection.
- Avoid over-spray onto the travel way, sidewalks, drainage channels and existing vegetation.

Maintenance and Inspection

- All seeded areas shall be inspected for failures and re-seeded, fertilized, and mulched within the planting season, using not less than half the original application rates. Any temporary re-vegetation effort that does not provide adequate cover must be re-vegetated.
- After any rainfall event, maintain all slopes to prevent erosion.

Pictures

Applying hydroseed.

Corresponding CASQA Fact Sheet

Fact Sheet EC-4

What

Soil Binders is a procedural BMP for applying soil binder material to the soil surface to temporarily prevent water-induced erosion of exposed soils on construction or applicable operations and maintenance sites. Soil binders bind with the soil, creating a crust that sheds water and prevents the water erosion. Soil binders also provide temporary dust, wind, and soil stabilization benefits.

When

Soil binders are typically applied to disturbed soil areas that require short-term temporary protection.

Soil binders have the following application timing limitations:

- May not cure when low temperatures occur within 24 hours of application.
- Soil binders generally experience spot failures during heavy rain and may need reapplication after a storm.
- Some soil binders may not perform well during periods of low relative humidity.

Where

Soil binders can be used for any disturbed soil area. Soil binders can often be incorporated into the work so they may be a good choice for areas where grading activities will soon resume or that experience light construction traffic.

Soil binders have the following limitations for particular areas of application:

- Soil binders may not penetrate areas where soil surfaces are made up primarily of silt and clay, particularly when compacted.
- Soil binders may not hold up well in areas of heavy pedestrian or medium to heavy vehicular traffic.

How

Selection of soil binders should be approved by the project Field Environmental Representative after an evaluation of site-specific factors. Chemical soil binders must be on the SDG&E List of Approved Products. These approved soil binder products have low or no toxicity to aquatic organisms and wildlife and may not trigger the construction site sampling requirements of the CGP. Follow manufacturer's recommendations for application procedures and cleaning of equipment after use. Any onsite cleaning must use appropriate BMPs (BMP 2-02 "Material Use", 2-03 "Spill Control", 2-04 "Solid Waste Management", 2-08 "Liquid Waste/Drilling Fluid Management", and 3-03 "Vehicle and Equipment Washing").

- Prior to application, roughen embankment and fill areas. Track walking shall only be used where rolling is impractical.
- Soil binders should not be applied during or immediately before rain events. Soil binders must be applied no less than 24 hours before rain to cure and dry and become fully effective.
- Avoid over-spray onto paths, sidewalks, lined drainage channels, sound walls, and existing vegetation.

- **Do not apply soil binders to frozen soil, areas with standing water, under freezing conditions, or when the temperature is below 40ºF during the curing period.**
- More than one treatment is often necessary, although the second treatment may be diluted or have a lower application rate.
- For liquid agents:
  - Crown or slope ground to avoid ponding.
  - Uniformly pre-wet ground according to manufacturer's recommendations.
  - Apply solution under pressure. Overlap solution 6 to 12 inches.

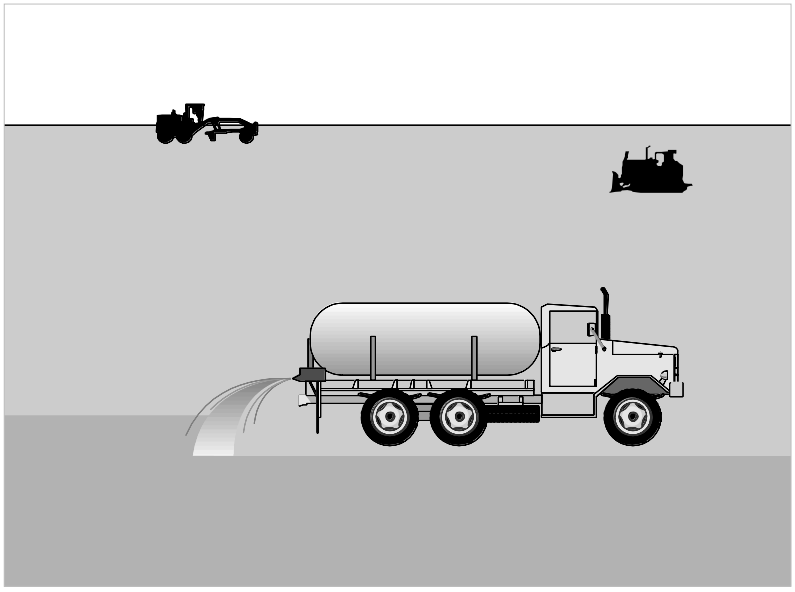
How (cont')

- Allow treated area to cure for the time recommended by the manufacturer; typically at least 24 hours.
- Apply second treatment before first treatment becomes ineffective, using 50 percent application rate.
- In low humidity, reactivate chemicals by re-wetting according to manufacturer's recommendations.

Maintenance and Inspection

- Reapplying the selected soil binder may be needed for proper maintenance. Traffic areas should be inspected routinely.
- After any rainfall event, maintain all slopes to prevent erosion.

Pictures



Corresponding CASQA Fact Sheet

Fact Sheet EC-5

What

Straw Mulch is a procedural BMP for the application of a uniform layer of straw to exposed soil surfaces to protect exposed soil from rain and wind erosion. Straw mulch consists of straw, and may incorporate a tackifier emulsion for stabilization of the mulch when used for protecting sloped areas of exposed soil.

When

Straw mulch is used when:

- Temporary soil stabilization surface cover is needed on disturbed areas until soils can be prepared for re-vegetation and permanent vegetation is established.
- In combination with temporary and/or permanent seeding strategies to enhance plant establishment. Straw mulch typically lasts less than six months.

Limitation: There is a potential for introduction of weed-seed and unwanted plant material with straw. Certified Weed free rice straw must be used when it is important not to introduce unwanted plants.

Where

Application of straw mulch is applicable to flat areas of exposed soil and areas of exposed soil with gradual slopes.

How

Use tackifier to anchor straw mulch to the soil on slopes. Tackifiers act to glue the straw fibers together and to the soil surface, and the tackifier shall be selected based on longevity and ability to hold the fibers in place. Soil binders (tackifier) will generally experience spot failures during heavy rain events. A tackifier is typically applied at a rate of 125 pounds per acre. In windy conditions, the rates are typically 150 pounds per acre.

- Crimping, punch roller-type rollers, or track-walking may also be used to incorporate straw mulch into the soil on slopes. Track walking shall only be used where other methods are impractical.
- Avoid placing straw onto construction traffic ways, sidewalks, lined drainage channels, and existing vegetation.
- Straw mulch with tackifier shall not be applied during or immediately before rain events.
- Apply loose straw at a rate between 3,000 and 4,000 pounds per acre (lb/acre), either by machine using a straw blower or by hand distribution and provide 100 percent ground cover. Use a lighter application on flat surfaces and a heavier application on slopes.
- The straw mulch must be evenly distributed on the soil surface.
- Anchor mulch in place by "punching" it into the soil mechanically in lieu of using a tackifier. "Punching" of straw does not work in sandy soils.
- Methods for holding the straw mulch in place depend on the slope steepness, accessibility, soil conditions and longevity. If the selected method is incorporation of straw mulch into the soil, then proceed as follows:
    - A tackifier acts to glue the straw fibers together and to the soil surface. Selection of a tackifier should be based on longevity and ability to hold the fibers in place. Application of a tackifier is typically at a rate of 125 lb/acre and 180 lb/acre in windy conditions.
    - On very small areas, a spade or shovel can be used.
    - On soil slopes which are stable enough, and gradually sloped to safely support construction equipment without contributing to compaction and instability problems, straw can be "punched" into the ground using a knife-blade roller or a straight bladed coulter, known commercially as a "crimper."

How (cont')

- On small areas and/or steep slopes, straw can also be held in place using plastic netting or jute. The netting shall be held in place using 11 gauge wire staples, geotextile pins or wooden stakes (BMP 4-07), "
- On small areas and/or steep slopes, straw can also be held in place using plastic netting or jute. The netting shall be held in place using 11 gauge wire staples, geotextile pins or wooden stakes (BMP 4-07, "Geotextiles, Plastic Covers, and Erosion Control Blankets/Mats").

- Remove straw as necessary prior to permanent seeding or soil stabilization.

Maintenance and Inspection

- The key consideration in maintenance and inspection is that the straw needs to last long enough to achieve erosion control objectives.
- Reapplication of straw mulch and tackifier may be required to maintain effective soil stabilization over disturbed areas and slopes.
- After any rain event, inspect and maintain all slopes and straw mulch cover to prevent erosion.

Pictures

Straw mulch.

Corresponding CASQA Fact Sheet

Fact Sheet EC-6

What

This Erosion Control and Soil Stabilization BMP is a procedural BMP for the installation of specific erosion control soil stabilization materials to control erosion from wind and water. These materials consist of:

- Geotextile blankets/mats,
- Plastic covers, and
- Natural/man-made material erosion control blankets.

Geotextiles are permeable fabrics typically made from polypropylene (plastic) or polyester that have the ability to protect the soil from erosion but are able to allow some water to reach and to drain the soil. Geotextile fabrics come in three basic forms: woven, needle punched, or heat bonded. Geotextiles also allow controlled rate and filtered drainage from a slope for slope moisture control, while providing slope reinforcement and protection.

Plastic Covers, such as Visqueen, are essentially impermeable and are used for immediate, temporary protection.

Erosion control blankets/mats are meant to protect exposed soil from wind and rain impact and reduce the speed at which water moves across the soil surface. These blankets can be made out of straw, coconut fiber, aspen fiber, jute, and polypropylene. Permeability varies according to material and material weave.

When

- Use blankets/mats when disturbed soils, especially on moderate to steep slopes, are difficult to stabilize or access. Due to wildlife concerns, consult with your project Field Environmental Representative for any restrictions on using these products on your project.
- Geotextile blanket/mats should be used when slope reinforcement may be required.
- Geotextile blankets/mats and natural fiber blankets/mats (depending on their permeability) are used when it is important to allow some water to reach the soil for seed germination or allow slope drainage for moisture control.

Where

- Blankets and mats are generally not suitable for excessively rocky sites or areas where the final vegetation will be mowed (because staples and netting can catch in mowers).
- Plastic results in 100 percent runoff, therefore, their use is limited to:
  - Covering small stockpiles.
  - Covering small graded areas for short periods, such as through an imminent storm event, until alternative measures may be installed.
  - Note the CGP discourages the use of plastic materials for cover when more sustainable alternatives can be used.

Blankets/mats should be used where there are:

- Steep slopes, generally steeper than 1:3 (vertical: horizontal).
- Slopes where the erosion hazard is high.
- Slopes and disturbed soils where mulches would need to be anchored.
- Disturbed areas where plants are slow to develop adequate protective cover.
- Channels with high flows.
- Channels intended to be vegetated.
- Slopes adjacent to water bodies or ESAs).

How

For blankets or mat materials, proper site preparation is essential to ensure complete contact of the blanket or matting with the soil.

How (cont.)

- Grade and shape the area of installation.
- Remove all rocks, clods, vegetation or other obstructions so that the installed blankets or mats will have complete, direct contact with the soil.
- Prepare seedbed by loosening of topsoil.
- Seed the area before blanket installation for erosion control and vegetation. Seeding after mat installation is often specified for turf reinforcement. When seeding prior to blanket installation, all check slots and other areas disturbed during installation must be re-seeded. Where soil filling is specified, seed the matting and the entire disturbed area after installation and prior to filling the mat with soil.
- U-shaped wire staples, metal geotextile stake pins, or triangular wooden stakes can be used to anchor mats and blankets to the ground surface.
- Wire staples and metal stakes should be driven flush to the soil surface.
- All anchors should be 6 inches to 18 inches long and have sufficient ground penetration to resist pullout. Longer anchors may be required for loose soils.
- Installation on slopes – Consult the manufacturer's recommendations for installation. In general, these will be as follows:
  - Begin at the top of the slope and anchor the blanket in a 6 inch deep by 6 inch wide trench. Backfill trench and tamp earth firmly.
  - Unroll blanket down slope in the direction of water flow.
  - Overlap the edges of adjacent parallel rolls 2 inches to 3 inches and staple every 3 feet.
  - When blankets must be spliced, place blankets end over end (shingle style) with a 6 inch overlap. Staple through overlapped area, approximately 12 inches apart.
  - Lay blankets loosely and maintain direct contact with the soil. Do not stretch.
  - Staple blankets sufficiently to anchor blanket and maintain contact with the soil. Staples shall be placed down the center and staggered with the staples placed along the edges.
- Blankets and mats must be removed and disposed of prior to application of permanent soil stabilization measures.
- For plastic sheeting, it is important for the entire stockpile or exposed soil area to be covered completely, and the plastic firmly anchored with anchor objects spaced evenly along the entire perimeter so that wind, or storm water run-on, does not uncover the stockpile. Suitable anchors are gravel bags, sand bags, hay bales, or other non-polluting objects that can be safely handled.

Maintenance and Inspection

- Areas covered with temporary soil stabilization should be inspected routinely and before and after significant forecasted storm events. Any failures should be repaired immediately. Areas covered with temporary soil stabilization should be maintained to provide adequate erosion control. Temporary soil stabilization should be reapplied or replaced on exposed soils when greater than 10 percent of the previously covered area becomes exposed or exhibits visible erosion.
- If washout or breakage occurs, re-install the material after repairing the damage to the slope or channel.

Pictures

Several types of erosion control blankets.

Corresponding CASQA Fact Sheet

Fact Sheet EC-7

What

Dust (Wind Erosion) control is a procedural BMP that consists of applying water or other dust suppressant to prevent or alleviate dust nuisance generated by construction and operations and maintenance activities.

When

- Dust control must be used whenever wind speed picks up dust and creates visual dust emissions. Dust control should be used at least initially on any project when exposed soil is subject to vehicle traffic and soil disturbance activities (e.g., dirt construction site, dirt access road traffic, grading, excavating, and soil stockpile generation, or soil removal from soil stockpiles).
- Dust control must be implemented in accordance with local air quality requirements.

Where

All construction and operations and maintenance activity sites where exposed soil is susceptible to wind erosion.

How

Use the following measures as applicable:

- Appropriate methods of applying dust control (water, chemical dust suppressant, or soil covers and the means to apply it) should be available for construction or operation and maintenance activity sites with the potential to create dust.
- Water applied for dust control should be applied evenly and in a manner that does not generate runoff.
- Dust control methods should be approved by the project Field Environmental Representative. A construction permit or an agency rule may require specific control procedures.
- Obtain prior approval to use any chemical dust suppressant from the project Field Environmental Representative. Dust suppressant chemicals must be on SDG&E's approved product list
- Non-potable water should not be conveyed in tanks or drainpipes that will be used to convey potable water, and there should be no connection between potable and non-potable supplies. Non-potable tanks, pipes and other conveyances should be marked **"NON-POTABLE WATER – DO NOT DRINK."** Approval for use of all non-potable sources of water must be obtained from the project Field Environmental Representative.

- If reclaimed wastewater is used for dust control, the sources and discharge must meet California Department of Health Services water reclamation criteria and RWQCB requirements. Approval for use of reclaimed wastewater must be obtained from the project Field Environmental Representative.

Maintenance and Inspection

- Check areas protected to ensure coverage.
- Reapply water, chemical dust suppressants, or maintain soil covers as necessary to maintain their effectiveness.

Pictures

Water being applied for dust control.

Corresponding CASQA Fact Sheet

Fact Sheet WE-1

What

A diversion berm is a temporary berm of compacted soil used to direct runoff water to a desired location. A drainage swale is a shaped and sloped soil depression used to convey runoff to a desired location. Diversion berms and drainage swales divert off site runoff around the construction or operation and maintenance site, divert runoff from flowing onto stabilized areas and disturbed areas, and direct runoff into sediment basins or traps. A diversion berm or swale itself does not control erosion or remove or trap sediment from runoff.

Limitations:

- Diversion berms may create disturbed areas and become construction equipment barriers.
- Diversion berms must be stabilized immediately, adding cost and maintenance.
- Diverted storm water may cause downstream flood damage.
- Berms should not be constructed of easily eroded soils.
- Regrading the site to remove the berm may add cost.
- Other soil stabilization and sediment controls such as check dams, plastics, and blankets may be needed to prevent erosion in newly graded berms and swales.
- Sediment accumulation, scour depression, and/or persistent non-storm water discharges can result in standing water suitable for mosquito production.

When

Diversion berms and drainage swales are suitable for use, individually or together, where runoff needs to be diverted from one area to another. These BMPs may be used:

- To direct runoff away from disturbed areas or at the top of slopes.
- To convey surface runoff down sloping land.
- To divert runoff towards a stabilized watercourse, drainage pipe, or channel.
- To intercept runoff from paved surfaces.
- To divert sediment laden runoff into sediment basins or traps.

Where

Diversion berms and drainage swales should be considered:

- At the top of slopes to divert run-on from adjacent or undisturbed slopes.
- At bottom and mid-slopes to intercept sheet flow and convey concentrated flows.
- Below steep grades where runoff begins to concentrate.
- Along roadways and facility improvements subject to flood drainage.
- Berms should not be used for drainage areas greater than 10 acres or along slopes greater than 10 percent. For larger drainage areas, more permanent drainage structures should be built in accordance with local requirements.
- Drainage areas more than 5 acres should not drain to a temporary drainage swale. For larger drainage areas, use berms, or more permanent drainage structures should be built in accordance with local requirements.

How

Berms and swales should not adversely affect adjacent properties and must conform to local floodplain management regulations. Obtain written

How (cont.)

authorization from property owner to divert runoff onto another property.

- Care must be applied to correctly size and locate berms and drainage swales.
- Conveyances and outlets should be stabilized.
- Size to control flow velocity based on evaluation of the erosion risk, soil types, overtopping, flow backups, washout, and site drainage flow patterns.
- Install permanent berms and swales early in the construction process.

Diversion Berms:

- Compact all berms and provide positive drainage to an outlet.
- All berms should have 1:2 (vertical: horizontal) or flatter side slopes, and minimum 18-inch height, and minimum 24-inch top width. Wide top widths and flat slopes are usually needed for construction traffic crossings.
- Runoff should be conveyed to a sediment trapping device when the berm channel or the drainage area above the berm are not adequately stabilized.
- Temporary stabilization may be achieved using seed and mulching for slopes less than 5 percent and either riprap or sod for slopes greater than 5 percent. Stabilization should be completed immediately after installation/placement.
- If riprap is used to stabilize the channel formed along the toe of the berm, the following typical specifications apply:

Channel Grade	Riprap Stabilization
0.5 - 1%	4 inch Rock
1.1 - 2.0%	6 inch Rock
2.1 - 4.0%	8 inch Rock
4.1 - 5.0%	8 to 12 inch Riprap

- The riprap, recycled concrete, etc. should be pressed into the soil with construction equipment.
- Filter fabric may be used to cover berms in use for long periods.
- Construction activity on the earthen berms should be kept to a minimum.

Drainage Swales:

Standard engineering design criteria for small open channel and closed conveyance systems should be used. Unless local drainage design criteria state otherwise, drainage swales should be designed as follows:

- Place drainage swales above or below, not on, a cut or fill slope.
- Swale bottom width should be at least 2 feet, and the depth of the swale should be at least 18 inches. The swale side slopes should be 1:2 (vertical: horizontal) or flatter.
- Drainage swales should be at a grade of at least 1 percent, but not more than 15 percent.
- The swale must not be overtopped by the peak discharge from a 10-year storm, irrespective of the design criteria above.

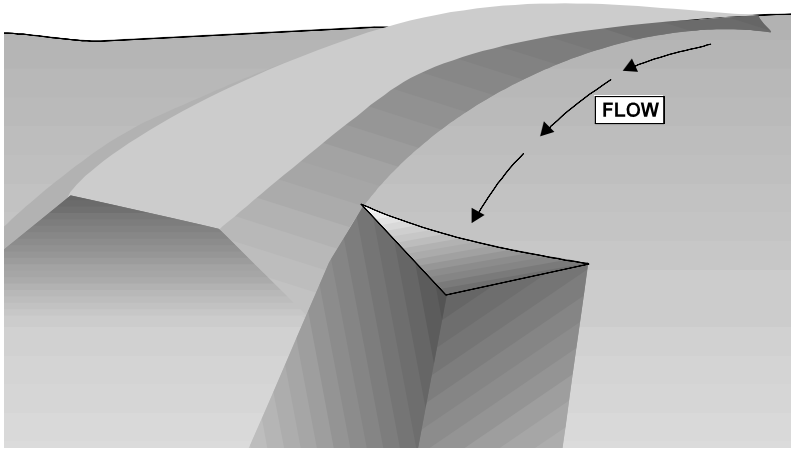
How (cont.)

- Remove all vegetation and other objectionable materials and compact the fill material along the swale path.
- Stabilize all swales immediately after installation/placement. Seed and mulch swales with slopes of less than 5 percent and use riprap or sod for swales with slopes between 5 and 15 percent. For temporary swales, geotextiles and mats may provide immediate stabilization.
- Irrigation may be required to establish sufficient vegetation to prevent erosion.
- Do not operate vehicles across a swale unless a stabilized crossing is provided.
- Permanent drainage facilities must be designed by a California Registered Civil Engineer.
- At a minimum, the drainage swale should conform to predevelopment drainage patterns and capacities.
- Construct the drainage swale with a positive grade to a stabilized outlet.
- Provide erosion protection or energy dissipation measures if the flow out of the drainage swale can reach erosive velocity.

Maintenance and Inspection

- Inspect berms and drainage swales dams prior to, daily during, and after each storm event, and routinely throughout the construction activity (e.g., weekly, or in compliance with the frequency specified in the CGP, if applicable).
- Inspect BMPs subject to non-storm water discharges daily while the discharges occur.
- Inspect ditches and berms for washouts and erosion. Repair riprap, damaged linings, or soil stabilizers, and linings as needed.
- Inspect channel linings, embankments, and beds of swales and berms for erosion and accumulation of debris and sediment. Remove accumulated debris and sediment as needed. Removed sediment shall be incorporated in the project at appropriate locations or disposed of in accordance with federal, state and local requirements.
- Temporary conveyances should be completely removed as soon as the surrounding drainage area has stabilized or at the completion of construction.

Pictures



Corresponding CASQA Fact Sheet Fact Sheet EC-9

What

Velocity dissipation devices are composed of rock, riprap, grouted riprap or concrete rubble, placed at the outlet of a pipe, channel, or waterbar to prevent scour and erosion caused by concentrated high velocity flows. There are many types of dissipation devices.

Limitations:

- Large storms or high flows can wash away the outlet protection and leave the area susceptible to erosion.
- Sediment captured by the outlet protection may be difficult to remove without removing the protection.
- Outlet protection may negatively impact the channel habitat.
- Grouted riprap may break up in areas of freeze and thaw.
- With inadequate drainage, water may build up behind and break grouted riprap.
- Sediment accumulation, scour depression, and/or persistent non-storm water discharges can result in standing water suitable for mosquito production.

When

Velocity dissipation devices are suitable when discharge velocities and energies at the outlets of culverts, conduits, waterbars, or channels are sufficient to erode the next downstream reach.

Where

Velocity dissipation devices should be considered:

- At outlets of pipes, drains, culverts, slope drains, diversion ditches, swales, conduits, channels, waterbars, etc.
- At outlets located at the bottom of mild to steep slopes.
- At discharge outlets that carry continuous water flow.
- At outlets subject to short, intense water flows, such as flash floods.
- At points where lined conveyances discharge to unlined conveyances.

How

Depth of flow, roughness, gradient, side slopes, discharge rate, and velocity should be considered in the outlet design. Compliance to local and state regulations should be considered, particularly while working in environmentally sensitive streambeds.

- Determine the apron length and rock size gradation using the discharge pipe diameter and estimated discharge rate table below. Select the longest apron length and largest rock size suggested by the pipe size and discharge rate. Recommendations for rock size and length of outlet protection mat should be considered minimums. Use sound, durable, and angular rock.
- Where flows are conveyed in open channels such as ditches or swales, use the estimated discharge rate for selecting the apron length and rock size. Flows should be the same as the culvert or channel design flow but never less than the pear 5 year flow for temporary structures planned for one rainy season, or the 10 year peak flow for temporary structures planned for two or three rainy seasons.
- Install filter fabric, riprap, grouted riprap, or concrete apron at selected outlet. Install filter fabric or well-graded filter layer beneath the riprap apron. Riprap aprons are best suited for temporary use during construction. Grouted or wired riprap can minimize maintenance.
- Rock outlet protection is usually less expensive and easier to install than concrete aprons or energy dissipaters, and serves to trap sediment and reduce flow velocities.

How (cont.)

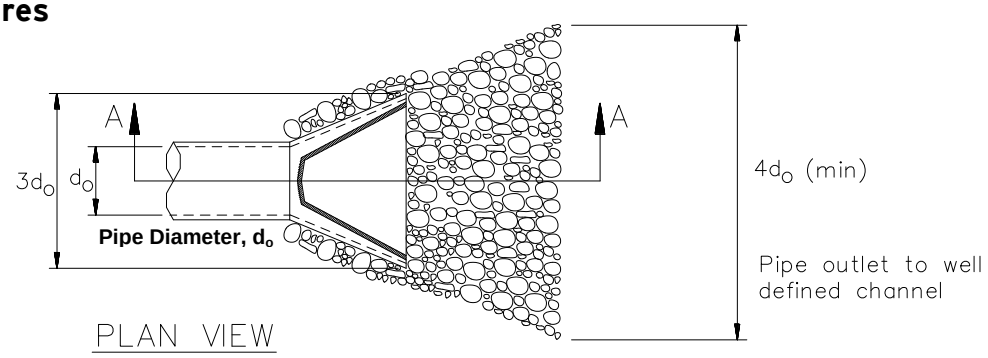
- Carefully place riprap to avoid damaging the underlying filter fabric.
  - Rock 4 to 6-inches may be carefully dumped onto the filter fabric from a maximum height of 12 inches.
  - 8- to 12-inch rock must be hand placed onto filter fabric, or the filter fabric may be covered with 4 inches of gravel, and the rock may be dumped from a maximum height of 16 inches.
  - Rock greater than 12 inches shall only be dumped onto filter fabric protected with a layer of gravel with a thickness equal to one-half the D_{50} rock size, with the dump height limited to twice the gravel protection layer thickness.
- Align apron with receiving stream and keep straight throughout its length. If a curve is needed to fit site conditions, place it in the upper section of the apron.
- Outlets on slopes steeper than 10 percent should have additional protection.

Pipe Diameter (in)	Discharge (ft^3/s)	Apron Length (ft)	Min. Riprap D_{50} Diameter (in)
12	5	10	4
	10	13	6
18	10	10	8
	20	16	12
	30	23	16
	40	26	8
24	30	16	8
	40	26	12
	50	26	16
	60	30	8

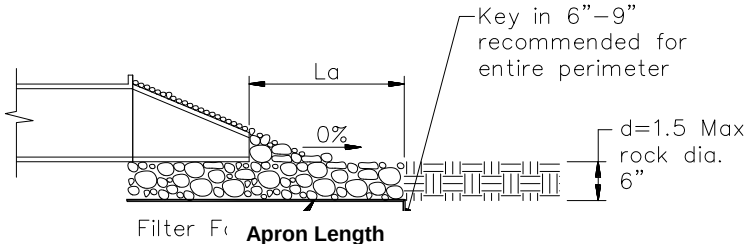
Maintenance and Inspection

- Inspect velocity dissipation devices prior to and after each rain event, and daily during extended rain events throughout the construction activity (e.g., weekly, or in compliance with the frequency specified in the project specific SWPPP, if applicable). Initiate repairs related to a storm event within 72 hours of identifying the problem or as soon as possible but prior to the next predicted storm event, per the CGP.
- Inspect BMPs subject to non-storm water discharges daily while the discharges occur. Minimize standing water by removing sediment blockages and filling depressions.
- Inspect apron for displacement of the riprap and damage to the underlying fabric. Repair fabric and replace riprap that has washed away. If riprap continues to wash away, consider using larger material.
- Inspect for scour beneath the riprap and around the outlet. Repair damage to slopes or underlying filter fabric immediately.
- Temporary devices should be completely removed as soon as the surrounding drainage area has been stabilized or at the completion of construction.

Pictures



PLAN VIEW



SECTION A–A

Corresponding CASQA Fact Sheet

Fact Sheet EC-10

What

A slope drain is a pipe used to intercept and direct surface runoff or groundwater into a stabilized watercourse, trapping device, or stabilized area. Slope drains are typically used with diversion berms and drainage ditches to intercept and direct surface flow away from slope areas to protect cut or fill slopes. Slope drains prevent storm water from flowing directly down the slope by confining the runoff into an enclosed pipe or channel. The slope drain may be installed as a rigid pipe, such as corrugated metal, a flexible conduit, or a lined terrace drain with a top of a slope inlet and a bottom of a slope outlet.

Limitations:

- Slope drain sizing, installation, and maintenance is critical to minimize the potential for failure. Severe erosion may result when slope drains fail by overtopping, pipe separation, or other signs of erosion.
- Dissipation of high flow velocities at the pipe outlet is required to avoid erosion.
- Sediment accumulation, scour depression, and/or persistent non-storm water discharges can result in standing water suitable for mosquito production.

When

Slope drains are suitable when:

- Concentrated runoff flow must be conveyed down a slope.
- Drainage is needed for top of slope diversion dikes or swales.
- Drainage is needed for top of cut and fill slopes where water can accumulate.
- Emergency spillway is required for a sediment basin.

Where

Slope drains should be considered where:

- The drainage area is less than 10 acres per slope drain. For larger areas, use a rock-lined channel, or subdivide into areas of 10 acres or less, with each area is treated as a separate drainage.
- Drainage areas exceeding 10 acres must be designed by a California Registered Civil Engineer and approved by the agency that issued the grading permit.

How

- Permanent structures included in the project plans can often serve as construction BMPs if implemented early. However, the permanent structure must meet or exceed the criteria for the temporary structure.
- Slope drains and inlets must be securely attached to the slope and must be adequately sized to carry the capacity of the design storm and associated forces.
- Outlets must be stabilized with riprap, concrete, or other type of energy dissipater, or directed into a stable sediment trap or basin.
- Debris racks are recommended at the inlet. Debris racks are barriers used to collect debris that is too large to pass through the inlet. Debris racks located several feet upstream of the inlet can usually be larger than racks at the inlet, and thus provide enhanced debris protection and less plugging.

How (cont.)

- Safety racks are also recommended at the inlet and outlet of pipes to prevent a human body or animal from washing into the pipe and/or becoming trapped.
- Size to convey at least the peak flow of a 10-year storm. The design storm is conservative due to the potential impact of system failures. The pipe size may be computed using the Rational Method or a method established by a local municipality. Higher flows must be safely stored or routed to prevent any offsite concentration of flow or erosion.Maximum slope generally limited to 1:2 (vertical: horizontal) as energy dissipation below steeper slopes is difficult.
- Direct surface runoff to slope drains with interceptor dikes. Top of interceptor dikes should be 12 inches higher than the top of the slope drain.
- Slope drains can be placed on or buried beneath the slope surface.
- As a guide, temporary slope drains should not be sized smaller than shown in the following table:

Minimum Pipe Diameter (inches)	Maximum Drainage Area (Acres)
12	1.0
18	3.0
21	5.0
24	7.0
30	10.0

- Recommended materials include metal, plastic, or concrete pipe, either corrugated or smooth wall. The following types of slope drains are common:
  - Rigid Pipe: Also known as a pipe drop, the pipe usually consists of corrugated metal pipe or rigid plastic pipe. The pipe is placed on undisturbed or compacted soil and secured to the slope surface or buried in a trench. Concrete thrust blocks must be used when warranted by the calculated thrust forces. Collars should be properly installed and secured with straps or watertight collars.
  - Flexible Pipe: The pipe consists of a flexible tube of heavy duty plastic, rubber, or composite material. The tube material is securely anchored to the slope surface. The tube should be securely fastened to the metal inlet and outlet conduit sections with metal straps or watertight collars.
  - Section Downdrains: The section downdrain consists of a pre-fabricated, section conduit of half round or third round material, and performs similar to a flume or chute. The pipe must be placed on undisturbed or compacted soil and secured into the slope.
  - Concrete-Lined Terrace Drain: This concrete channel drains water from a slope terrace to the next level. These drains are typically specified as permanent structures and should be designed according to local criteria. If installed early, they can be construction slope drains.

How

(cont.)

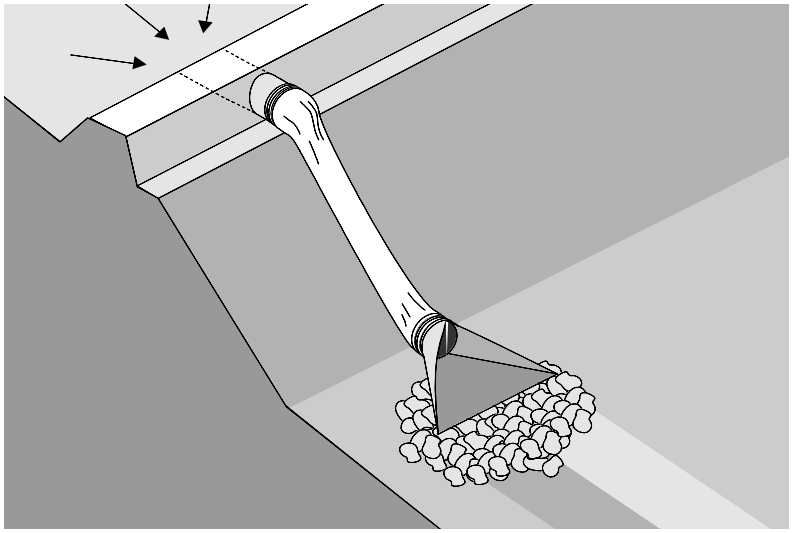
When installing slope drains:

- Install perpendicular to slope contours.
- Compact soil around and under entrance, outlet, and along length of pipe.
- Securely anchor and stabilize pipe appurtenances into soil.
- Check to ensure that pipe connections are watertight.
- Protect areas around inlet with filter fabric. A flared end section installed at the inlet will improve flow into the slope drain and prevent erosion at the pipe entrance. Use a flared section with a 6-inch minimum toe plate to help prevent undercutting. The flared section should slope towards the pipe inlet.
- Protect outlet with riprap or other energy dissipation device. Protect outlet of slope drains using a flared end section when outlet discharges to a flexible energy dissipation device.

Maintenance and Inspection

- Inspect slope drains prior to and after each storm event, and daily during extended rain events throughout the construction activity (e.g., weekly, or in compliance with the frequency specified in the project specific SWPPP, if applicable). Initiate repairs related to a storm event within 72 hours of identifying the problem or as soon as possible but prior to the next predicted storm event, per the CGP.
- Inspect BMPs subject to non-storm water discharges daily while the discharges occur. Minimize standing water by removing sediment blockages and filling depressions.
- Inspect outlet for erosion and downstream scour. If eroded, repair damage and install additional energy dissipation measures. If downstream scour is occurring, it may be necessary to reduce flows being discharged into the channel unless other preventative measures are implemented.
- Insert inlet for clogging or undercutting. Remove debris from inlet to maintain flows. Repair undercutting at inlet, and if needed, install flared section or riprap around the inlet to prevent further undercutting.
- Inspect pipes for leakage. Repair leaks and restore damaged slopes.
- Inspect slope drainage for accumulations of debris and sediment. Remove sediment from entrances and outlets as required. Flush drains as necessary; capture and settle out sediment from discharge.
- Ensure water is not ponding onto inappropriate areas (e.g. active traffic lanes, material storage areas, etc.).
- Pipe anchors must be checked to ensure that the pipe remains anchored to the slope. Install additional anchors if pipe movement is detected.

Pictures



Corresponding CASQA Fact Sheet

Fact Sheet EC-11

What

Streambank stabilization includes measures to reduce the discharge of sediment from streambanks with exposed or disturbed soil, or unstable banks. Streambank stabilization measures include preservation of existing vegetation, hydraulic mulch, hydroseeding, soil binders, straw mulch, geotextiles and mats, berms, and drainage swales, velocity dissipation devices, and slope drains. Streambank sediment controls include silt fences, fiber rolls, gravel bag berms, rock filters, and K-rail barriers, and padding. Each of these measures have different applications, limitations, and maintenance requirements for use as streambank stabilization.

Stream channels, streambanks, and associated riparian areas are dynamic and sensitive ecosystems that respond to changes in land use. Streams on the 303(d) list and listed for sediment may require numerous measures to prevent any increases in sediment load to the stream.

General streambank stabilization limitations:

- **Specific permit requirements or mitigation measures such as RWQCB 401 Certification, U.S. Army Corps of Engineers 404 permit and approval by the California Department of Fish and Game supersede the guidance in this BMP.**
- If numerical water quality standards are mentioned in any of these and other related permits, testing and sampling may be required. Soil disturbance activities in watersheds having streams listed as 303(d) impaired for sediment, silt, or turbidity, may require sampling to verify that there is no net increase in sediment load.

When

When construction or operations and maintenance activities occur within stream channels and associated riparian areas.

Where

Streambank stabilization procedures apply to all construction projects and operations and maintenance activities that disturb or occur within stream channels and their associated riparian areas.

How

Planning should account for: scheduling; avoidance of wet in-stream construction; minimizing disturbance and construction time period; selecting crossing location; and selecting equipment.

- **Construction and operation and maintenance activities should be scheduled according to the relative sensitivity of the environmental concerns and will be different when working near perennial streams vs. ephemeral streams.**
- Minimize disturbance by using pre-disturbed areas, selecting the narrowest crossing location, limiting vehicle crossing trips, and minimizing the number and size of work areas. Plan work areas at least 50 feet from the stream channel.
- Avoid steep and unstable banks, highly erodible or saturated soils, or highly fractured rock.
- Select a project or work site that minimizes disturbance to aquatic species or habitat.
- Select equipment that reduces the amount of pressure exerted on the ground surface (less than 5 or 6 pounds per square inch where possible.

Maintenance and Inspection

- Inspect streambank stabilization BMPS prior to and after each storm event, and daily during extended rain events throughout the construction activity (e.g., weekly, or in compliance with the frequency specified in the project specific SWPPP, if applicable). Initiate repairs related to a storm event within 72 hours of identifying the problem or as soon as possible but prior to the next predicted storm event, per the CGP.
- Inspect BMPs subject to non-storm water discharges daily while the discharges occur.
- Inspect and repair equipment (for damaged hoses, fittings, and gaskets, etc.).

Pictures

Cobble or gravel armor used for streambank stabilization.

Corresponding CASQA Fact Sheet

Fact Sheet EC-12

What

Soil preparation/roughening involves assessment and preparation of surface soils for BMP installation. This includes soil testing (for seed base, soil characteristics, or nutrients), or roughening surface soils by mechanical methods (including sheepsfoot rolling, track walking, scarifying, stair stepping, and imprinting) to prepare soils for additional BMPs or to break up sheet flow. Soil preparation can also involve tilling topsoil to prepare a seed bed and/or incorporation of soil amendments to enhance vegetative establishment. Various roughening techniques on slopes can result in a significant erosion reduction as compared to smooth slopes.

Limitations:

- Preparation and roughening must take place prior to installing other erosion controls (such as hydraulically applied stabilizers) or sediment controls (such as fiber rolls) on slope faces.
- In cases where slope preparation is minimal, erosion control/revegetation BMPs that do not require extensive soil preparation (such as hydraulic mulching and seeding applications) should be employed.
- Consideration should be given to the type of erosion control BMP that follows surface preparation, as some BMPs are not designed to be installed over various types of tillage/roughening.

When

- Soil preparation is most effective when used in combination with erosion controls. Soil preparation (i.e. tilling, raking, and amendment) is essential to proper vegetative establishment, and suitable in combination with any soil stabilization method, including rolled erosion control products (RECPs) or sod.
- Soil roughening is suitable for use as a complementary process to soil preparation for controlling erosion, and is not intended to be used as a stand-alone BMP. Soil roughening should be used with perimeter controls, additional erosion control measures, grade breaks, and vegetative establishment for maximum effectiveness. Soil roughening is referred to as track walking (sometimes called imprinting) a slope, where treads from heavy equipment run parallel to the slope contours and create terraces. Roughening is intended to only affect surface soils and should not compromise slope stability or overall compaction.

Where

Soil preparation should be considered:

- Where vegetation is desired.

Soil roughening should be considered:

- Along any disturbed slopes, including temporary stockpiles, sediment basins, or compacted soil diversion berms and swales.
- Roughening should be used in combination with hydraulically applied stabilization methods, compost blankets, or straw mulch; but should not be used in combination with RECPs or sod because roughening is intended to leave terraces on the slope.

How

Minimal materials are required unless amendments and/or seed are added to the soil. Most soil roughening/preparation can be done with standard construction equipment.

How (cont.)

Soil Preparation

- Where appropriate, soil should be prepared to receive the seed by disking or scarifying the surface to eliminate crust, improve air and water infiltration and create a more favorable environment for germination and growth.
- Based on soil testing, apply additional soil amendments (e.g. fertilizers, additional seed) to the soil to help with germination.

Cut Slope Roughening

- Stair-step grade or groove the cut slopes steeper than 1:3 (vertical: horizontal).
- Use stair-step grading on any erodible material soft enough to be ripped with a bulldozer. Slopes consisting of soft rock with some subsoil are well suited to stair-step grading.
- Make the vertical cut distance less than the horizontal distance, and slightly slope the horizontal position of the "step" in toward the vertical wall.
- Do not make individual vertical cuts more than 2 feet or 3 feet high in soft or rock materials, respectively.
- Groove the slope using machinery to create a series of ridges and depressions that run across the slope on the contour.

Fill Slope Roughening

- Place on fill slopes with inclinations steeper than 1:3 (vertical: horizontal) in lifts not to exceed 8 inches, and ensure that each lift is properly compacted.
- Ensure that the slope face consists of loose, uncompacted fill 4 to 6 inches deep.
- Use grooving or tracking to roughen the face of slopes, if necessary.
- Do not blade or scrape the final slope face.

Roughening for Slopes to be Mowed

- Slopes which require mowing should be flatter than 1:3 (vertical: horizontal).
- Roughen these areas to shallow grooves by track walking, scarifying, sheepsfoot rolling, or imprinting. Excessive roughness is undesirable when mowing is planned.
- Space grooves less than 10 inches apart, and not less than 1 inch deep, and perpendicular to the direction of runoff (parallel to the slope contours).

Roughening with Tracked Machinery

- Limit roughening with tracked machinery to soils with a sandy textural component to avoid undue compaction of the soil surface.
- Operate tracked machinery up and down the slope to leave horizontal depressions in the soil. Do not back-blade during the final grading operation.

How (cont.)

- Seed and mulch roughened areas as soon as possible to obtain optimum seed germination and growth.

Maintenance and Inspection

- Inspect BMPs prior to and after each storm event, and daily during extended rain events throughout the construction activity (e.g., weekly, or in compliance with the frequency specified in the project specific SWPPP, if applicable). Initiate repairs related to a storm event within 72 hours of identifying the problem or as soon as possible but prior to the next predicted storm event, per the CGP.
- Check the seeded slopes for signs of erosion such as rills and gullies. Fill these areas slightly above original grade, then reseed and mulch as soon as possible.

Pictures

Sheepsfoot used for soil preparation

Corresponding CASQA Fact Sheet

Fact Sheet EC-15

REFERENCES

CASQA, 2009. California Stormwater Quality Association Stormwater Best Management Practice Handbook Portal: Construction, November 2009. https://www.casqa.org.

Sempra Energy, December 2002. Water Quality Construction Best Management Practices Manual.

APPENDIX A DEFINITIONS AND ACRONYMS

ATS	Active Treatment Systems
Base	Construction and Operations Center
BFM	Bonded Fiber Matrix
BMP	Best Management Practices
Caltrans	California Department of Transportation
CASQA	California Stormwater Quality Association
CGP	California Construction General Permit
ES	Environmental Standard
ESA	Environmentally Sensitive Area
gpm	Gallons per minute
lb/acre	Pounds per acre
LID	Low Impact Development
NPDES	National Pollutant Discharge Elimination System
RWQCB	Regional Water Quality Control Board – there are nine Water Boards located throughout California that are responsible for enforcing water quality standards within their individual boundaries.
SDG&E	San Diego Gas & Electric
SUSMP	Standard Urban Storm Water Mitigation Plan
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board – The State Board is responsible for protecting and preserving water quality and water rights in California.
Watershed	The total land area that contributes water to a river, stream, lake, or other body of water. Synonymous with drainage basin.
WDR	Waste Discharge Requirements

Appendix D
SDG&E Resource Protection Measures for Special-Status Species

Contents

LIST OF ATTACHMENTS

SDG&E Subregional Plan Operational Protocols

7.1 Operational Protocols

Operational protocols represent an environmentally sensitive approach to traditional utility construction, maintenance, and repair activities recognizing that slight adjustments in construction techniques can yield major benefits for the environment. The appropriate Operational Protocols for each individual project will be determined and documented by the Environmental Surveyor. The following mitigation measures shall be adhered to by SDG&E.

7.1.1 General Behavior for All Field Personnel

1. Vehicles must be kept on access roads. A 15 mile-per-hour speed limit shall be observed on dirt access roads to allow reptile species to disperse. Vehicles must be turned around in established or designated areas only.

2. No wildlife, including rattlesnakes, may be harmed, except to protect life and limb.

3. Firearms shall be prohibited on the rights-of-way except for those used by security personnel.

4. Feeding of wildlife is not allowed.

5. SDG&E personnel are not allowed to bring pets on the rights-of-way in order to minimize harassment or killing of wildlife and to prevent the introduction of destructive domestic animal diseases to native wildlife populations.

6. Parking or driving underneath oak trees is not allowed in order to protect root structures except in established traffic areas.

7. Plant or wildlife species may not be collected for pets or any other reason.

8. Littering is not allowed. SDG&E shall not deposit or leave any food or waste on the rights-of-way or adjacent property.

9. Wildfires shall be prevented or minimized by exercising care when driving and by not parking vehicles where catalytic converters can ignite dry vegetation. In times of high fire hazard, it may be necessary for trucks to carry water and shovels, or fire extinguishers in the field. The use of shields, protective mats, or other fire prevention methods shall be used during grinding and welding to prevent or minimize the potential for fire. Care should be exhibited when smoking in natural habitats.

10. Field crews shall refer environmental issues including wildlife relocation, dead or sick wildlife, hazardous waste, or questions about avoiding environmental impacts to the Environmental Surveyor. Biologists or experts in wildlife handling may need to be brought in by Environmental Surveyor for assistance with wildlife relocations.

7.1.2 Training

11. All SDG&E personnel working within the project area shall participate in an employee training program conducted by SDG&E, with annual updates. The program

will consist of a brief discussion of endangered species biology and the legal protections afforded to Covered Species; a discussion of the biology of the Covered Species protected under this Subregional Plan; the habitat requirements of these Covered Species; their status under the Endangered Species Acts; measures being taken for the protection of Covered Species and their habitats under this Subregional Plan; and a review of the Operational Protocols. A fact sheet conveying this information will also be distributed to all employees working in the project area.

12. Designated SDG&E staff will conduct selected reviews of SDG&E operations. Any proposed modifications to Operational Protocols, procedures or conditions will be promptly provided to CDFW and USFWS for their review and input for required permit or Subregional Plan amendments.

7.1.3 Pre-activity Studies

13. The Environmental Surveyor shall conduct pre-activity studies for all activities occurring off of access roads in natural areas. The Environmental Surveyor will complete a pre-activity study form, including recommendations for review by a biologist and construction monitoring as appropriate. Biologists should be called in when there is the potential for unavoidable impacts to Covered Species. The forms are for information only and will not require CDFW or USFWS approval. These forms shall be faxed to CDFW and USFWS, along with phone notification, who will reply within 5 working days, indicating if they would like to review the project and/or suggest recommendations for post project monitoring. If a biologist is required, he/she will be contacted concurrent to notification to CDFW and USFWS. SDG&E's project may proceed during this time, if necessary, in compliance with the recommendations of the biologist. USFWS survey protocols performed by qualified biologists will be required for new projects which are defined as projects requiring CEQA review.

    In those situations where the Environmental Surveyor cannot make a definitive species identification, an on-call biologist will be brought in. When the biologist is called, he or she will be contacted concurrently with CDFW and USFWS. The biologist will make the determination of the species in question and recommend avoidance or mitigation approaches to the Environmental Surveyor and a decision will be made. In those situations where more than one visit may be necessary to identify a given species, such as certain birds, no more than three site visits shall be required. It is expected that the typical USFWS search protocols will not be utilized in most situations due to the Plan's avoidance priority. Background information necessary to complete the annual report shall be collected on the pre-activity study form and used by SDG&E to prepare the annual report.

14. In order to ensure that habitats are not inadvertently impacted, the Environmental Surveyor shall determine the extent of habitat and flag boundaries of habitats which must be avoided. When necessary, the Environmental Surveyor should also demark appropriate equipment laydown areas, vehicle turn around areas, and pads for placement of large construction equipment such as cranes, bucket trucks, augers, etc.

When appropriate, the Environmental Surveyor shall make office and/or field presentations to field staff to review and become familiar with natural resources to be protected on a project specific basis.

15. SDG&E will maintain a library of rare plant locations known to SDG&E occurring within easements and fee owned properties. "Known" means a verified population, either extant or documented using record data. Information on known sites may come from a variety of record data sources including local agency Habitat Conservation Plans, pre-activity surveys, or biological surveys conducted for environmental compliance on a project site (e.g., initial study), but there is no requirement for development of original biological data. Plant inventories shall be consulted as part of pre-activity survey procedures.

7.1.4 Maintenance, Repair and Construction of Facilities

16. Maintenance, repair and construction Activities shall be designed and implemented to minimize new disturbance, erosion on manufactured and other slopes, and off-site degradation from accelerated sedimentation, and to reduce maintenance and repair costs.

17. Routine maintenance of all Facilities includes visual inspections on a regular basis, conducted from vehicles driven on the access roads where possible. If it is necessary to inspect areas which cannot be seen from the roads, the inspection shall be done on foot, or from the air.

18. When the view of a gas transmission line marker becomes obscured by vegetation on a regular basis requiring repeated habitat removal, consideration shall be given to the replacement of markers with taller versions.

19. Erosion will be minimized on access roads and other locations primarily with water bars. The water bars are mounds of soil shaped to direct flow and prevent erosion.

20. Hydrologic impacts will be minimized through the use of state-of-the-art technical design and construction techniques to minimize paneling, eliminate flood hazards, and avoid erosion and siltation into any creeks, streams, rivers, or bodies of water by use of Best Management Practices.

21. When siting new facilities, every effort will be made to cross the wetland habitat perpendicular to the watercourse, spanning the watercourse to minimize the amount of disturbance to riparian areas.

22. Gas and other facilities cross streambeds and require maintenance and repair. During such times water may be temporarily diverted as long as after disturbance natural drainage patterns are restored to minimize the impact of the disturbance and help to reestablish or enhance the native habitat. Erosion control during construction in the form of intermittent check darns and culverts should also be considered to prevent alteration to natural drainage patterns and prevent siltation.

23. Impacts to wetlands shall be minimized by avoiding pushing soil or brush into washes or ravines.

24. During work on facilities, all trucks, tools, and equipment should be kept on existing access roads or cleared areas, to the extent possible.

25. Environmental Surveyor must approve of activity prior to working in sensitive areas where disturbance to habitat may be unavoidable.

26. Insulator washing is allowed from access roads if other applicable protocols are followed.

27. Brush clearing around facilities for fire protection shall not be conducted from March through August without prior approval by the Environmental Surveyor. The Environmental Surveyor will make sure that the habitat contains no active nests, burrows, or dens prior to clearing.

28. In the event SDG&E identifies a covered species of plant within a 10' radius around power poles, which is the area required to be cleared for fire protection purposes, SDG&E shall notify USFWS (for ESA listed plants), and CDFW (for CESA listed plants), in writing, of the plant's identity and location and of the proposed Activity, which will result in a Take of such plant. Notification will occur ten (10) working days prior to such Activity, during which time USFWS or CDFW may remove such plant(s). If neither USFWS or CDFW have removed such plant(s) within the ten (10) working days following the notice, SDG&E may proceed to complete its fire clearing and *cause* a Take of such plant(s).

    When fire clearing is necessary in instances other than around power poles, and the potential for impacts to Covered Species exists, SDGPF. will follow the pre-activity study and notification procedures in Operational Protocol number 13.

29. Wire stringing is allowed year-round in sensitive habitats if conductor is not allowed to drag on ground or in brush and vehicles remain on access roads.

30. Maintenance of cut and fill slopes shall consist primarily of erosion repair. In situations where revegetation would improve the success of erosion control, planting or seeding with native hydroseed mix may be done on slopes.

31. Spoils created during maintenance operations shall be disposed of only on previously disturbed areas designated by the Environmental Surveyor or used immediately to fill eroded areas. Cleared vegetation shall be hauled off the rights-of-way to a permitted disposal location.

32. Within 6 months of Plan approval, environmentally sensitive tree trimming locations will be identified in the tree trim computer data base system utilized by tree trim contractors, (This data base also tracks the date of each tree trim, type of tree, where threatening dogs reside, etc.). The Environmental Surveyor should be

contacted to perform a pre-activity survey when trimming is planned in environmentally sensitive areas. Whenever possible, trees in environmentally sensitive areas (determined by CDFW and SDG&E) will be scheduled for trimming in the non-sensitive times.

33. No new Facilities and Activities shall be planned which disturb vernal pools, their watersheds, or impact their natural regeneration. Continued historic maintenance of existing infrastructure utilizing existing access roads is allowed to continue in areas containing vernal pool habitat. New construction of overhead infrastructure which spans vernal pool habitats is allowed as long as the placement of facilities or the associated construction activities in no way impact the vernal pools.

34. If any previously unidentified dens, burrows, or plants are located on any project site after the pre-activity survey, the Environmental Surveyor shall be contacted. Environmental Surveyor will determine how to best avoid or minimize impacting the resource by considering such methods as project or work plan redevelopment, equipment placement or construction method modification, seasonal/time of day limitations, etc...

35. The Environmental Surveyor shall conduct monitoring as recommended in the pre-activity survey report. At completion of work, the Environmental Surveyor shall check to verify compliance, including observing that flagged areas have been avoided and that reclamation has been properly implemented. Also, at completion of work, the Environmental Surveyor is responsible for removing all habitat flagging from the construction site.

36. The Environmental Surveyor shall conduct checks on mowing procedures, to ensure that mowing is limited to a 12-foot-wide area on straight portions of the road (slightly wider on radius turns), and that the mowing height is no less than 4 inches.

37. Supplies or equipment where wildlife could hide (e.g., pipes, culverts, pole holes) shall be inspected prior to moving or working on them to reduce the potential for injury to wildlife. Supplies or equipment that cannot be inspected or from which animals could not be removed shall be capped or otherwise covered at the end of each workday. Old piping or other supplies that have been left open, shall not be capped until inspected and any species found in it allowed to escape. Ramping shall be provided in open trenches when necessary. If an animal is found entrapped in supplies or equipment, such as a pipe section, the supplies or equipment shall be avoided and the animal(s) left to leave on its own accord, except as otherwise authorized by CDFW.
38. All steep-walled trenches or excavations used during construction shall be inspected twice daily (early morning and evening) to protect against wildlife entrapment. If wildlife are located in the trench or excavation, the Environmental Surveyor shall be called immediately to remove them if they cannot escape unimpeded.

39. Large amounts of fugitive dust could interfere with photosynthesis. Fugitive dust created during clearing, grading, earth-moving, excavation or other construction activities will be controlled by regular watering. At all times, fugitive dust emissions will be controlled by limiting on-site vehicle speed to 15 miles per hour.

40. Before using pesticides in areas where burrowing owls may be found, a pre-activity survey will be conducted.

7.1-5 Maintenance of access roads shall consist of:

41. Repair of erosion by grading, addition of fill, and compacting. In each case of repair, the total area of disturbance shall be minimized by careful access and use of appropriately sized equipment. Repairs shall be done after pre-activity surveys conducted by the Environmental Surveyor and in accordance with the recommendations regarding construction monitoring and relevant protocols. Consideration should be given to source of erosion problem, when source is within control of SDG&E.

42. Vegetation control through grading should be used only where the vegetation obscures the inspection of facilities, access may be entirely lost, or the threat of Facility failure or fire hazard exists. The graded access road area should not exceed 12'-wide on straight portions (radius turns may be slightly wider).

43. Mowing habitat can be an effective method for protecting the vegetative understory while at the same time creating access to a work area. Mowing should be used when permanent access is not required since, with time, total revegetation is expected. If mowing is in response to a permanent access need, but the alternative of grading is undesirable because of downstream siltation potential, it should be recognized that periodic mowing will be necessary to maintain permanent access.

44. Maintenance work on access roads should not expand the existing roadbed.

45. Material for filling in road ruts should never be obtained from the sides of the road which contain habitat without approval from Environmental Surveyor.

7.1.6 Construction of new access roads shall comply with the following:

46. SDG&E access roads will be designed and constructed according to the SDG&E *Guide for Encroachment on Transmission Rights-of-Way (4/91).*

47. Access roads will be made available to managers of the regional preserve system subject to coordination with SDG&E.

48. New access roads shall be designed to be placed in previously disturbed areas and

areas which require the least amount of grading in sensitive areas during construction whenever possible. Preference shall be given to the use of stub roads rather than linking facilities tangentially.

49. SDG&E will consider providing access control on access roads leading into the regional preserve system where such control provides benefit to sensitive resources.

50. New access road construction is allowed year-round. Every effort shall be made to avoid constructing roads during the nesting season. During the nesting season, the presence or absence of nesting species shall be determined by a biologist and appropriate avoidance and minimization recommendations followed.

7.1.7 Construction and Maintenance of Access Roads Through Stream beds

51. Construction of new access roads through streambeds requires a Streambed Alteration Agreement from CDFW and/or consultation with the Army Corps of Engineers.

52. Maintenance or construction vehicle access through shallow creeks or streams is allowed. However, no filling for access purposes in waterways is allowed without the installation of appropriately sized culverts. The use of geotextile matting should be considered when it would protect wetland species.

53. Staging/storage areas for equipment and materials shall be located outside of riparian areas.

7.1.8 Survey Work

54. Brush clearing for foot paths or line-of--sight cutting is not allowed from March through August in sensitive habitats without prior approval from the Environmental Surveyor, who will ensure that activity does not adversely affect a sensitive species.

55. SDG&E survey personnel must keep vehicles on existing access roads. No clearing of brush for panel point placement is allowed from March through August without prior approval from the Environmental Surveyor.

56. Hiking off roads or paths for survey data collection is allowed year-round so long as other protocols are met.

7.1.9 Emergency Repairs

57. During a system emergency, unnecessary carelessness which results in environmental damage is prohibited.

58. Emergency repair of facilities is required in situations which potentially or immediately threaten the integrity of the SDG&E system, such as pipe leaks, or downed lines, slumps, slides, major subsidence, etc. During emergency repairs the

Operational Protocols contained in this Subregional Plan shall continue to be followed to fullest extent possible.

59. Once the emergency has stabilized, any unavoidable environmental damage will be reported to the Environmental Surveyor by the foreman. The Environmental Surveyor will develop a mitigation plan and ensure its implementation is consistent with this Subregional Plan.

SDG&E Low-Effect Quino HCP Operational Protocols

3.0 HABITAT CONSERVATION PLAN

3.1 Purpose and Goals of the HCP

SDG&E's Low-Effect HCP addresses adverse impacts to QCB from SDG&E operations and maintenance activities, including construction of new Facilities. This Plan has been prepared to avoid and minimize impacts to QCB associated with covered activities within the Plan area. The Plan will mitigate for unavoidable impacts primarily through the establishment of the Quino Checkerspot Butterfly Mitigation Fund with the San Diego Foundation, although other QCB mitigation options are possible (see section 3.3). Such funds will be used to support the recovery of the QCB through purchase and/or management of high quality QCB habitat or through other actions.

3.2 Actions to Minimize Impacts

The following operational protocols are proposed by SDG&E to avoid and minimize impacts to QCB from SDG&E activities occurring in potential QCB habitat, also referred to in this Plan as "Mapped Areas". The Service will update the Mapped Areas annually and provide the information to SDG&E. Potential QCB habitat was mapped during the development of the Plan using the Quino Recovery Plan and data collected from 1990 through 2005. The QCB protocols listed below are designed to work in concert with, and supplement, the existing protocols that have been incorporated into SDG&E activities as a result of their existing 1995 Subregional Plan that covers 110 species but not QCB. The protocols established by the 1995 Subregional plan will be followed for QCB along with the protocols below in order to provide additional minimization of impacts to the species. Should the 1995 Subregional Plan become ineffective (i.e., is no longer being implemented), the protocols therein will still be implemented whenever a covered activity takes place in QCB habitat. The existing 1995 Subregional Plan protocols are presented above in the NCCP protocols in Appendix D.

Protocol surveys, as prescribed below, will be considered valid for a period of two years.

3.2.1 General Protocols for Operations and Maintenance Activities

1. A pre-activity survey will be conducted by a qualified biologist or botanist to identify Suitable QCB Habitat whenever an activity occurs within a Mapped Area. The pre-activity survey can be conducted at any time of the year, whether or not it is within the QCB activity period. The results of these surveys will be reported to the Service through the pre-activity reporting process established in the 1995 Subregional Plan.

2. In areas where no Suitable QCB Habitat is found during the pre-activity survey, grading may occur at any time consistent with the 1995 Subregional Plan and no mitigation will be required for the QCB.

3. If Suitable QCB Habitat is present in the Work Area, the project will be redesigned to avoid all impacts to Suitable QCB Habitat, if feasible. If impacts are avoided, then grading may occur and no QCB mitigation will be required. If impacts cannot be avoided, one of the following will occur:

    a) If timing of the project will allow, a protocol-level adult flight season survey will be conducted by a Service-permitted biologist within the Suitable QCB Habitat to determine whether or not the Work Area is occupied by QCB. In areas where no QCB are detected, grading and grubbing activities may proceed without further review and impacts to Suitable QCB Habitat will be mitigated at a 1:1 ratio. If QCB are detected in the project Work

Area, the project will be redesigned to avoid impacts to QCB, if feasible. If project redesign is not feasible or will not avoid all impacts, unavoidable impacts to Occupied QCB Habitat will be mitigated at a 2:1 ratio, and impacts to Suitable QCB Habitat will be mitigated at 1:1;

b) If the timing of the project will not allow for adult flight season surveys to determine the presence or absence of QCB in the Work Area, it will be assumed that the identified Suitable QCB Habitat is occupied. If project redesign is not feasible or will not avoid all impacts, unavoidable impacts to the assumed Occupied QCB Habitat will be mitigated at a 2:1 ratio

4. SDG&E plans to regularly regrade its transmission and gas line access roads at least every two years. If the roads are maintained at least once every two years, then no additional mitigation will be required for ongoing road maintenance. If the roads are not maintained at least every two years, however, additional mitigation may be required, depending on whether QCB habitat has become established on the roads. If more than two years pass without any vegetation clearing, a survey and appropriate mitigation as determined by the Plan's operational protocols will be required.

3.2.2 General Protocols for Operations and Maintenance Activities for Emergency Periodic Non-Deferrable Activities

1. No pre-activity survey will be conducted and no QCB adult survey will be conducted. SDG&E may take action immediately but must contact the Service within 24 hours after undertaking the activity to provide information on the location and emergency nature of the activity.

2. Unavoidable impacts to Suitable QCB Habitat within Mapped Areas will be mitigated at a 2:1 ratio.

3.2.3 Protocols for New Construction (

1. A pre-activity survey will be conducted by a qualified biologist or botanist to identify Suitable QCB Habitat. The pre-activity survey can be conducted at any time of the year, whether or not it is within the QCB activity period. The results of these surveys will be reported to the Service through the pre-project reporting process established in SDG&E's 1995 Subregional Plan. If Suitable QCB habitat is identified during the survey, the following will occur to the extent feasible:

a) Site the new rights-of-way, access roads and/or Facilities to avoid Suitable QCB Habitat.

b) Place new poles and towers so that construction impacts to Suitable QCB Habitat will be avoided or minimized.

c) Span Suitable QCB Habitat when the intersection of new rights-of-way and habitat cannot be avoided.

d) Avoid trenching through Suitable QCB Habitat.

2. **If** the above siting and design methods for new construction are successful in avoiding impacts to Suitable QCB Habitat, then grading may occur at any time of the year, consistent with the 1995 Subregional Plan, and no mitigation for the QCB will be required.

3. In areas where no Suitable QCB Habitat is found during the pre-activity survey, grading may occur at any time, consistent with the 1995 Subregional Plan, and no QCB mitigation will be required.

4. If Suitable QCB Habitat is present in the Work Area and the new Facility cannot be sited or designed to avoid the Suitable QCB Habitat, then one of the following will occur:

   a) A protocol-level adult flight season survey will be conducted by a Service-permitted biologist within the Suitable QCB Habitat areas to determine whether or not the site is occupied by QCB. In areas where there is no QCB detected, grading and grubbing activities may proceed without further review and the Suitable QCB Habitat will be mitigated at a 1:1 ratio;

   b) **If** QCB are detected in the project Work Area, the Occupied QCB Habitat will be mitigated for at a 2:1 ratio.

      Suitable QCB Habitat will be mitigated at 1:1; or

   c) **If** the timing of the project will not allow for adult flight season surveys to determine the presence or absence of QCB, presence of QCB will be assumed and mitigation will occur at a 2:1 ratio for impacts to all Suitable QCB Habitat.

5. If impacts to Occupied QCB Habitat (as determined by surveys or assumed) is greater than one acre, SDG&E must confer with the Service to ensure that the activity's impact will not cause the extirpation of a QCB population

Attachment D.1
MSUP USFWS Biological Opinion

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

In Reply Refer To:
FWS-SD-15B0191-15F0339

NOV 19 2015

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Subject: Formal Section 7 Consultation on Issuance of a Master Special Use Permit to San Diego Gas and Electric, San Diego County, California

Dear Mr. Metz:

This is in response to an April 7, 2015, letter from the Cleveland National Forest requesting consultation pursuant to section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*), regarding the issuance of a U.S. Forest Service (USFS) Master Special Use Permit (MSUP) to San Diego Gas and Electric (SDG&E). We later received requests from the Bureau of Land Management (BLM) and Bureau of Indian Affairs (BIA) on June 30, 2015, to include their agencies and project activities on lands under their jurisdiction in the consultation. The request for formal consultation included the federally threatened San Diego thornmint (*Acanthomintha ilicifolia*) and the federally endangered Quino checkerspot butterfly (*Euphydryas editha quino*), arroyo toad [*Anaxyrus californicus* (*Bufo microscaphus c.*)], southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), and Stephens' kangaroo rat (*Dipodomys stephensi*). You also requested concurrence that the proposed project is not likely to adversely affect the federally endangered Laguna Mountains skipper (*Pyrgus ruralis lagunae*) and its designated critical habitat; designated critical habitat for the federally endangered

San Bernardino bluegrass (*Poa atropurpurea*), arroyo toad, and southwestern willow flycatcher; and designated critical habitat for the federally threatened coastal California gnatcatcher (*Polioptila californica californica*).

You determined that the project will have no effect on San Bernardino bluegrass, and we concur with this determination based on the lack of known occupied habitat within the project area and surveys. You also determined that coastal California gnatcatcher would not be affected. However, we do not concur based on the proximity of this species to the project area and the lack of recent survey information. Surveys were conducted in 2010, but they included areas affected by wildfire that may have recovered by now. Thus, coastal California gnatcatcher is addressed below.

This consultation is based on the April 13, 2015, letter and information in our files. The complete project file for this consultation is maintained at the U.S. Fish and Wildlife Service's (Service) Carlsbad Fish and Wildlife Office (CFWO).

SDG&E currently operates under its Subregional Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP), which establishes a multiple species conservation program to minimize and mitigate habitat loss and the incidental take of covered species in association with specific covered activities. On December 18, 1995, the Service issued a section 10(a)(1)(B) permit ("incidental take permit") to SDG&E for its NCCP/HCP. SDG&E also operates under its low-effect HCP, which establishes a conservation program to minimize and mitigate habitat loss and the incidental take of Quino checkerspot butterfly in association with specific covered activities. On January 12, 2008, the Service issued an incidental take permit to SDG&E for its low-effect HCP. The NCCP/HCP and low-effect HCP boundaries encompass the SDG&E service area and include San Diego County and portions of Orange and Riverside counties. The activities to be covered under the MSUP are located within SDG&E's NCCP/HCP and low-effect HCP boundaries.

SDG&E's NCCP/HCP, low-effect HCP, and associated incidental take permits cover a total of 112 species, including arroyo toad, southwestern willow flycatcher, coastal California gnatcatcher, least Bell's vireo, San Diego thornmint, Stephens' kangaroo rat, and Quino checkerspot butterfly. These species have been documented in the project area. However, for San Diego thornmint and Stephens' kangaroo rat, the NCCP/HCP only covers impacts associated with emergency actions and repairs. Since SDG&E's proposed activities also include new construction, we address the potential impacts to San Diego thornmint and Stephens' kangaroo rat in the biological opinion below.

The status of arroyo toad, southwestern willow flycatcher, coastal California gnatcatcher and least Bell's vireo and the effects of implementing the NCCP/HCP were previously addressed in our biological opinion dated December 18, 1995. The status of Quino checkerspot butterfly and the effects of implementing the low-effect HCP were previously addressed in our biological opinion dated January 16, 2008. In these biological opinions, we concluded that the level of take anticipated in the NCCP/HCP and low-effect HCP was not likely to result in jeopardy to these species. We do not anticipate any adverse effects to these species that were not previously evaluated in our biological opinions for the NCCP/HCP and low-effect HCP. Therefore, it is our conclusion that implementation of the proposed project will not result in jeopardy to the arroyo toad, southwestern willow flycatcher, coastal California gnatcatcher, least Bell's vireo, or Quino checkerspot butterfly. By this consultation, we are extending to the USFS, BLM and BIA the take exemption for these species already provided

to SDG&E, as appropriate. This take exemption is limited to the proposed project, and as provided in the incidental take statement of our biological opinions dated December 18, 1995, and January 16, 2008.

Not Likely to Adversely Affect Determinations

SDG&E's NCCP/HCP did not cover project impacts to waters of the U.S. subject to the U.S. Army Corps of Engineers' (Corps) jurisdiction under the Clean Water Act. However, we provided a letter (informal consultation) to the Corps on August 8, 2013, concurring that SDG&E projects in Corps jurisdictional areas were not likely to adversely affect arroyo toad, southwestern willow flycatcher, and least Bell's vireo and their designated critical habitats, based upon implementation of additional conservation measures (Enclosure) that will also be incorporated into the MSUP. We do not anticipate any adverse effects to these species that were not previously evaluated in our informal consultation with the Corps. Therefore, it is our conclusion that implementation of the proposed action is not likely to adversely affect arroyo toad, southwestern willow flycatcher, and least Bell's vireo or their critical habitats in Corps jurisdictional areas.

You made determinations that the Laguna Mountains skipper and its designated critical habitat and designated critical habitat for San Diego thornmint, San Bernardino bluegrass, arroyo toad, coastal California gnatcatcher, and southwestern willow flycatcher were not likely to be adversely affected by the proposed project. We concur with these determinations for the following reasons:

Laguna Mountains Skipper and its Designated Critical Habitat

In our August 31, 2006 (FWS-SDG-4775.3), and February 7, 2007 (FWS-SDG-4775.4), letters to the USFS, we concurred that issuance of permits for operations and maintenance of existing SDG&E facilities is not likely to adversely affect Laguna Mountains skipper and its designated critical habitat.[1] However, the proposed MSUP includes additional activities and ground disturbance associated with the fire hardening (wood-to-steel pole replacement), relocation, and undergrounding in the Laguna Mountains that were not previously considered.

The Laguna Mountains skipper has not been observed in the project area since 1999 despite extensive surveys. The species is either extirpated or occurs at such a low level that the potential for an individual to be impacted is discountable.

The project will occur in the Laguna Mountains and Palomar Mountains, which are in Units 1 and 2 of designated critical habitat for the Laguna Mountains skipper, respectively. Primary constituent elements (PCEs) of Laguna Mountains skipper critical habitat include: 1) the host plants, Cleveland's horkelia (*Horkelia clevelandii*) or sticky cinquefoil (*Potentilla glandulosa*); 2) nectar sources suitable for feeding by Laguna Mountains skipper adults, including *Lasthenia* species, golden chaetopappa (*Pentachaeta aurea*), *Ranunculus* species, and *Sidalcea* species; and 3) wet soil or standing water associated with features such as seeps, springs, or creeks where water and minerals are obtained during adult flight season.

[1] Our February 27, 2007, letter concurred that operations and maintenance activities were not likely to adversely modify designated critical habitat for the Laguna Mountains skipper. However, our use of the phrase "not likely to adversely modify" was in error. Our intention was to concur that the proposed activities were not likely to adversely affect Laguna Mountains skipper designated critical habitat.

If present, Laguna Mountains skipper adults, larvae, pupae and eggs could be crushed during these activities, and PCE 1 (host plants) and PCE 2 (nectar sources) could be removed. In the Palomar Mountains (Unit 2), maintenance of power lines will temporarily impact only 0.06 acre of designated critical habitat, and host and nectar plants will be avoided. In the Laguna Mountains (Unit 1), fire hardening (wood-to-steel pole replacement), relocation, and undergrounding of power lines will impact a total of 2.1 acres (1 acre permanently and 1.1 acres temporarily) of designated critical habitat. Impacts to Unit 1 will consist of small-scale ground disturbances spread across a long linear area, and host and nectar plants will be avoided during pole replacements to the extent feasible. Temporary impacts will be restored and permanent impacts will be mitigated with comparable habitat. In addition, the following conservation measures (CM) are part of the proposed action to avoid and minimize potential impacts to the Laguna Mountains skipper and its designated critical habitat:

CM 1. Prior to project work, a biologist will identify all Laguna Mountains skipper habitat (to include host plant and nectar sources) within 33 feet of the proposed project(s) right-of-way. During any maintenance activities, a biologist will be present to monitor work and ensure that Laguna Mountains skipper habitat is not affected.

CM 2. Chipping of vegetation will not be allowed in known or potential Laguna Mountains skipper habitat. This includes access roads and/or the right-of-way within or adjacent to (within 33 feet) known or potential Laguna Mountains skipper habitat. Potential habitat will be identified by a biologist either during the host plant/nectar source survey or prior to the onset of right-of-way work.

CM 3. Vehicles or tracked equipment will only be allowed on existing roads or trails when operating within or adjacent to Laguna Mountains skipper habitat. Prior to operation of vehicles on existing roads or trails, a biologist will ensure that the road or trail itself does not contain host plants or nectar sources.

Overall, the project will not alter the ecological function (i.e., support for the breeding, feeding, and sheltering requirements of Laguna Mountains skipper) of designated critical habitat within Units 1 and 2.

Based on the above, the proposed action is not likely to adversely affect the Laguna Mountains skipper or its designated critical habitat.

San Diego Thornmint Designated Critical Habitat

The project will occur in Unit 3 of designated critical habitat for San Diego thornmint. The one PCE of San Diego thornmint critical habitat includes clay lenses that provide substrate for seedling establishment and space for growth and development.

Project activities will impact the PCE of San Diego thornmint designated critical habitat (i.e., clay lenses for seedling establishment and growth) due to ground disturbance. Ground disturbance will eliminate habitat and increase the potential for nonnative plant species to displace San Diego thornmint. However, only 0.003 acre of permanent and 0.08 acre of

temporary impacts will occur to San Diego thornmint designated critical habitat. The 0.08 acre of temporary impacts will be restored. In addition, best management practices will be implemented to minimize the potential establishment of nonnative plant species. Due to the small area of impact, the restoration of temporary impacts, and implementation of best management practices, impacts to designated critical habitat are insignificant and will not alter the ecological function of this habitat. Thus, the proposed action is not likely to adversely affect San Diego thornmint designated critical habitat.

San Bernardino Bluegrass Designated Critical Habitat

The project will occur in Unit 14 of designated critical habitat for San Bernardino bluegrass. PCEs of San Bernardino bluegrass critical habitat include: 1) wet meadows and 2) loamy alluvial to sandy loam soils.

Project activities will impact PCEs 1 (wet meadows) and 2 (loamy alluvial to sandy loam soils) due to ground disturbance. Ground disturbance will eliminate habitat and increase the potential for nonnative plant species to displace San Bernardino bluegrass. However, only 0.002 acre of permanent and 0.07 acre of temporary impacts will occur to San Bernardino bluegrass designated critical habitat. The 0.07 acre of temporary impacts will be restored. In addition, best management practices will be implemented to minimize the potential establishment of nonnative plant species. Due to the small area of impact, the restoration of temporary impacts, and implementation of best management practices, potential impacts to designated critical habitat are insignificant and will not alter the ecological function of this habitat. Thus, the proposed action is not likely to adversely affect San Bernardino bluegrass designated critical habitat.

Arroyo Toad Designated Critical Habitat

The project will occur in Units 15, 18, and 19 of designated critical habitat for arroyo toad. PCEs of arroyo toad designated critical habitat include: 1) rivers or streams with breeding pools; 2) riparian and adjacent upland habitats; 3) a natural flooding regime, or one sufficiently corresponding to natural; and 4) stream channels and adjacent upland habitats that allow for movement.

Project activities will impact PCEs 1 (rivers or streams with breeding pools) and 2 (riparian and adjacent upland habitat) due to ground disturbance. Ground disturbance could reduce pools for breeding via sedimentation and upland habitat for breeding and foraging. However, only 0.08 acre of permanent and 2.2 acres of temporary impacts will occur to arroyo toad designated critical habitat. The 2.2 acres of temporary impacts will be restored. In addition, best management practices will be implemented to minimize the potential for sedimentation of habitat and impacts to breeding pools. Finally, impacts will consist of small-scale ground disturbances spread across a long linear area. Due to the small and intermittent areas of impact, the restoration of temporary impacts and the best management practices to avoid or minimize impacts to breeding pools, potential impacts to designated critical habitat are insignificant and will not alter the ecological function of this habitat for breeding, feeding and sheltering of arroyo toads. Thus, the proposed action is not likely to adversely affect arroyo toad designated critical habitat.

Coastal California Gnatcatcher Designated Critical Habitat

The project will occur in Unit 2 of designated critical habitat for coastal California gnatcatcher. PCEs of coastal California gnatcatcher critical habitat include: 1) sage scrub habitats and 2) non-sage scrub habitats in proximity to sage scrub habitats that provide space for dispersal, foraging, and nesting.

Project activities will impact PCEs 1 (sage scrub) and 2 (non-sage scrub habitat in proximity to sage scrub) due to ground disturbance. However, only 0.1 acre of temporary impacts will occur to coastal California gnatcatcher designated critical habitat, and this area will be restored. Due to the small area of impact and this restoration, potential impacts to designated critical habitat are insignificant and will not alter the ecological function of this habitat for breeding, feeding and sheltering of coastal California gnatcatcher. Thus, the proposed action is not likely to adversely affect coastal California gnatcatcher designated critical habitat.

Southwestern Willow Flycatcher Designated Critical Habitat

The project will occur in the San Diego Management Unit of designated critical habitat for the southwestern willow flycatcher. PCEs of southwestern willow flycatcher designated critical habitat include: 1) riparian vegetation and 2) insect prey populations.

Project activities will impact PCE 1 (riparian vegetation) due to ground disturbance. However, only 0.003 acre of permanent and 0.1 acre of temporary impacts will occur to southwestern willow flycatcher designated critical habitat. The 0.1 acre of temporary impacts will be restored. Due to the small area of impact and this restoration, the project will not alter the ecological function of designated critical habitat for breeding, feeding and sheltering of southwestern willow flycatcher. Thus, the proposed action is not likely to adversely affect southwestern willow flycatcher designated critical habitat.

CONSULTATION HISTORY

On January 8, 2015, and March 10, 2015, we had meetings with the California Public Utilities Commission, California Department of Fish and Wildlife, Cleveland National Forest, and SDGE, to obtain clarification regarding the extent of the potential impacts associated with the proposed action.

On April 13, 2015, we received a request for formal consultation for the proposed project.

On June 30, 2015, we received requests to include the BLM and BIA in the consultation.

On October 1, 2015, we provided a draft non-jeopardy biological opinion for the proposed action to USFS, BLM, BIA, and SDGE for review.

Between October 8, 2015 and November 6, 2015, we received comments and a request to finalize the biological opinion.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed action is for the USFS to combine over 70 special use permits and easements for operation and maintenance of SDG&E facilities within the Cleveland National Forest into one MSUP. The MSUP will include use and maintenance of access roads and closure/restoration to native habitats of 4.3 miles of existing access roads to native habitat. The MSUP will also allow SDG&E to replace power lines through fire hardening (wood-to-steel pole replacement), relocation, and undergrounding. The replacement of power lines will occur on Cleveland National Forest and lands managed by the BLM and BIA. The MSUP will authorize 1 acre of permanent and 67 acres of temporary impacts. The complete project description is provided as the Federal Preferred Alternative of the Final Environmental Impact Report/Environmental Impact Statement for the project (FEIR/EIS; Dudek and Associates 2015). The following conservation measures from this project description will be implemented to avoid and minimize potential impacts to San Diego thornmint and Stephens' kangaroo rat:

CM 4. Prior to construction, all developer, contractor and subcontractor personnel will receive training regarding the appropriate work practices necessary to implement mitigation measures and comply with environmental regulations, including plant and wildlife species avoidance, impact minimization, and best management practices. Sign-in sheets and hard hat decals will be provided that document contractor training has been completed for construction personnel.

CM 5. Construction and construction-related activities will be confined to the minimum necessary area. The limits of approved work spaces will be delineated with stakes and/or flagging prior to beginning work in any area. In areas where SDG&E will not work within exclusive-use easements, they will post temporary signage along approved work limits, indicating that the area is an active construction/work zone and access is temporarily restricted. An environmental monitor will complete weekly observations to ensure that all work is done within the approved work limits, and in the event any work occurs beyond the approved limits, it will be reported by SDG&E's compliance team in accordance with the Mitigation Monitoring, Compliance, and Reporting program (see Section H of the FEIR/EIS).

CM 6. All temporary construction areas will be restored pursuant to a habitat restoration plan (HRP). All temporary work areas not subject to long-term use or ongoing vegetation maintenance will be revegetated with native species characteristic of the adjacent native vegetation communities in accordance with a HRP as described in Section 7.2 Habitat Enhancement Measures of SDG&E's NCCP/HCP. The HRP will be prepared by a habitat restoration specialist (approved by the California Public Utilities Commission and USFS) who will oversee implementation of the HRP. The HRP will be reviewed and approved by the California Public Utilities Commission and USFS prior to implementation. Restoration techniques may include the following: hydroseeding, hand-seeding, imprinting, and soil and plant salvage. The HRP will include success criteria and monitoring specifications and will be approved by the permitting agencies

prior to construction of the project. At the completion of project construction, all construction materials will be completely removed from the site. Topsoil located in areas to be restored will be conserved and stockpiled during the excavation process for use in the restoration. Wherever possible, vegetation would be left in place to avoid excessive root damage and allow for natural recruitment following construction. Temporary impacts will be restored sufficient to compensate for the impact, to the satisfaction of the permitting agencies (depending on the location of the impact).

CM 7. SDG&E will retain biologists and other resource specialists, as necessary, to monitor all project construction activities that could reasonably result in impacts to biological resources. All monitor qualifications will be reviewed and approved by the California Public Utilities Commission prior to conducting monitoring activities along the right-of-way. Monitors will be responsible for preconstruction surveys, work area delineations (i.e., staking, flagging, etc.) to comply with SDG&E's NCCP/HCP, on-site monitoring, and documentation of violations and compliance.

CM 8. SDG&E will submit a weekly report to California Public Utilities Commission that summarizes the biological monitoring activities that were completed during construction. The weekly report will, at a minimum, include environmental training sign-in sheets, biological monitors assigned to project components, compliance issues/concerns, and general wildlife observations.

CM 9. Biologists will inspect open holes at the end of each workday. At the end of each workday, any open holes (including large/steep excavations) will be inspected by the on-site biologist and subsequently be fully covered with steel plates, plywood, or other effective coverings to prevent entrapment of Stephens' kangaroo rats. If fully covering the excavations is impractical, ramps will be used to provide a means of escape for Stephens' kangaroo rats that enter the excavations, or open holes will be securely fenced with exclusion fencing. If Stephens' kangaroo rats are found in a hole, a biological monitor will immediately be informed and the animal will be removed before resumption of work in that immediate area. SDG&E will specify the requirement to cover all open holes, create ramps, or install exclusion fencing around open holes in its agreements with all construction contractors.

CM 10. Speed limits in and around all construction areas will be enforced. Vehicles will not exceed 15 miles per hour on unpaved roads (as stated in section 7.1 Operational Protocols of SDG&E's NCCP/HCP) and the right-of-way accessing the construction site or 10 miles per hour during the night.

CM 11. Night construction lighting adjacent to native habitats will be minimized. Lighting of construction areas at night will be the minimum necessary for personnel safety and will be low illumination, selectively placed, shielded, and directed away from adjacent native habitats.

CM 12. The harm, harassment, collection of, or feeding of wildlife by project personnel will be prohibited. No pets will be allowed in the construction areas.

CM 13. Any burrows or signs of Stephens' kangaroo rat using a habitat (e.g., track prints) will be flagged for avoidance during construction activities. If Stephens' kangaroo rat occupied habitat cannot be avoided during construction, a biologist will make recommendations to ensure minimal impacts to Stephens' kangaroo rat habitat and burrows during construction. Recommendations may include, but are not limited to, re-routing access to the project work area or placement of dirt piles or sediment to avoid occupied burrows. Upon completion of monitoring and any follow-up construction avoidance management, a report will be prepared and submitted to the California Public Utilities Commission.

CM 14. Prior to the start of construction, a biologist will conduct focused surveys during the appropriate blooming period for special-status plant species (including San Diego thornmint) for all construction areas. All of the special-status plant locations will be recorded using a Global Positioning System, which will be used to site the avoidance fencing/flagging. Special-status plant species will be avoided to the maximum extent possible by all construction activities. The boundaries of all special-status plant species to be avoided will be delineated in the field with clearly visible fencing or flagging. The fencing/flagging will be maintained for the duration of project construction activities.

According to 50 CFR § 402.02 pursuant to section 7 of the Act, the "action area" means all areas to be affected directly or indirectly by the Federal action. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area. For this project, the action area includes all existing and proposed SDG&E lines and access roads on the Cleveland National Forest, BLM lands, and areas under BIA jurisdiction subject to new construction.

STATUS OF THE SPECIES

San Diego Thornmint

San Diego thornmint was federally listed as threatened on October 13, 1998 (Service 1998). The number of known occurrences of San Diego thornmint has increased since listing. While 55 extant occurrences are now known in San Diego County, only 32 occurrences were considered extant in San Diego County at listing (Service 2009). In addition, 13 historical occurrences were documented within Baja, Mexico, but their current status is unknown (Service 2009). Further, a recent review of the status of San Diego thornmint determined that the threat to this species from development has decreased. Currently 39 occurrences are protected from development, while only 9 occurrences were protected from development at listing. This species remains threatened by nonnative species, recreation, and potentially from fire and climate change (Service 2009). Detailed information on the status of San Diego thornmint can be found in the 5-year review (Service 2009) (http://ecos.fws.gov/docs/five_year_review/doc2571.pdf). Please refer to this document for detailed information on the life history requirements, threats, and conservation needs of the species rangewide.

Stephens' Kangaroo Rat

Stephens' kangaroo rat was federally listed as endangered on September 30, 1988 (Service 1988). Stephens' kangaroo rat is a medium-sized, five-toed, broad-faced kangaroo rat of the rodent family,

Heteromyidae. Kangaroo rats (genus *Dipodomys*) are nocturnal, burrow-dwelling rodents found in semiarid and arid habitats of western North America. Stephens' kangaroo rat reaches its highest densities in intermediate successional stage grassland communities with moderate to high levels of bare ground and forb cover, moderate slopes, and well-drained soils. At least 15 geographical areas are currently known to be occupied by Stephens' kangaroo rat (Service 2011). Threats to Stephens' kangaroo rat at listing included habitat loss resulting from urbanization and agricultural development; fragmented and isolated populations; reduction of habitat suitability (from anthropogenic activities including grazing, off-highway vehicle use, disking, plowing, introduction of nonnative vegetation, and rodent control programs); predation by domestic cats; and climate change.

However, the primary and imminent threat at the time of listing, habitat destruction from urban and agricultural development resulting in isolated habitat patches, has been largely ameliorated through implementation and design of the core reserve system in western Riverside County (through the Stephens' Kangaroo Rat HCP), through ongoing land acquisitions and easements, and with other conservation plans and efforts (e.g., Multiple Species Habitat Conservation Plan and Integrated Natural Resource Management Plans (INRMPs)). The Stephens' kangaroo rat population at Camp Pendleton and Detachment Fallbrook in San Diego County is addressed by active INRMPs that describe a land management approach that is intended to maintain Stephens' kangaroo rat on Federal military lands. Significant areas of habitat have been conserved and managed in Riverside and San Diego counties since species listing. Based on changes in the status of the species since listing, including discovery of previously unknown populations, the Service recommended downlisting this species from endangered to threatened (Service 2011).

More detailed information on the status of Stephens' kangaroo rat can be found in the 5-year review for this species (Service 2011) (http://ecos.fws.gov/docs/five_year_review/doc3622.pdf) and in the 12 month finding on a petition to remove this species from the endangered species list (Service 2010). Please refer to these documents for detailed information on life history requirements, threats, and conservation needs of the species rangewide. No critical habitat is designated for this species.

About 54,909 acres of occupied habitat for this species exists in 15 areas (Service 2010). The 5-year review recommends conserving large and contiguous blocks of habitat in San Diego County; performing monitoring; developing a management plan for maintaining suitable habitat; revising the draft recovery plan; funding and supporting research associated with translocations; and completing genetics studies regarding the impact of habitat fragmentation.

ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR § 402.02) define the environmental baseline as the past and present effects of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated effects of all proposed Federal projects in the action area that have undergone section 7 consultation, and the effects of State and private actions that are contemporaneous with the consultation in progress.

San Diego Thornmint

The action area includes 0.083 acre of San Diego thornmint occupied habitat at Poser Mountain. There are 155 acres of occupied habitat at Poser Mountain and thousands of individual plants (Service 2009).

Stephens' Kangaroo Rat

The action area includes 0.52 acre of Stephens' kangaroo rat occupied habitat at Lake Henshaw/Warner Springs. The Lake Henshaw/Warner Springs area includes about 10,000 acres of Stephens' kangaroo rat occupied habitat (Service 2010).

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action, are later in time, and still reasonably certain to occur.

San Diego Thornmint

Direct and Indirect Effects

Project activities will permanently and temporarily impact 0.003 acre and 0.08 acre of San Diego thornmint habitat, respectively, which may remove or destroy San Diego thornmint plants. In addition, construction could result in the spread of nonnative plants that could out-compete San Diego thornmint.

Any San Diego thornmint found during preconstruction surveys will be fenced and avoided to the maximum extent possible. Although individual plants that cannot be avoided may be destroyed, since the potential impacts occur over such a small area compared to the 155 acres of occupied habitat at Poser Mountain, the population at Poser Mountain should not be appreciably affected. Further, temporary impacts to occupied habitat will be restored, and these areas should be suitable for San Diego thornmint post-construction. Finally, measures will be implemented to prevent the spread of nonnative plant species including development and implementation of a HRP; thus, the potential for impacts due to nonnative plants is discountable. Thus, the proposed action should not appreciably diminish the numbers, reproduction, or distribution of San Diego thornmint.

Effect on Recovery

No recovery plan has been completed for San Diego thornmint, but a 5-year review was completed on August 12, 2009, which provided recommendations for conservation measures to be implemented over the next 5 years (Service 2009). These measures include conservation on private lands, developing a working group, habitat restoration and research. The proposed action does not conflict

with the measures recommended in the 5-year review and should not appreciably reduce the extent of occupied habitat. Therefore, the proposed action is not anticipated to impact the ability of San Diego thornmint to recover.

Stephens' Kangaroo Rat

Direct and Indirect Effects

Stephens' kangaroo rats could be killed via crushing in burrows due to construction activities and be subjected to physiological stress during capture and handling as described under CM 9 in the proposed action. These impacts could occur over the 0.52 acre of Stephens' kangaroo rat occupied habitat that is subject to construction impacts. In addition, impacts to habitat could harm Stephens' kangaroo rat by limiting burrowing areas over the 0.52 acre subject to impacts.

However, due to the small area of impacts, only a small number of individuals could potentially be affected. In addition, the proposed action includes measures to minimize the potential for impacts to individual Stephens' kangaroo rats, including monitoring for Stephens' kangaroo rat burrows and tracks and implementing avoidance to the extent feasible. Further, only a small amount of the 10,000 acres of occupied habitat within the Lake Henshaw/Warner Springs area will be affected. Only 0.02 acre of this impact will be permanent and the remaining acreage will be restored. Thus, the proposed action should not appreciably diminish the numbers, reproduction, or distribution of Stephens' kangaroo rat.

Due to the small area of habitat impacted, mobility of the species, and based on our best professional judgment, we expect no more than two Stephens' kangaroo rats will be killed by construction activities. Because of the burrowing behavior of this species, it is unlikely that all dead individuals will be located; thus, we expect that only one Stephens' kangaroo rat will be found dead due to construction activities. In addition, we expect that no more than one Stephens' kangaroo rat will be subject to capture and handling. We do not expect injury or mortality to occur during capture and handling due to the low amount of handling anticipated.

Effect on Recovery

No recovery plan has been completed for Stephens' kangaroo rat, but a 5-year review was completed in 2011, which provided recommendations for conservation measures to be implemented over the next 5 years (Service 2011). These measures included preserving large and contiguous blocks of habitat in San Diego County, developing and using a monitoring program, developing a management plan, revising the draft recovery plan, and conducting research. The proposed action does not conflict with the measures in the 5-year review and should not appreciably reduce the extent of occupied habitat. Therefore, the proposed action is not anticipated to impact the ability of Stephens' kangaroo rat to recover.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal

actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. We are unaware of any non-Federal actions affecting these species that are reasonably certain to occur in the action area considered by this biological opinion.

CONCLUSION

After reviewing the current status of the species, environmental baseline for the action area, effects of the proposed action, and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of San Diego thornmint or Stephens' kangaroo rat. Our conclusions are based on the following reasons:

1. The potential impacts to San Diego thornmint and Stephens' kangaroo rat occur over a small area compared to the local populations or across the range of the species. The numbers, reproduction, or distribution of these species should not be appreciably diminished.

2. Conservation measures are proposed to ensure that impacts are effectively minimized.

3. The proposed project does not conflict with measures needed for recovery of either species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act prohibits the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Harm is further defined by us to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. We defined harass as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

Sections 7(b)(4) and 7(o)(2) of the Act do not apply to listed plant species. However, limited protection of listed plants from take is provided to the extent that the Act prohibits the removal of federally listed endangered plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of listed plants on non-Federal areas in violation of State law or regulation. The Native Plant Protection Act (chapter 10, section 1908) and California Endangered Species Act (chapter 1.5, section 2080) prohibit the "take" of State-listed plants.

AMOUNT OR EXTENT OF TAKE

Stephens' Kangaroo Rat

Quantifying the precise number of Stephens' kangaroo rats that may be incidentally taken is difficult because the number in a particular location fluctuates from year to year and burrowing behavior makes the detection of individuals and mortality difficult. However, we have estimated levels of take based on the size of the project area and our best professional judgment.

Take of Stephens' kangaroo rat due to construction activities is exempted as follows:

1. Death or injury of two Stephens' kangaroo rats within the 0.52 acre of occupied habitat subject to construction impacts.

2. Capture and handling of one Stephens' kangaroo rat within the 0.52 acre of occupied habitat subject to construction impacts.

Because it is unlikely that any Stephens' kangaroo rats killed as a direct result of project activities will be found, the amount or extent of incidental take will be considered exceeded if more than one dead or injured Stephens' kangaroo rat is found due to construction activities.

EFFECT OF TAKE

In the accompanying biological and conference opinions, we determined that this level of anticipated take is not likely to result in jeopardy to Stephens' kangaroo rat.

REASONABLE AND PRUDENT MEASURES

The following reasonable and prudent measures are necessary and appropriate to minimize, monitor, and report the effects of incidental take. The reasonable and prudent measures outlined below are nondiscretionary. Failure to comply may cause the protective coverage of section 7(o)(2) to lapse.

1. The USFS, BLM, BIA and SDG&E will follow all reporting requirements.

2. The USFS, BLM, and BIA and SDG&E will take steps to minimize the potential for impacts during handling of Stephens' kangaroo rats.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the USFS, BLM, BIA and SDG&E must comply with terms and conditions, which implement the reasonable and prudent measures described above and outline reporting and monitoring requirements. Terms and conditions are non-discretionary.

1. If any Stephens' kangaroo rats are found killed due to construction activities, the CFWO will be notified within 48 hours via email.

2. The names and credentials of all individuals who are expected to handle Stephens' kangaroo rats will be submitted for the review and approval of the CFWO. If additions to the list of qualified individuals are necessary, they shall submit these additional names and credentials to the CFWO at least 15 days prior to the onset of activities.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. We have not identified any additional conservation recommendations beyond those already being implemented by the USFS to further avoid or minimize impacts of the proposed action or to benefit listed species in the action area.

REINITIATION NOTICE

This also concludes formal consultation on the proposed project. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

With the above determinations, the USFS, BLM, and BIA obligations for section 7 consultation under the Act have been met. If you have any questions or concerns with regard to this letter, please contact Jesse Bennett at (760) 431-9440, extension 305.

Sincerely,

G. Mendel Stewart

G. Mendel Stewart
Field Supervisor

LITERATURE CITED

Dudek and Associates. 2015. Final EIR/EIS for Master Special Use Permit and Permit to Construct Power Line Replacement Projects.

[Service] U.S. Fish and Wildlife Service. 1988. Endangered and threatened wildlife and plants; determination of endangered status for the Stephens' kangaroo rat. Federal Register 53:38465-38479.

[Service] U.S. Fish and Wildlife Service. 1998. Endangered and threatened wildlife and plants; determination of threatened status for San Diego thornmint. Federal Register 63:54938-54956.

[Service] U.S. Fish and Wildlife Service. 2009. San Diego thornmint 5-year review: Summary and evaluation. 39 pp.

[Service] U.S. Fish and Wildlife Service. 2010. Endangered and threatened wildlife and plants; 12-month finding on a petition to remove the Stephens' kangaroo rat from the federal list of endangered and threatened wildlife. Federal Register 75:51204-51223.

[Service] U.S. Fish and Wildlife Service. 2011. Stephens kangaroo rat 5-year review: Summary and evaluation. 7 pp.

ENCLOSURE

The various operations, maintenance, and minor new construction activities include the following conservation measures (CM) that San Diego Gas and Electric Company (SDG&E) has committed to implement under U.S. Forest Service (USFS) Master Special Use Permit in waters of the U.S. subject to the U.S. Army Corps of Engineers (Corps) jurisdiction under the Clean Water Act to avoid and minimize potential adverse effects to the arroyo toad, southwestern willow flycatcher, and least Bell's vireo to an insignificant level. These measures support the U.S. Fish and Wildlife Service's (Service) concurrence with the USFS's "not likely to adversely affect" determination for these species with regard to the USFS's proposed action to issue a MSUP to facilitate project construction.

General Conservation Measures

CM 1. SDG&E will continue to conduct its activities in accordance with all 61 operational protocols, as they pertain to waters of the U.S., described in section 7.1 of the SDG&E Natural Community Conservation Plan/ Habitat Conservation Plan (NCCP/HCP). In addition, field crews will attend a series of ongoing classes on how to behave and operate construction and maintenance equipment in environmentally sensitive areas.

CM 2. SDG&E's biologist or contractor biologists knowledgeable of wetland biology and ecology will conduct preactivity studies for all activities having the potential to affect waters of the U.S. or the bed, bank, channel, or vegetation of a stream within waters of the U.S. The scope of these preactivity studies is included in section 7.1.3 and Appendix A of the NCCP/HCP as updated. The biologists will complete a preactivity study and a Preactivity Study Form including habitat suitability assessment to determine the potential for listed species to occur in the project area, recommendations for review by an SDG&E biologist, and construction monitoring as needed. Before beginning field surveys, the biologist should consult the California Department of Fish and Wildlife's California Natural Diversity Database and California Native Plant Society to assess the potential for the presence of listed species.

CM 3. SDG&E will offset unavoidable impacts to waters of the U.S. by the following:

a. Purchase of credits from an existing mitigation bank.

b. Purchase of in-lieu fee program credits.

c. On-site creation, restoration or enhancement.

d. Off-site creation, restoration or enhancement.

e. Debiting credits from an SDG&E mitigation bank if established.

To determine potential impacts and offset, SDG&E will evaluate each site based on a jurisdictional delineation as required by the Corps and preactivity site assessments. As sites are identified, the Service and Corps (Agencies) will review and approve the

projects to ensure impacts to listed species and their critical habitats are avoided, minimized and/or offset.

Conservation Measures for Southwestern Willow Flycatcher and Least Bell's Vireo

CM 1. Projects activities within waters of the U.S. that may support the southwestern willow flycatcher and least Bell's vireo will occur between September 16 and March 14, when practicable, to avoid the southwestern willow flycatcher and least Bell's vireo breeding seasons.

CM 2. Project activities within waters of the U.S. that may support southwestern willow flycatcher and least Bell's vireo habitat that cannot be timed to avoid the breeding season will adhere to the following measures:

a. A biologist knowledgeable of southwestern willow flycatcher and/or least Bell's vireo biology and ecology and approved by the Agencies, will survey within the project impact footprint and a 300-foot buffer (within waters of the U.S.) before clearing vegetation or project construction to check for southwestern willow flycatcher and/or least Bell's vireo nesting activity. Should an active nest be located in the impact footprint, then work will be suspended until the nest is vacated.

b. Biological buffers of at least 100 feet will be maintained adjacent to nests.

c. For project activities during the breeding season adjacent to known occupied southwestern willow flycatcher and/or least Bell's vireo nesting habitat, the biologist will monitor nesting bird activity. If the biologist determines that nesting birds are being disrupted by project activities, then work will be suspended until effective minimization measures (e.g., noise attenuation structures) developed in coordination with the Agencies are in place or until after the breeding season is completed.

d. Any lighting required during project activities will be shielded and directed away from southwestern willow flycatcher and/or least Bell's vireo habitat to ensure that these areas not artificially illuminated.

e. The biologist will be on site during work to ensure compliance with all conservation measures, and halt work, if necessary, for any project activities that are not in compliance with the conservation measures. SDG&E will report any non-compliance issues to the Agencies within 24 hours of its occurrence and confer with the Agencies to ensure the proper implementation of species and habitat protection measures.

Conservation Measures for Arroyo Toad

CM 1. Project activities within waters of the U.S. that may support arroyo toad will take place from July 16 to March 14 when practicable to avoid the arroyo toad breeding season. To minimize further effects to breeding populations and to reduce sedimentation and erosion, project activities will be timed so that work within a stream channel is conducted when flows are at their lowest or are nonexistent.

CM 2. Prior to vegetation clearing or project construction within waters of the U.S. that may support arroyo toad, a fence will be installed around the impact footprint to exclude arroyo toad. The fence will consist of fabric or plastic at least 2 feet high, staked firmly to the ground with the lower 1-foot of material stretching outward along the ground and secured with a continuous line of gravel bags. No digging or vegetation removal will be associated with the installation of the fence, and the fence will be removed when the project is complete. Ingress and egress of equipment and personnel will use a single access point to the site. This access point will be as narrow as possible and will be closed off by exclusionary fence when personnel are not on the project site.

CM 3. Prior to vegetation clearing or project construction, but after exclusionary fence has been installed around the impact footprint, at least three surveys for arroyo toads will be conducted within the fenced area by a biologist knowledgeable of arroyo toad biology and ecology and approved by the Agencies. Surveys will be conducted during the appropriate climatic conditions during the appropriate time of day or night to maximize the likelihood of encountering arroyo toads. Before each workday begins, the biologist will also check to see if arroyo toads have entered the impact footprint. If arroyo toads are found within the impact footprint, all project activities will cease and will not resume until additional consultation in completed.

CM 4. The biologist will be on site during work to ensure compliance with all conservation measures, and halt work, if necessary, for any project activities that are not in compliance with the conservation measures. SDG&E will report any non-compliance issues to the Agencies within 24 hours of its occurrence and confer with the Agencies to ensure the proper implementation of species and habitat protection measures.

CM 5. To avoid transferring disease or pathogens between aquatic habitats during the course of surveys and handling, the biologist will follow the *Declining Amphibian Population Task Force Fieldwork Code of Practice* (https://www.fws.gov/ventura/docs/species/protocols/DAFTA.pdf).

CM 6. Project activities will be designed to avoid or minimize the placement of equipment or personnel within the stream channel, on sand and fine gravel bars, on intermittent shallow pools, on banks, on sparsely vegetated sandy terraces or flats within waters of the U.S.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

In Reply Refer To:
FWS-SD-15B0191-15F0339-R001

June 21, 2017
Sent by Email

Mr. William Metz
Forest Supervisor
U.S. Forest Service
Cleveland National Forest
10845 Rancho Bernardo Road, Suite 200
San Diego, California 92127

Subject: Reinitiation of the Formal Section 7 Consultation on Issuance of a Master Special Use Permit to San Diego Gas and Electric, San Diego County, California

Dear Mr. Metz:

This letter responds to your request dated May 22, 2017, regarding amendments to the impacts to designated critical habitat for the federally threatened San Diego thornmint (*Acanthomintha ilicifolia*) under the Master Special Use Permit to San Diego Gas and Electric. On November 19, 2015, we issued a non-jeopardy biological opinion for this project for the federally endangered Quino checkerspot butterfly (*Euphydryas editha quino*), arroyo toad (a. southwestern t.) [*Anaxyrus californicus* (*Bufo microscaphus c.*)], southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), and Stephens' kangaroo rat (*Dipodomys stephensi*) and the San Diego thornmint. We also concurred that the proposed project was not likely to adversely affect the federally endangered Laguna Mountains skipper (*Pyrgus ruralis lagunae*) and its designated critical habitat; designated critical habitat for the federally endangered San Bernardino bluegrass (*Poa atropurpurea*), arroyo toad, and southwestern willow flycatcher; and designated critical habitat for the federally threatened coastal California gnatcatcher (*Polioptila californica californica*) and San Diego thornmint. These determinations were made in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*).

Your request identified some minor amendments regarding the impacts to San Diego thornmint designated critical habitat and requested concurrence that this habitat was not likely to be adversely affected by the proposed changes. The amendments in your request are as follows:

1. The amount of San Diego thornmint designated critical habitat permanently impacted will decrease from 0.003 acre to 0.00105 acre.

2. The amount of San Diego thornmint designated critical habitat temporarily impacted will increase from 0.08 acre to 0.15 acre.

We concur that the proposed amendments are not likely to result in adverse effects to San Diego thornmint designated critical habitat due to the decrease in permanent impacts, small increase in temporary impacts, the restoration of temporary impacts, and the implementation of best management practices. Impacts to designated critical habitat are still insignificant and will not alter the ecological function of this habitat.

This concludes section 7 Endangered Species Act consultation on the revised project. Although this determination concludes informal consultation, obligations under section 7 of the Act should be reconsidered if new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered or this action is subsequently modified in a manner that was not considered in this assessment.

If you have any questions, please contact Jesse Bennett of my staff at 760-431-9440, extension 305.

Sincerely,

for Karen A. Goebel
Assistant Field Supervisor

United States Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

In Reply Refer To:
FWS-SD-15B0191-15F0339-R002

December 6, 2018
Sent by Email

Mr. William Metz
Forest Supervisor
U.S. Forest Service
Cleveland National Forest
10845 Rancho Bernardo Road, Suite 200
San Diego, California 92127

Subject: Reinitiation of the Formal Section 7 Consultation on Issuance of a Master Special Use Permit to San Diego Gas and Electric, San Diego County, California

Dear Mr. Metz:

This letter responds to your October 29, 2018, request regarding a clarification to the proposed action for the issuance of a Master Special Use Permit to San Diego Gas and Electric. On November 19, 2015, we issued a non-jeopardy biological opinion for this project for the federally endangered Quino checkerspot butterfly (*Euphydryas editha quino*), arroyo toad {a. southwestern t. [*Anaxyrus californicus* (*Bufo microscaphus c.*)]; arroyo toad}, southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), and Stephens' kangaroo rat (*Dipodomys stephensi*) and the federally threatened San Diego thornmint (*Acanthomintha ilicifolia*) and coastal California gnatcatcher (*Polioptila californica californica*). We also concurred that the proposed project was not likely to adversely affect the federally endangered Laguna Mountains skipper (*Pyrgus ruralis lagunae*) and its designated critical habitat; designated critical habitat for the federally endangered San Bernardino bluegrass (*Poa atropurpurea*), arroyo toad, and southwestern willow flycatcher; and designated critical habitat for coastal California gnatcatcher and San Diego thornmint. These determinations were made in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*).

Your request involved clarification of conservation measures for the Laguna Mountains skipper and requested concurrence that this species and its designated critical habitat were not likely to be adversely affected. The clarification is that the following proposed conservation measures would apply to known Laguna Mountains skipper occupied habitat, which only occurs on Palomar Mountain, rather than all potential Laguna Mountains skipper habitat:

CM 1. Prior to project work, a biologist will identify all Laguna Mountains skipper habitat (to include host plant and nectar sources) within 33 feet of the proposed project(s) right-of-way. During any maintenance activities, a biologist will be present to monitor work and ensure that Laguna Mountains skipper habitat is not affected.

CM 3. Vehicles or tracked equipment will only be allowed on existing roads or trails when operating within or adjacent to Laguna Mountains skipper habitat. Prior to operation of vehicles on existing roads or trails, a biologist will ensure that the road or trail itself does not contain host plants or nectar sources.

We concur that the proposed clarification is not likely to result in adverse effects to Laguna Mountains skipper or its designated critical habitat. Since the proposed clarification only involves potential impacts to unoccupied habitat, no direct mortality or injury of Laguna Mountains skipper is anticipated. Because the Laguna Mountains are not occupied by Laguna Mountains skipper, with the proposed clarification host and nectar plants in 2.1 acres (1 acre permanent and 1.1 acres temporary) of Unit 1 of designated critical habitat are more likely to be impacted. However, impacts to designated critical habitat will consist of small-scale ground disturbances spread across a long, linear area; and will include a small amount of the 6,242 acres of designated critical habitat available. In addition, temporary impacts will be restored and permanent impacts will be mitigated with comparable habitat. Thus, impacts to designated critical habitat will not significantly change due to this clarification, are still insignificant, and will not alter the ecological function of this habitat.

This concludes section 7 Endangered Species Act consultation on the revised project. Although this determination concludes informal consultation, obligations under section 7 of the Act should be reconsidered if new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not previously considered or this action is subsequently modified in a manner that was not considered in this assessment.

If you have any questions, please contact Jesse Bennett of my staff at 760-431-9440, extension 305.

Sincerely,

David A. Zoutendyk
Acting Assistant Field Supervisor

Attachment D.2
CNF Regional Foresters Sensitive Species List

USFS SENSITIVE, AND FEDERAL ENDANGERED, THREATENED, PROPOSED, AND CANDIDATE WILDLIFE SPECIES CLEVELAND NATIONAL FOREST						
Common Name	**Scientific Name**	**USFS Sensitive**	**Federal Endangered**	**Federal Threatened**	**Federal Proposed**	**Federal Candidate**
Quino Checkerspot	*Euphydryas editha quino*		X			
Laguna Mountains Skipper	*Pyrgus ruralis lagunae*		X			
Hermes Copper	*Hermelycaena hermes*				X	
Arroyo Toad	*Bufo californicus*		X			
California Red-legged Frog	*Rana aurora draytoni*			X		
Mountain Yellow-legged Frog	*Rana muscosa*		X			
Southern Steelhead Trout	*Onchorhynchus mykiss*		X			
Southwestern Willow Flycatcher	*Empidonax traillii extimus*		X			
California Gnatcatcher	*Polioptila californica californica*			X		
Least Bell's Vireo	*Vireo bellii pusillus*		X			
Stephen's Kangaroo Rat	*Dipodomys stephensi*		X			
Western Yellow-billed Cuckoo	*Coccyzus americanus occidentalis*			X		
Arroyo Chub	*Gila orcuttii*	X				
Santa Ana Speckled Dace	*Rhinichthys osculus spp 8*	X				
Bald Eagle	*Haliaeetus leucocephalus*	X				
Brown Pelican	*Pelicanus occidentalis*	X				
California Spotted Owl	*Strix occidentalis occidentalis*	X				
Gray Vireo	*Vireo vicinior*	X				
San Diego Cactus Wren	*Campylorhynchus brunneicapillus sandiegensis*	X				
Pallid Bat	*Antrozous pallidus*	X				
Townsend's Big-eared Bat	*Corynorhinus townsendii*	X				
Fringed Myotis	*Myotis thysanodes*	X				
Large-blotched Salamander	*Ensatina eschscholtzii klauberi*	X				
Western Pond Turtle	*Emys marmorata*	X				
California Legless Lizard	*Anniella pulchra*	X				
Orange-throated Whiptail	*Aspidocelis hyperythra beldingii*	X				
Red Diamondback Rattlesnake	*Crotalus ruber ruber*	X				
San Diego Ringneck Snake	*Diadophis punctatus similis*	X				
Coastal Rosy Boa	*Lichanura trivirgata roseofusca*	X				
San Diego Mountain Kingsnake	*Lampropeltis zonata pulchra*	X				
Two-striped Garter Snake	*Thamnophis hammondii*	X				
Warner Springs Snail	*Rothelix warnerfontis*	X				

USFS SENSITIVE, FEDERAL ENDANGERED AND THREATENED, AND STATE ENDANGERED, THREATENED, AND RARE PLANT SPECIES CLEVELAND NATIONAL FOREST							
Common Name	**Scientific Name**	**USFS Sensitive**	**Federal Endangered**	**Federal Threatened**	**Federal Proposed**	**Federal Candidate**	**State**
San Diego Thornmint	*Acanthomintha ilicifolia*			X			E
Munz's Onion	*Allium munzii*		X				T
Braunton's Milkvetch	*Astragalus brauntonii*		X				
Encinitas Baccharis	*Baccharis vanessae*			X			E
Nevin's Barberry	*Berberis nevinii*		X				E
Thread-leaved Brodiaea	*Brodiaea filifolia*			X			E
Vail Lake Ceanothus	*Ceanothus ophiochilus*			X			E
Slender-horned Spineflower	*Dodecahema leptoceras*		X				E
Santa Monica Mountains Dudleya	*Dudleya cymosa ssp. ovatifolia*			X			
San Diego Button-Celery	*Eryngium aristulatum var parishii*		X				E
San Bernardino Bluegrass	*Poa atropurpurea*		X				
Sand Verbena	*Abronia villosa v. aurita*	X					
Rainbow Manzanita	*Arctostaphylos rainbowensis*	X					
Dean's Milkvetch	*Astragalus deanei*	X					
Jacumba Milkvetch	*Astragalus douglasii v. perstrictus*	X					
San Diego Milkvetch	*Astragalus oocarpus*	X					
Jaeger's Milkvetch	*Astragalus pachypus v. jaegeri*	X					
Parish's Bristlescale	*Atriplex parishii*	X					
Orcutt's Brodiaea	*Brodiaea orcuttii*	X					
Santa Rosa Basalt Brodiaea	*Brodiaea santarosae*	X					
Dunn's Mariposa Lily	*Calochortus dunnii*	X					R
Intermediate Mariposa Lily	*Calochortus weedii v. intermedius*	X					
San Bernardino Mts. Owls' Clover	*Castilleja lasiorhyncha*	X					
Payson's Jewelflower	*Caulanthus simulans*	X					
Lakeside Ceanothus	*Ceanothus cyaneus*	X					
Parry's Spineflower	*Chorizanthe parryi v. parryi*	X					
Tecate Tarplant	*Deindrana floribunda*	X					
Mojave Tarplant	*Deindrana mohavensis*	X					
Laguna Mountains Aster	*Dieteria asteroides v. lagunensis*	X					R
Cuyamaca Larkspur	*Delphinium hesperium ssp,cuyamacae*	X					R
Many-stemmed Dudleya	*Dudleya multicaulis*	X					
Sticky Dudleya	*Dudleya viscida*	X					

USFS SENSITIVE, FEDERAL ENDANGERED AND THREATENED, AND STATE ENDANGERED, THREATENED, AND RARE PLANT SPECIES CLEVELAND NATIONAL FOREST (Continued)							
Common Name	**Scientific Name**	**USFS Sensitive**	**Federal Endangered**	**Federal Threatened**	**Federal Proposed**	**Federal Candidate**	**State**
Vanishing Wild Buckwheat	*Eriogonum evanidum*	X					
San Jacinto Mts Bedstraw	*Galium angustifolium ssp jacintum*	X					
Mission Canyon Bluecup	*Githopsis diffusa ssp. filicaulis*	X					
Tecate Cypress	*Hesperocyparis forbesii*	X					
Cuyamaca Cypress	*Hesperocyparis stephensonii*	X					
Abram's Alumroot	*Heuchera abramsii*	X					
Mesa Horkelia	*Horkelia cuneata puberula*	X					
Ramona Horkelia	*Horkelia truncata*	X					
Heart-leaved Pitcher Sage	*Lepechinia cardiophylla*	X					
Warner Springs Lessingia	*Lessingia glandulifera v. tomentosa*	X					
Short-sepaled Lewisia	*Lewisia brachycalyx*	X					
Lemon Lily	*Lilium parryi*	X					
Parish's Meadowfoam	*Limnanthes alba v. parishii*	X					E
Orcutt's Linanthus	*Linanthus orcuttii*	X					
Felt-leaved Monardella	*Monardella hypoleuca v. lanata*	X					
Hall's Monardella	*Monardella macrantha v. hallii*	X					
San Felipe Monardella	*Monardella nana v. leptosiphon*	X					
Baja Navarretia	*Navarretia peninsularis*	X					
Chaparral Beargrass	*Nolina cismontana*	X					
Gander's Butterwort	*Packera ganderi*	X					R
California Beardtongue	*Penstemon californicus*	X					
Santiago Peak Phacelia	*Phacelia keckii*	X					
Moreno Currant	*Ribes canthariforme*	X					
San Miguel Savory	*Satureja chandleri*	X					
Southern Skullcap	*Scutellaria bolanderi ssp. austromontana*	X					
Hammitt's Claycress	*Sibaropsis hammittii*	X					
Southern Jewelflower	*Streptanthus campestris*	X					
San Bernardino Aster	*Symphyotrichum defoliatum*	X					
Parry's Tetracoccus	*Tetracoccus dioicus*	X					
Velvety False-lupine	*Thermopsis californica v. semota*	X					
Rigid Fringepod	*Thysanocarpus rigidus*	X					

E – State Endangered
T = State Threatened
R = State Rare

Appendix E
Heritage Resources Management Plan

Contents

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E.1 Overview

Heritage resources management for all operations and maintenance (O&M) activities outlined in this Plan will be reviewed under the currently authorized SDG&E Programmatic Agreement (PA) [19]., and as outlined in the currently authorized Historic Properties Management Plan (HPMP) [20]. The SDG&E PA and HPMP were originally authorized for the Cleveland National Forest (CNF) Power Line Replacement Project (PLRP) in February 2016, and authorization has been extended through February 2022 to guide heritage resources management for SDG&E's PLRP post-construction activities, as well as ongoing O&M activities. The PA is included as Attachment E-1 to this Plan, and the HPMP is included as Attachment E-2.

When the SDG&E PA sunsets in February 2022, all O&M activities would then be reviewed under the Forest's Region 5 Programmatic Agreement (R5 PA) These agreements (i.e., SDG&E PA, R5 PA) provide implementation and review protocols to demonstrate compliance with the National Historic Preservation Act (NHPA) and other. This Heritage Resources Management Plan (HRMP) plan will then be a nexus between the Amendment #1: Programmatic Agreement among the U.S.D.A. USFS , Pacific Southwest Region (Region 5), California State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Processes for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forests of the Pacific Southwest Region 2018 (R5 PA), and the Master Special Use Permit (MSUP) authorized by the USFS for SDG&E Operations and Maintenance (O&M) activities. to demonstrate compliance with the National Historic Preservation Act (NHPA) and other applicable laws and regulations.[21] The HRMP also establishes heritage resources screening processes (HRSPs) to streamline and drive consistency for the management of heritage resources on National Forest System (NFS) lands within the Pacific Southwest Region. In order to ensure compliance with the NHPA and the R5 PA, the USFS HPM will have discretion on modifying review timeframes and Areas of Potential Effect (APEs). Review timeframes and the APE may also be affected by requirements for consultation with the State Historic Preservation Office (SHPO) and/or tribes in accordance with NHPA and the R5 PA.

E.1.1 Undertaking [36 Code of Federal Regulations [CFR] Part 800.16(y)]

The initial Undertaking is the issuance of the MSUP by the USFS for the construction and O&M of 69kV transmission and 12kV distribution electric facilities on the CNF, within the Pacific Southwest Region (R5 PA Heritage Resources Screened Undertaking: Appendix D, 2.3[f]). The *SDG&E MSUP O&M Plan for Electric Facilities on the Cleveland National Forest* (referred to in this

[19] Historic Properties Management Plan/Historic Properties Treatment Plan (HPMP) for the Cleveland National Forest Master Special Use Permit and Permit to Construct Powerline Replacement Projects. SDG&E, August 2016.

[20] Programmatic Agreement Between the Cleveland National Forest and the California State Historic Preservation Office Regarding San Diego Gas & Electric Company's Master Special Use Permit and Power Line Replacement Projects (SDG&E PA). USFS 2016.

[21] Alternatively, SDG&E and USFS have agreed to discuss development of new agreement, beyond the terms of the current SDG&E PA and specific to this Plan to cover future SDG&E O&M activities consistent with this Plan. This agreement would be developed collaboratively with SDG&E, USFS Heritage Resources staff and SHPO, and amended into this plan when authorized.

document as the *Plan*) describes SDG&E's required activities to operate and maintain safe and reliable electric and ancillary facilities within the CNF. SDG&E's routine maintenance activities are considered Undertakings as defined by 36 CFR Part 800.16(y); they will be screened separately using the SDG&E PA and HPMP through February 2022, and the HRSP after that and are divided into Classes I–IV (see Chapter 3 in the Plan).

E.2 Description of O&M Activities

Inspection and maintenance requirements for electric transmission facilities are contained in the Transmission Owner Maintenance Practices Agreements between SDG&E and the California Independent System Operator (CAISO). This agreement establishes a circuit priority ranking that further defines the type and frequency of inspections of poles and towers, equipment, roads, trails, and vegetation. Circuit priority considers the general age of the circuit, the number and types of customers on the circuit, surrounding geography and environmental constraints, accessibility, and impact of circuit failure on the transmission network. Additional timing factors to inspection and maintenance include the level of dirt, dust, bird droppings, etc., present in a particular geographic area; the level of vandalism of facilities (e.g., gunshot insulators); the severity of storms (e.g., snow and winds) and other natural disasters (fires, floods, and earthquakes); and accidents.

Inspection and maintenance requirements for electric distribution facilities are specified by Public Resources Codes 4292 and 4293, California Public Utilities Commission (CPUC) General Order 95, Rule 35, and CPUC General Order 165, among others. The CAISO does not formally categorize the timing of inspections and maintenance of distribution circuits. Those activities generally follow the same guidance of the Transmission Owner Maintenance Practices Agreements as appropriate.

In general, routine O&M activities for SDG&E's electrical facilities are performed from established roads and foot trails with minimal surface disturbance (see Section 2.6 in the Plan). O&M activities are classified into four categories:

- Class I – Routine Patrols, Inspections, and other de Minimis O&M Activities*
- Class II – Routine O&M Activities
    - Class IIa – Routine O&M activities in locations with no resources**
    - Class IIb – Routine O&M activities where impacts to heritage resources within and immediately adjacent to the APE are avoided when implementing standard best management practices (BMPs, Plan Appendix C) and/or the established heritage resource protection measures (RPMs).
    - Class IIc – Routine O&M activities in areas supporting resources where modified or additional RPMs require USFS authorization prior to performing work. In these instances, SDG&E will propose modified or additional measures and must request authorization from the USFS prior to performing the work. Class IIc activities require mandatory Heritage Program Manager (HPM) validation and represent a small percentage of the total volume of O&M activities completed by SDG&E annually.
- Class III – Non-Routine O&M Activities
- Class IV – Emergency Response

*Class I routine O&M activities have a very low/no likelihood of affecting heritage resources. As a result, they are too minor to merit consideration and are managed as Exempt Undertakings (R5 PA Stipulation 7.1 and Appendix D). Table 1 provides a summary of the Plan's O&M activities.

Biannual meeting with the USFS will include a review of Class I work and whether to reclassify specific components based upon the risk of potential impacts to known heritage resources on the CNF. As necessary, the HRMP shall be amended to reflect any and all agreed upon changes (see Section 5.1.3 in the Plan).

**Class IIa routine O&M activities have a very low/no likelihood of affecting heritage resources on the CNF. When the HRSP for O&M activities demonstrates adequate survey coverage with no heritage resources or Traditional Cultural Properties (TCPs) (National Register of Historic Places [NRHP] Section 101 [d] [6]) in the Area of Potential Effect (APE), such activities are considered Exempt Undertakings (R5 PA Stipulations 7.1 and Appendix D). See Table 1 and Section E.3.3 for additional discussion.

E.3 Heritage Program Manager Role and Responsibility [Stipulation 2.5 – R5 PA]

The HPM is the designated USFS and lead for heritage program activities on the CNF. The HPM coordinates consultation with the California State Historic Preservation Officer (SHPO), Advisory Council on Historic Preservation (ACHP), and other parties on behalf of the Forest Supervisor and line officers. The HPM, without formal SHPO consultation for exempt and screened undertakings, determines the APE, certifies determinations of NRHP eligibility per the R5 PA, and determines no adverse effect or no historic properties affected by an undertaking. The HPM also certifies that findings, determinations, and recommendations regarding the identification and management of historic properties meet the R5 PA professional standards and requirements (R5 PA Stipulation 10.0) and as detailed in *Cleveland National Forest Recording and Reporting Standards for Archaeological Investigation* 2020. The HPM may delegate some of these responsibilities to other qualified USFS Heritage Program staff.

This HRMP enhances the HPM's role and responsibility as defined in the R5 PA for SDG&E's O&M activities. The following enhancements streamline and drive consistency in the validation of the HRSP results supporting routine SDG&E's O&M activities.

E.3.1 Pre-Qualification for Adequate Survey [Stipulation 7.4(b) – R5 PA]

The HPM or Heritage Program staff will pre-qualify selected classes that have been shown to have adequate survey coverage (see Section E9: Adequate Survey Coverage) to programmatically and proactively clear USFS-specific SDG&E corridors from additional heritage resource surveys for authorized O&M activities. To facilitate the pre-qualification process, SDG&E will provide the USFS with an Adequate Survey Coverage Catalog (Catalog), which will include all reports that meet USFS-specific Reporting and Recording Standards. SDG&E will actively manage the Catalog with annual updates or more frequently as needed to keep the information current. HPM approval shall be considered adequate for the life of the MSUP, unless there is a significant change within the SDG&E MSUP corridor (e.g., wildfire, land slide, new development, existing resources become historical resources (or potential historic properties, etc.), or when the HPM conducts a periodic review (e.g., every 3-5 years) and subsequently deems the survey coverage inadequate.

E.3.2 No HPM Validation Required

HPM or Heritage Program staff validation is not required for Exempt Undertakings, which include Class I SDG&E routine O&M activities. This reduces administrative burden and focuses HPM engagement on routine and non-routine O&M activities that require heritage resources management.

Class I activities have a very low/no likelihood of affecting heritage resources. As a result, they are too minor to merit consideration and are managed as Exempt Undertakings (R5 PA Stipulation 7.1 and Appendix D). No HRSP or notification packages are provided for Class I activities. Instead, Class I activities are reviewed during SDG&E and USFS biannual O&M meetings, or more frequently if needed (see Section 3.1.2 in the Plan).

Class IIa activities are defined as routine O&M activities occurring in locations with no resources. When the HRSP for O&M activities demonstrates adequate survey coverage with no heritage resources located in the APE, such activities are considered Exempt Undertakings (R5 PA Stipulation 7.1 and Appendix D). "No Heritage Resources" will be indicated in the notification package, and summary results will be captured in quarterly reports to the USFS.

In addition to Class I and Class IIa activities, validation also is not required when the following resource types are within the APE, and there are no historic properties present that may be affected by the activities:

1. O&M activities with heritage resources in the APE that have been determined not be eligible, with SHPO concurrence, are considered Class IIb activities; and
    a. SDG&E will demonstrate awareness and knowledge of the existence of NRHP-ineligible heritage resources in the APE and give the USFS an opportunity to respond should they have additional, recommendations and requirements.
2. O&M activities with linear heritage resources (i.e., access roads, transmission lines, and railroads) that will not be affected by the activity are considered Class IIa activities and do not require HPM validation; and

After execution of the MSUP, O&M activities with heritage resources that have been determined to be not eligible, with SHPO concurrence, or at the discretion of the HPM, are considered Class IIa activities and do not require HPM validation.

Table 1. Activity Class Descriptions for Heritage Resources

Class I	Class II	Class III	Class IV
Routine Patrols, Inspections, and other de Minimis Activities	*Routine O&M activities*	*Non-Routine O&M Activities*	*Emergency Response*
Class I activities are routine activities with minimal to no ground disturbance and environmental impact (see Section B.1 in the Plan). These activities are considered *de minimis* – lacking significance – and are minor; they do not warrant in-depth analysis. Class I activities include routine ground and aerial patrols (see Section B.1.1 in the Plan); routine inspections (internal communications equipment; towers, poles, and equipment; wood poles; sections of overhead and underground conductors, cables, and wires; substations, and helicopter pads) (see Section B.1.2 in the Plan); and *de minimis* activities (land surveys, outage repairs, pole/tower clearing and limbing/pruning, minor road maintenance, anchor/guy wire replacements, intrusive pole inspections and substation maintenance) (see Section B.1.3 in the Plan).	Class II work consists of routine O&M activities that are categorized into three subclasses (see Section B.2 in the Plan). Class IIa includes routine activities in locations with no environmental resources (including heritage resources). Class IIb includes routine activities proposed in proximity to resources that can be avoided through implementation of standard BMPs or the established resource-specific RPMs. Class IIc includes activities proposed near or within areas supporting resources or a TCP, for which modified or additional resource-specific RPMs may be needed to avoid impacts or for which additional consultation may be required. Class II activities include routine equipment maintenance activities (see Section B.2.2 in the Plan), routine access maintenance activities (see Section B.2.2 in the Plan), and routine vegetation maintenance activities (see Section B.2.3 in the Plan).	Activities that do not fit the scope and scale of Class I and Class II are considered Class III (see Section B.3 in the Plan). In many cases, these activities are considered non-routine O&M activities because they are broader in scope, encompass areas outside of the permitted boundary, and may be proposed in areas supporting resources. These activities typically require more extensive environmental analysis and review prior to initiating work. Class III activities include non-routine repairs to the electric transmission and distribution system (see Section B.3.1 in the Plan), non-routine infrastructure access activities (see Section B.3.2 in the Plan), and non-routine wildfire and operational risk mitigation activities (see Section B.3.3 in the Plan).	Emergency work addresses immediate threats to public safety, electric reliability, or property. Emergency response can involve activities that require crews to respond immediately to address an imminent threat (see Section B.4 in the Plan). An emergency also is considered in instances where a system failure "breakdown" has occurred as a result of multiple towers, poles, and conductors being down. Repairing the damage requires immediate attention. Examples of emergency repairs include replacing downed poles, reconductoring segments of line, pulling new line, removing vegetation, or felling trees that pose an imminent threat to facilities. Emergency response may include helicopter flights below 200 feet of the tree line, overland travel on non-permitted lands, and access for emergency equipment used to address the hazards and restore power.

E.3.3 HPM Validation Required

HPM or Heritage Program Staff validation is required when the HRSP for O&M activities results in heritage resources in the APE. This includes Class IIb, Class IIc and Class III activities. Such activities may be considered Screened Undertakings (R5 PA Stipulation 7.2 and Appendix D) when impacts to heritage resources are avoided or otherwise excluded from the APE. SDG&E will indicate applicable RPMs in the notification package. Consistent with the R5 PA, activities requiring Class II or III Standard Protection Measures (i.e., protections other than avoidance, or other conditions for the protection and preservation of historic properties, may not use the streamlined documentation procedures for Screened Undertakings. HPM validation includes the following:

1. Validation would occur within the notification package review period whenever possible (see Section E.3.4: HPM Validation Time Frame).
2. If no response is received from the HPM or designee for O&M activities with avoidable heritage resources within the notification package review period, SDG&E may proceed.
3. Validation or comment is required when RPMs are proposed to avoid impacts to heritage resources in the APE.
4. Validation and subsequent consultation are required for O&M activities that will result in unavoidable impacts to heritage resources.
5. RPMs shall be consistent with Appendix E of the R5 PA and align with Table 4 of this HRMP.
6. SDG&E will use Table 4 to identify applicable RPMs based on the type of O&M activity, method of construction, and impact avoidance strategy. Additional RPMs or modified RPMs may be required by the USFS.

E.3.4 HPM Validation Time Frame

Exempt Undertakings (Class I) do not require HPM validation or comment. For Screened Undertakings (Class II and Class III) where heritage resources are within the APE, HPMs or Heritage Program staff will provide validation or comment on HRSP results and recommended RPMs within the applicable notification/work authorization package review timeframes (see Sections 3.2.2 and 3.3.2 in the Plan):

- Class IIa – 5 business days*
- Class IIb – 10 business days
- Class IIc – 15 business days (or a schedule to complete by USFS)
- Class III – 30 business days (or a schedule to complete by USFS)

When comments are provided that differ from SDG&E-proposed RPMs, HPMs or Heritage Program staff will work with SDG&E on a mutually agreeable course of action to avoid impacts to heritage resources within the respective review periods, when feasible, or refer back to the R5 PA when appropriate. These timeframes are critical; while SDG&E must comply with applicable federal laws and follow Section 106 consultation requirements, SDG&E must also comply with

specific outage schedules when performing O&M activities. This work affects electric customers and must be kept to a very specific schedule. As a result, HPM and Heritage Program staff engagement on heritage resource management for SDG&E's O&M activities must be accomplished within the established timeframes, whenever possible.

- Class II a notification packages will include a "No Heritage Resources" checked box for each O&M activity. No HPM validation is required. SDG&E will notify the USFS and proceed with the activity after five business days using standard BMPs given that no heritage resources are present (see Section 3.2.2 in the Plan).

E.4 Heritage Resource Permitting

SDG&E and/or their consultants shall secure from the USFS the appropriate permits (Organic Act, Archaeological Resources Protection Act [ARPA], and Antiquities Act permits) prior to conducting heritage resource investigations in support of MSUP O&M activities. Blanket permits covering O&M activities under SDG&E's authorization (under the applicable law and at the discretion of the USFS) shall be issued for heritage file searches, non-disturbing field survey, and remote sensing on the CNF for a term not to exceed 5 years, thus eliminating project-specific permits (FSM 2367.13). Blanket permits will be renewed at 5-year intervals. Activities that require data recovery or other invasive resource investigations may require project-specific permitting

In accordance with FSM 2360, Section 2367.1, the Permit for Archaeological Investigations is a special use permit for heritage resources on USFS lands that may be issued under the authority of the Antiquities Act, ARPA, or the Organic Act, depending on the activity being permitted and the age of the heritage resources involved. FSM 2724.4, Forest Service Handbook [FSH] 2709.11, and Uniform Regulations for ARPA at 36 CFR Part 296 include specific permit procedures for heritage resources including those detailed in *Cleveland National Forest Recording and Reporting Standards for Archaeological Investigation* 2020 Version.

To comply with blanket and project-specific permit deliverable stipulations, quarterly GIS coverages will be submitted to Forests. The geographic information system (GIS) coverage and associated attribute table data will include, but not be limited to, positive and negative survey coverage GIS shapefiles, heritage resource data (if any), and any relevant heritage resource monitoring observations. The remaining data will be captured in the annual report (see Section E.5) (refer to *Cleveland National Forest Recording and Reporting Standards for Archaeological Investigation* 2020 Version.

Permit issuance is not in itself an Undertaking subject to NHPA Section 106, but certain permitted activities are subject to NHPA Section 106. Heritage permitting under the MPEs is not subject to the National Environmental Policy Act (NEPA). Table 2 summarizes the three authorities.

Table 2. USFS Heritage Resource Permit Authority Descriptions

Authority	Resource	Activity
Antiquities Act	Less than 100 years old	Field survey, testing, excavation, research
Organic Act	Over 100 years old	Non-disturbing (e.g., field survey, remote sensing, probing or testing for the presence or absence of cultural materials)

Authority	Resource	Activity
Archaeological Resources Protection Act	Over 100 years old	Disturbing (e.g., evaluative testing, data recovery, ruin stabilization involving excavation and artifact removal, or surface collecting)

Permits for Archaeological Investigation are subject to cost recovery fees (36 CFR 251.58), and a land use fee of $2 per professional workday for actual fieldwork or the CNF regional minimum fee, whichever is greater (FSM 2715). All or part of land use and cost recovery fees for a Permit for Archaeological Investigations may be waived by the authorized officer in accordance with 36 CFR 251.57 and 251.58, respectively.

E.5 Reporting [Stipulation 4.2 – R5 PA]

Quarterly check-ins (e.g., conference call, meeting) shall take place between the USFS HPMs/Heritage Staff for the CNF, and all SDG&E Cultural Resource Leads or designees during the first year of implementation of this HRMP. An assessment at the end of each year shall be made by the participants and, if there is agreement, the quarterly reporting may be reduced to twice a year, or annually. CNF Heritage Program Manager shall work with the SDG&E Cultural Resource Leads to set up the quarterly check-ins.

The purpose of the quarterly check-ins is to assure the consistency of HRSPs for Exempt and Screened Undertakings and RPM implementation, to discuss project-specific heritage resource management issues and opportunities for improvement, and to review the overall application of the HRMP across CNF by SDG&E and its consultants. SDG&E and CNF would also discuss those activities that do not meet the definition of an Exempt or Screened Undertaking at the quarterly meetings. Quarterly check-ins may result in mutually agreed-upon HRMP amendments and minor modifications to address new cultural resource laws and improved heritage resource management practices. Implementation of proposed amendments and minor modifications will follow the process outlined in Section 5.1.4 in the Plan. Data obtained from the quarterly check-ins shall be incorporated into SDG&Es annual reports to the USFS consistent with the requirements of SDG&Es HPMP.

E.6 Area of Potential Effect [Stipulation 7.3 – R5 PA]

The classes of activities, for the most part, represent maintenance of existing facilities. The USFS has concluded that the APE for the initial Undertakings (NEPA MPE issuance) is defined as the transmission and distribution easement corridors, routes of travel, and lay down/staging areas, and the direct footprint of each.

O&M activities authorized under the MSUP are separate Undertakings and will use standardized APEs (Table 3). For those activities that may extend outside of the standard APE (e.g., hazard tree felling), the APE will be modified to include any direct effects on CNF lands. (e.g., equipment staging areas, skid trails, post treatment activities to reduce fuel loading, etc.). O&M activities with modified APEs that differ from the standard APEs defined in this section will be included and clearly stated in notification packages and will be discussed during the quarterly check-ins and documented in SDG&E's annual report to the USFS. Further, the HRMP is a living document.

Additional standard APEs for routine O&M activities may be added via updates or amendments as needed to facilitate the Plan's streamlined approval process.

For actions involving new construction (i.e., Class III activities), the APE will be based on the evaluation of potential effects and in consultation with the CNF and stakeholders.

Table 3. Standard Areas of Potential Effects

Operations and Maintenance Activity	Standard Area of Potential Effect
Electrical facility repair/installation/replacement (e.g., towers, poles, shoo-fly, conductor, communications)	100-foot (30-meter) radius[24]
Existing underground repair/installation/replacement (e.g., vaults, conduits)	30-foot (~10-meter) radius
Hazard tree felling	Height of hazard tree
Overland travel	15 to 30 feet (~5 to ~10 meters) off center line
Routine road maintenance	Road prism (see Section B.2.7 in the Plan)
Additional activities to be added	To be determined

[24] Includes a 100-meter radius for the survey area, and a 1-mile radius for records search to establish the study area.

E.7 Tribal Consultation [Stipulations 6.0, 7.5 – R5 PA]

The process outlined in R5 PA Stipulations 6.0 and 7.5, FSM 2360 (Appendix B), and 36 CFR 800.2(c)(2) (Appendix C) shall be followed. The tribal community participated in the NEPA public scoping process for the MPE. Tribal comments were received and addressed by the USFS.

It is at the discretion of the USFS HPM whether to perform tribal consultation for activities authorized under the MSUP on a project-specific basis. Validation processes and timeframes outlined in Section E.3 of this document shall apply, whenever possible. The USFS shall consult when tribes request government-to-government consultation.

The Forest HPM or designee may invite utility representative(s) to participate in tribal forums to update the tribal community on activities authorized under the MSUP.

E.8 Identification and Inventory Needs [Stipulation 7.4 – R5 PA]

SDG&E will comply with Section 7.4 of the R5 PA for Heritage Resource Identification and Inventory Needs and as detailed in the *Cleveland National Forest Recording and Reporting Standards for Archaeological Investigation* (2020 Version).

If intensive inventory is not feasible due to steep slopes (>30%), impenetrable brush, hindered access, obscured visibility, or other safety concerns, SDG&E shall use a combination of the non-intensive inventory strategies outlined below. The inclusion of these strategies in the HRMP complies with Section 7.4(c) of the R5 PA and eliminates the need for SHPO consultation when non-intensive inventory is performed. It is at the discretion of the HPM whether additional SHPO consultation is warranted. Additionally, SDG&E and HPMs may collaborate to design alternative inventory strategies not included in the HRMP, with prescribed coverage methods within the APE of SDG&E's electrical corridors and facilities. SDG&E will document implementation of non-

intensive inventory strategies in notification packages, quarterly check-ins, and/or annual reports.

When implementing non-intensive inventory strategies, SDG&E will consider factors that influence the likelihood of encountering heritage resources during pre-field analysis, in survey planning, and when implementing preconstruction survey strategies. Those considerations include:

- Topographical and environmental setting
- Local and regional settlement patterns
- Proximity to ethnographic locations
- Presence of Holocene to historic landforms
- Depositional environments
- Proximity to heritage resources with buried deposits
- Proximity to areas identified by a tribal community as sensitive
- Previously disturbed APEs

Additional heritage resource identification and inventory considerations include the following:

- Unsurveyed portions of the APE that are located on slopes <30% will be surveyed where safety is not compromised, and access is not restricted.
- Reconnaissance/cursory survey coverage (>30-meter transects) will be implemented where intensive inventory is not feasible (i.e., slopes >30%), and consistent with all applicable stipulations in the appropriate Archaeological Investigations Permit or ARPA Permit.
- Inaccessible areas will be spot-checked to verify assumed conditions.
- Binoculars may be used to locate visible heritage resources (e.g., structures, abandoned water conveyance features, mining features, and rock art).
- Aerial visualization (i.e., light detection and rating, unmanned aerial vehicles) may be used to identify areas with potential for heritage resources. Forest permission is required prior to use.
- If heritage resources are avoidable, they will be managed as assumed eligible for listing in the NRHP.

SDG&E will comply with the R5 PA Appendix F, Section 4.0 for the evaluation of historic properties.

E.8.1 Heritage Resource Recordation [R5 PA Appendix B, USFS Manual Chapter 2360 – Heritage Program Management (2364.31-32)]

SDG&E will record new heritage resources that intersect existing SDG&E facilities (e.g., rights-of-way, towers, poles, utility roads) within the APE and authorized under the MSUP. To provide

comprehensive documentation (the appropriate DPR forms), SDG&E will record the entirety of the heritage resource, unless it is clear the resource extends far beyond the APE and/or is comprised of multipleloci (e.g., Native American village site, water conveyance, mining district, ranching complex, multi- component site, prehistoric quarries, etc.). In this situation, SDG&E and USFS HPMs will consult on a strategy, which will include a reasonable level of recordation outside the SDG&E ROW based on the nature and context of the heritage resource and should be commensurate with the extent of the proposed O&M activity.

For heritage resources that do not have current or complete records, SDG&E will also generate updated site records and/or monitoring forms with condition assessments for heritage resources in the APE encountered during covered fieldwork (survey, site flagging, etc.) or in the course of archaeological monitoring as an MSUP resource protection measure. For large heritage resources described above, the condition assessments will focus on that portion that abuts or intersects the APE.

E.8.2 Heritage Resource Protection Measures in Snow[Appendix E Section 2.1(b) – R5 PA]

The following hazard tree alternative inventory and resource protection strategy complies with HRMPSection E.8 and R5 PA Appendix E, Section 2.1(b), which allows for an accumulation of 12 inches of compacted snow and ice to prevent surface and subsurface impacts.

1. Adequate Survey Coverage *with no* Heritage Resources in APE:
    a. Document as class IIa in USFS Notification.

2. Adequate Survey Coverage *with* Heritage Resources in APE
    a. When applying RPM 2.1(b)
        i. Archaeological monitor will confirm adequate snow coverage (12 inches or more compacted) present when work is conducted; if present, work may proceed.
        ii. Document as class IIb in activity notification.

3. Insufficient Survey Coverage of the APE:
    a. Apply RPM 2.1(b)
        i. Document as class IIb in activity notification.
        ii. Archaeological monitor will confirm adequate snow coverage (12 inches or more compacted) present when work is conducted; if present, work may proceed.
        iii. If snow has completely receded by the time work proceeds, a pre-activity surveyis required; apply RPMs as appropriate for newly identified resources.
        iv. If there is less than 12 inches of snow cover when work is scheduled to occur, but still obscures surface visibility, delay work until either sufficient snow coverage is present or the ground is clear enough for a pre-activity adequate survey.

E.8.2.1 Stipulations

1. All ancillary work areas in the APE (e.g., landings, skid trails, turnarounds, and processing equipment sites) shall be identified prior to snow accumulation and outside historic property boundaries.
2. Adequate survey is required for any follow-up activities with ground-disturbance (e.g., tree bole clean-up, stump removal) that do not have adequate survey coverage.
3. Pole replacements are not included.
4. Grading is not allowed to establish access to hazard trees.
5. Felled trees may be removed, depending on the subsequent identification of new heritage resources, vegetation management program protocol, and applicable heritage resource RPMs.
6. Overland vehicle access is allowed as long as the compacted snow is equal to/greater than 12 inches in accordance with R5 PA Appendix E, Section 2.1(b).
7. For Class IV activities that cannot be monitored in snow conditions, Section E.14 of the MSUP and Stipulation 7.10 of the R5 PA will be applied.

E.9 Adequate Survey Coverage [Stipulation 7.4 – R5 PA]

SDG&E will use results from existing heritage resource inventories if those inventories demonstrate adequate survey coverage, which is reflected in USFS-specific field methods and application of USFS requirements and as detailed in Cleveland *National Forest Recording and Reporting Standards for Archaeological Investigation* (2020 Version).

Adequate survey coverage is defined as:

1. <30 meter transects

2. Dates 1995-present. Pre-1995 surveys approved as adequate by the HPM or designee on a case- by-case basis also may be used.

3. Survey methodology accounts for prehistoric and historic resources

4. Adequate survey report documentation follows USFS guidelines (FSM 2363.16; FSH 2309.12, Chapters 32.11 and 32.23), and includes at a minimum:

    a. Existing data review

    b. Description of field survey methods

    c. Description of identified heritage resources (including CA DPR site record forms)

    d. Survey coverage and cultural resource maps

    e. Photographs – original JPG photos with photo log (if applicable)

    f. Artifact collections and catalogues as appropriate (if applicable)

Survey report results from 1995 to present that meet the standards and methods outlined above are considered sufficient sources of existing data because standardized and reliable field methods existed in 1995 and land use within Utility corridors seldom changes, creating relatively static conditions. Pre-1995 surveys approved as adequate by the HPM or designee on a case-by-case basis also may be used. Survey report adequacy is good for the life of the MSUP, unless surveyed areas were subjected to wildfire or other significant landform modifications. Survey reports also will be judged for adequacy by the HPM or designee on a case-by-case basis. Survey reports will be actively managed in the Catalog, which will include all reports that meet established criteria in this section. SDG&E will actively manage the Catalog with annual updates or as needed to keep the information current. Active management of the Catalog also will include removing past survey reports HPMs deem inadequate, based on new data that changes the adequacy of a past report.

E.10 Heritage Resources Screening Process

E.10.1 Class I Activities (Section 3.1 in the Plan)

Class I Activities are Exempt Undertakings (R5 PA Stipulation 7.1 and Appendix D) and do not require additional screening or notification. Scheduling and documentation are presented to the USFS during biannual meetings. Class I activities will be jointly reviewed by SDG&E and the USFS at each biannual meeting, or more frequently as needed. No further action is required by the HPMs or designees.

E.10.2 Class II Activities (Section 3.2 in the Plan)

Class II activities represent the majority of SDG&E's routine O&M activities, including ground-disturbing work. The HRMP provides an overarching screening process driven by the outcome of pre-field research and adequate survey coverage. Pre-field research includes reviewing USFS Heritage Files, California Historical Resource Information System (CHRIS) records, or other R5-approved data sources. This is followed by confirming HPM-approved adequate survey coverage of the APE or performing a new heritage resources survey. Class II activity-specific surveys will be consistent with the appropriate professional standards in FSM 2360 (Appendix B), and to the extent prudent and feasible, with respective guidelines of the California Office of Historic Preservation and the Secretary of Interior's (SOI) Standards and Guidelines (R5 PA Section 7.4: Identification and Inventory Needs). They will also be consistent with the USFS Standards for the CNF and any applicable Archaeological Investigations Permit or ARPA Permit stipulations. Where applicable, the non-intensive survey strategies outlined in this HRMP (Section E.8) will be applied. When Class II activity-specific surveys cannot conform to the professional standards and guidelines or other guidance provided in this document, will consult with the HPM to define a mutually agreeable field methodology for heritage resources inventory (see Section E.8 Identification and Inventory Needs).

E.10.3 HRSP for Class II Routine Road Maintenance

SDG&E uses two main classes of roads on the CNF to access and maintain infrastructure. These include USFS System roads (System roads), and roads permitted to SDG&E by the USFS for

exclusive motorized use by SDG&E to access infrastructure in the MSUP permitted ROW (SDG&E roads). See Section 2.6.1 in the Plan for further details.

Utility roads will be maintained at a Level 2 Maintenance Standard (Level 2) consistent with *Forest Service December 2005 Guidelines for Road Maintenance Levels.* System road repairs or maintenance activities will be made if damage occurs as a result of localized O&M activities; conditions will be coordinated by USFS via project-specific permits/road use agreements for the CNF.

Due to existing levels of disturbance (baseline conditions) of System and Utility roads, comprehensive heritage resources survey is not required for Class II routine road maintenance (Section B.2.7 in the Plan), unless deemed necessary by the CNF HPM. The HRSP for routine road maintenance shall use a modified HRSP consisting of the following:

1. Desktop screening of approved data sources for known heritage resources.
2. RPMs (avoidance) implemented for known heritage resources within the existing road prism.
3. Targeted pedestrian survey of high-risk locations with an increased likelihood of encountering unrecorded heritage resources. Criteria for these locations include:
    a. Within 100 meters of fresh water (e.g., spring, intermittent/perennial water course)
    b. Consultation with the HPM/DHPM on areas of high probability for heritage or tribal resources based upon knowledge/expertise of these specific locations
    c. Within 100 meters of a high concentration of known heritage resources
    d. Within 100 meters of Areas of Critical Environmental Concerns/Priority Heritage Assets (FSH 2309.12, Chapter 21.3)
4. Notification and deliverables include:
    a. Class II a: Biannual meetings and annual reports.
    b. Class IIb: Notification package with applicable RPMs.
    c. Class IIc: Notification package, consult with USFS on next steps.

E.10.4 HRSP for Class II Activities

With the exception of Class II routine road maintenance, the APE for all other Class II activities must have complete survey coverage for heritage resources prior to ground-disturbing activities. The HRSP for Class II activities, excluding road maintenance, consists of the following:

1. Desktop screening of approved data sources for known heritage resources and adequate survey coverage performed by archaeologists who meets Secretary of the Interior Standards and Guidelines (36 CFR Part 61).
2. If the APE does not have adequate survey coverage, a heritage resources survey is conducted prior to the work activity.

Both scenarios result in one of following potential outcomes:

1. Adequate survey with no heritage resources
    a. Document in Class II notification package

b. No further heritage resources management required

c. Document new survey consistent with Archaeological Investigations Permit stipulations

2. Adequate survey with avoidable impacts to heritage resources when RPMs are applied

d. Potential Screened Undertaking (no Class II or Class II standard protection measures required): HPM validation required

e. Submit heritage resource data (e.g., primary number, summary, GIS, coordinates)

f. SDG&E identifies applicable RPMs

g. Document in Class II notification package

h. HPM validation (see Section E.3 HPM Role and Responsibility)

i. Document in annual report

3. Adequate survey with heritage resources present and HPM validation required

a. Undertaking requiring Class II or III Standard Protection Measures: HPM validation required

b. Submit heritage resource data (e.g., Forest Service number, summary, GIS, coordinates)

c. Utility identifies applicable RPMs or proposed additional action

d. Document in Class II notification package and consult on next steps:

i. HPM validation and refer to R5 PA Stipulation 7.8(c)

ii. 36 CFR Part 800.5-800.6 as necessary

e. Document in annual report

SDG&E will make every effort to avoid impacts to heritage resources by applying one or more RPMs. For any outcome where potential impacts to heritage resources are unavoidable when RPMs are applied, or when additional RPMs will not sufficiently protect the resource, SDG&E will consult with the HPM on the Class II activity, which reverts back to Section 7.8(c) of the R5 PA or 36 CFR Part 800.5-800.6. Table 4 provides a sample of general construction descriptions for O&M ground-disturbing activities and applicable RPMs. Only those RPMs necessary for avoiding heritage resources will be prescribed. SDG&E will identify the applicable RPMs, which are conveyed to the HPM in the work notification package, and then to heritage resource consultants and construction crews for implementation via SDG&E's environmental clearance process.

Table 4. SDG&E Operations and Maintenance Activities with Applicable Resource Protection Measures

Operations and Maintenance Activity*	Type/Amount of Disturbance	Applicable Resource Protection Measures
Pole repair/replacement (see Section B.2.1 in the Plan)	• Typically replaced like-for-like (wood, composite, concrete or tubular steel) • Poles placed adjacent to (within 5 feet) or in same hole as existing pole • Pole holes excavated via mechanical auger attached to bucket truck – minimal spoils • Poles set via bucket truck, line truck, crane, or helicopter • Poles typically accessible from existing roads; some road improvement or overland travel by vehicle or on foot may be required • Typical work area varies • Additional laydown areas, guy wires, anchor holes, ground rods, and other appurtenances for new poles sometimes required	1.1(a): Avoidance; standard 20-foot buffer 1.2: Restrict activities to existing transportation systems 1.3(1): Historic property delineation 1.4: Project changes 1.5: Archaeological/Native American monitoring 2.1(a): Limit crossings of linear features 2.1(b): Sufficient snow coverage 2.1(c): Foreign material surface protection 2.1(d): protective barriers
Tower repair/replacement (see Section B.2.2 in the Plan)	• Typically replaced like-for-like • Requires excavation for concrete footings • Footings excavated via backhoe, mechanical auger, or hand – minimal spoils • Tower set via bucket truck, line truck, crane, or helicopter • Some road improvements or overland travel by vehicle or on foot may be required • Typical work area varies • Additional laydown and staging areas often	1.1(a): Avoidance; standard 20-foot buffer 1.2: Restrict activities to existing transportation systems 1.3(1): Historic property delineation 1.4: Project changes 1.5: Archaeological/Native American monitoring 2.1(a): Limit crossings of linear features 2.1(b): Sufficient snow coverage 2.1(c): Foreign material surface protection 2.1(d): Protective barriers

Operations and Maintenance Activity*	Type/Amount of Disturbance	Applicable Resource Protection Measures
Conductor repair/replacement (reconductoring) (see Section B.2.3 in the Plan)	• Typically replaced like-for-like • Includes repair/replacement of conductor, insulators, and other hardware • Occasional installation via helicopter • Tensioning conducted via boom truck staged at tower/pole locations • No excavation required • Work locations typically accessible from existing roads; some road improvement or overland travel by vehicle or on foot may be required • Typical work area varies • Additional laydown/staging areas sometimes required	1.1(a): Avoidance; standard 20-foot buffer 1.2: Restrict activities to existing transportation systems 1.3(1): Historic property delineation 1.4: Project changes 1.5: Archaeological/Native American monitoring 2.1(a): Limit crossings of linear features 2.1(b): Sufficient Snow Coverage 2.1(c): Foreign material surface protection 2.1(d): Protective barriers
Communications repair (see Section B.2.5 in the Plan)	• Repairs typically within fenced communication site or on existing tower • Replacement of microwave antenna, covers, struts, or other tower hardware • Repairs conducted with boom truck, crane, rigging or helicopter • Replacement of buried ground wires or fiber optic cables require minor excavation and specialized equipment (e.g., forklift, cable dollies, tugger, and spinner) • Typical work area varies • Additional laydown/staging areas sometimes required	1.1(a): Avoidance; standard 20-foot buffer 1.2: Restrict activities to existing transportation systems 1.3(1): Historic property delineation 1.4: Project changes 1.5: Archaeological/Native American monitoring 2.1(a): Limit crossings of linear features 2.1(b): Sufficient snow coverage 2.1(c): Foreign material surface protection 2.1(d): Protective barriers

Existing underground repair/replacement (see Section B.2.3 in the Plan)	• Typically replaced like-for-like • Restricted to existing underground facilities (e.g., vaults, conduits) • No/minimal excavation • Typical work area varies	1.1(a): Avoidance; standard 20-foot buffer 1.2: Restrict activities to existing transportation systems 1.3(1): Historic property delineation 1.4: Project changes 1.5: Archaeological /Native American monitoring 2.1(a): Limit crossings of linear features

Operations and Maintenance Activity*	Type/Amount of Disturbance	Applicable Resource Protection Measures
	• Additional laydown/staging areas sometimes required	2.1(b): Sufficient snow coverage 2.1(c): Foreign material surface protection 2.1(d): Protective barriers
Shoo-fly installation (see Section B.2.6 in the Plan)	• Install temporary pole or structure around existing facilities while crews make repairs • Pole holes excavated via mechanical auger attached to bucket truck – minimal spoils • Poles set via bucket truck, line truck, crane, or helicopter • Poles typically accessible from existing roads; some road improvement or overland travel by vehicle or on foot may be required • Typical work area varies • Additional laydown/staging areas sometimes required	1.1(a): Avoidance; standard 20-foot buffer 1.2: Restrict activities to existing transportation systems 1.3(1): Historic property delineation 1.4: Project changes 1.5: Archaeological/Native American monitoring 2.1(a): Limit crossings of linear features 2.1(b): Sufficient snow coverage 2.1(c): Foreign material surface protection 2.1(d): Protective barriers
Routine road maintenance (see Section B.2.7 in the Plan)	• Erosion control device maintenance/repairs/replacements (e.g., berms, water bars, culverts, over-side drains). Maintenance conducted via road graders, bulldozers, loaders, and backhoes • Typical work area varies • No additional work areas required	1.1(a): Avoidance; standard 20-foot buffer 1.2: Restrict activities to existing transportation systems 1.3(1): Historic property delineation 1.4: Project changes 1.5: Archaeological/Native American monitoring 2.1(a): Limit crossings of linear features 2.1(c): Foreign material surface protection 2.1(d): Protective barriers 2.2(b)(1)(C): Vegetation removal (hand tools) 2.2(b)(1)(D): Protective materials or equipment 2.2(b)(1)(G): Hazard tree directional felling 2.2(b)(1)(I): Vegetation removal (hand carry, off-site equipment or rubber-tired vehicle) 2.2(b)(1)(J): Chipping woody material

Operations and Maintenance Activity*	Type/Amount of Disturbance	Applicable Resource Protection Measures
Hazard tree cutting/felling (see Section B.2.4.1 in the Plan)	• Removal of vegetation identified as hazardous to power and telecommunication facilities • Conducted using power tools and hand tools (e.g., chainsaws, hand saws) • Debris mulched onsite or removed to approved disposal location • No excavation • Typical work area varies (equal to height of subject tree) • Additional laydown/staging areas sometimes required	1.1(a): Avoidance; standard 20-foot buffer 1.2: Restrict activities to existing transportation systems 1.3(1): Historic property delineation 1.4: Project changes 1.5: Archaeological/Native American monitoring 2.1(a): Limit crossings of linear features 2.1(b): Sufficient snow coverage 2.1(c): Foreign material surface protection 2.1(d): Protective barriers 2.2(a)(1): Topping/limbing trees 2.2(a)(3): Tree removal by non-ground-disturbing methods 2.2(a)(4): Equipment operator training 2.2(a)(5): No skidding or tracked equipment 2.2(b)(1)(c): Vegetation removal (hand tools) 2.2(b)(1)(d): Protective materials or equipment 2.2(b)(1)(g): Hazard tree directional felling 2.2(b)(1)(i): Vegetation removal (hand carry, offsite equipment, or rubber-tired vehicle) 2.2(b)(1)(j): Chipping woody material

Vegetation management (see Section B.2.4.2 in the Plan)	• Promotes stable, low-growing vegetation within the right-of-way • Biological, mechanical, or manual treatments to maintain favorable plant communities or remove incompatible vegetation • Mechanical treatments include mowing, grubbing, and chainsaws • No excavation, possible surface disturbance from tracked mechanical equipment • Typical work area varies (width of right-of-way plus length of proposed span) • Includes pruning limbs, removing scattered vegetation that has grown into wire or border zone, and mechanically mowing brush and	1.1(a): Avoidance; standard 20-foot buffer 1.2: Restrict activities to existing transportation systems 1.3(1): Historic property delineation 1.4: Project changes 1.5: Archaeological/Native American monitoring 2.1(a): Limit crossings of linear features 2.1(b): Sufficient snow coverage 2.1(c): Foreign material surface protection 2.1(d): Protective barriers 2.2(a)(1): Topping/limbing trees 2.2(a)(3): Tree removal by non-ground-disturbing methods 2.2(a)(4): Equipment operator training 2.2(a)(5): No skidding or tracked equipment

Operations and Maintenance Activity*	Type/Amount of Disturbance	Applicable Resource Protection Measures
	small ingrowth trees, and corridor maintenance (see Section B.2.4 and Table B-2: Class II-Vegetation Management in the Plan) • Additional staging/laydown areas sometimes required	2.2(b)(1)(c): Vegetation removal (hand tools) 2.2(b)(1)(d): Protective materials or equipment 2.2(b)(1)(g): Hazard tree directional felling 2.2(b)(1)(i): Vegetation removal (hand carry, offsite equipment, or rubber-tired vehicle) 2.2(b)(1)(j): Chipping woody material
*The O&M activities described above are not comprehensive but represent the majority of routine activities performed. Please refer to referenced Plan sections for further details.		

E.10.5 Class II Activity Deliverables

There are three deliverables potentially required for Class II activities:

1. Notification or work authorization packages to the USFS
2. New heritage resources descriptions
3. An annual report

For all Class II routine O&M activities, notification or work authorization packages are required to be submitted to the USFS. SDG&E submits a notification or work authorization package to the USFS that will be distributed to subject matter experts (e.g., HPMs) as determined by the USFS at least 5 business days prior to initiating a Class IIa activity, 10 business days prior to initiating a Class IIb activity, or 15 business days prior to initiating a Class IIc activity. The package contains key information on the Class II activity scope, including but not limited to, the following:

- Location, area (if applicable) and type of work
- Anticipated schedule
- Contact information for lead SDG&E person conducting the work
- Equipment to be used
- Anticipated square footage of ground disturbance if greater than one square meter per acre
- Number, location, size, height, and species of trees to be cut (if applicable)
- RPMs, as prescribed, to be followed
- USFS and SDG&E contacts
- Pertinent cultural resource information
    - Applicable survey coverage and resource information with report citation (tabular format)
    - Notification that the APE will be surveyed prior to ground disturbance, if necessary
    - Results from any recent or pre-activity surveys, in accordance with the appropriate Archaeological Investigations Permit
    - Proposed RPMs for avoidance of impacts to known heritage resources

The second deliverable, when new heritage resources are identified, is a resource description (summary, shape file of resources, survey areas and APEs, and location map or KMZ file; and original JPG photos, including photo log). This deliverable is submitted if a new Department of Parks and Recreation (DPR) site record cannot be generated prior to notification/work authorization package submittal to assist the HPM or designee's validation and comment of proposed RPMs. A completed DPR will be submitted within 15 business days of the notification/work authorization package.

The third deliverable is an annual report detailing all heritage resources management performed in support of O&M activities executed under SDG&E's MSUP. The annual report will document all new heritage resources surveys (positive and negative), newly recorded heritage resources and associated DPR forms, historic properties affected (if any), associated GIS deliverables of survey and heritage resources; will conform to the R5 PA Sections 4.2 and 7.7(e); and will be

submitted in time to align with the R5 annual report submittal to the SHPO. The submittal date will be determined in consultation between the USFS HPM and SDG&E's cultural resource leads.

E.10.6 Class III Activities (Section 3.3 in the Plan)

Activities that cannot be characterized as routine and ongoing, and do not fit the scope and scale of Class I and Class II activities, are considered Class III. These activities typically will require more extensive environmental analysis, review, and reporting prior to initiating work activities. SDG&E will provide the CNF with a complete project description, which will include the need for the action; proposed activities; mapping and shape files; and a description of the equipment to be used, access, timelines, and initial screening for resources, including heritage resources (see Section 4.3 in the Plan).

Class III O&M activities require validation from the HPM or designee regardless of the presence or absence of heritage resources. The HPM or designee will provide validation or comment on the HRSP results and may request additional documentation within the 30-business-day work authorization package timeframe. The Class III HRSP begins with the same screening and notification as the Class II HRSP (see Section E.10.4) and is supplemented as described below.

The Class III HRSP begins with determining whether adequate survey was performed. If not, a heritage resources survey is conducted. Both scenarios result in one of following potential outcomes:

1. Adequate survey with no heritage resources
    a. Screened Undertaking: HPM validation required
    b. Document in Class III work authorization package
    c. Submit heritage resource documentation
    d. No further heritage resources management required
    e. Document in annual report
2. Adequate survey with avoidable impacts to heritage resources when RPMs are applied
    a. Potential Screened Undertaking (no Class II or Class II standard protection measures required): HPM validation required
    b. Document in Class III work authorization package and consult on next steps
    c. Submit heritage resource documentation
    d. Document in annual report
3. Adequate survey with heritage resources present and HPM validation required
    a. Undertaking requiring Class II or III Standard Protection Measures: HPM validation required
    b. Document in Class III work authorization package and consult on next steps
    c. Submit heritage resource documentation
    d. Refer to R5 PA Stipulation 7.8(c) or 36 CFR Part 800.5-800.6 as necessary
    e. Document in annual report

The heritage resource deliverables for a Class III activity begins with a work authorization package, which will include the results of the Class III HRSP. Additional documentation such as resource records, survey results, letter report, or archaeological survey report, may be required depending on the scope of the Class III activity and/or heritage resources management considerations. The level of Class III heritage resource reporting will be determined by SDG&E and the USFS HPM. Requests for additional documentation will be made by the HPM or designee within the 30-business-day work authorization package review period. All Class III activities will be documented in the annual report.

E.10.7 Class IV Activities – Emergencies (Section 3.4 in the Plan)

SDG&E will comply with Stipulation 7.11 of the R5 PA and 36 CFR 800.12 for emergencies.

E.11 Data Exchange [Stipulation 5.3(b) – R5 PA]

Region 5 has developed and maintains corporate databases that include information about heritage resources and heritage resource investigations (Natural Resource Manager [NRM] Heritage Database) and geospatial data (GIS) in accordance with Section 112(2) of the NHPA and FSM 2360. The USFS will share with SDG&E all NRM GIS data that intersect SDG&E facilities (e.g., transmission and distribution facilities, roads) on the CNF. SDG&E will submit annual GIS data sets to the USFS for NRM system uploads.

E.12 Evaluation and Determination of NRHP Eligibility [Stipulation 7.7 – R5 PA]

The process outlined in the R5 PA Stipulation 7.7 shall be followed.

Within three years of MSUP execution, SDG&E shall work with the USFS HPM for the CNF and their heritage staff to prepare a Heritage Resources Evaluation Plan (HREP) for completing NRHP evaluations and recommendations on eligibility for identified heritage resources directly associated with SDG&E O&M activities authorized under the MSUP (e.g., heritage resources with SDG&E's facilities within their mapped boundaries, heritage resources within SDG&E's road prisms) in accordance with Stipulation 7.7 of the R5 PA. The plan shall be written in such a manner as to phase NRHP evaluations and determinations over a 10-year maximum timeframe until all heritage resources within the HREP are evaluated and submitted to the SHPO for consensus determinations. The HREP is intended to supplement the HRMP. All activities, definitions, HRSPs, RPMs, and other terms and conditions shall be consistent with the Plan and the HRMP.

The HREPs will prioritize NRHP evaluations of any Priority Heritage Assets (PHAs) located within and adjacent to -SDG&E O&M activities authorized under the MSUP. The goal of the HREP, which is different than this document's annual reporting requirements, is to assist the CNF in its historic property management and protection during O&M activities.

E.13 Determination of Effects to Historic Properties [Stipulation 7.8 – R5 PA]

The process outlined in the R5 PA Stipulation 7.8 shall be followed.

E.14 Discoveries and Inadvertent Effects [Stipulation 7.10 – R5 PA]

The process outlined in the R5 PA Stipulation 7.1 shall be followed.

E.15 Emergency Undertakings [Stipulation 7.11 – R5 PA]

The process outlined in the R5 PA, Stipulation 7.11 and in 36 CFR Part 800.12 and 36 CFR Part 78 shall be followed.

E.16 Dispute Resolution [Stipulation 12.0 – R5 PA] and Non-Compliance

The process outlined in the R5 PA Stipulation 12.0 shall be followed. SDG&E also will comply with Section 5.1.6 in the Plan.

E.16.1 Incident Management

If an incident occurs, SDG&E and the USFS will comply with the following protocol to document andreport the incident.

1. SDG&E will notify the USFS within 48 hours of the identification of an incident by an SDG&E archaeologist to the USFS HPM. Incident notification will include, but will not be limited to:
    a. Incident description (e.g., location, O&M activity)
    b. Heritage resource description (if applicable)
    c. Post-incident heritage resource protection measures (if necessary).
2. SDG&E will perform an incident cause analysis and submit within 30 days of incident notification to the USFS.
3. SDG&E or a qualified heritage consultant will perform an assessment of the heritage resourcesand any resultant impacts. SDG&E will submit results (e.g., survey report, DPR, GIS, etc.) to the USFS HPM within 30 days of incident notification to the USFS.

4. The USFS HPM, or their designated staff, will review the assessment of the heritage resource and resultant impacts and provide comments and/or next steps to SDG&E within 30 days of receipt of the assessment, unless required tribal consultation or investigating NAGPRA concerns require additional time.

   At the end of the 30-day review period, the USFS HPM will indicate if no further action is required. If the O&M activity has adversely impacted a heritage resource, the USFS will comply with Stipulation 8.0 of the R5 PA below.

   In accordance with Stipulation 8.1(a) and (d) of the R5 PA, a USFS HPM will initiate SHPO consultation when the USFS has made a determination that an undertaking may have or had an adverse effect as defined by 36 CFR 800.5(a)(1). Where properties are inadvertently encroached on by project activities, and the HPM determines that no effects or no adverse effects to historic properties have occurred (e.g., trees felled into site boundaries or vehicles driven onto sites), SHPO and ACHP notification are not required provided that HPM recommendations are limited to non-disturbing treatment measures and these recommendations are implemented as prescribed. Once these treatment measures are implemented, the case will be considered resolved (R5 PA Stipulation 7.10(d). If HPM recommendations will not be implemented, the forest shall consult with the SHPO on effects and possible resolution, and with the ACHP, Indian tribes and consulting parties as appropriate if an adverse effect has occurred.

   To support these requirements, SDG&E will provide all necessary information as requested by the USFS HPM and in a timely fashion so that the Forest Supervisor for the CNF can make an informed decision as to the appropriate next steps.

E.17 Modifications, Clarifications, and Revisions [Stipulation 12.2 – R5 PA]

This HRMP is intended to be responsive to changing circumstances. Therefore, it will track and align with future R5 PA revisions. It also will align with Section 5.1.4 in the Plan to address periodic modifications, clarifications, or revisions. Any minor modifications or amendments will be in accordance with applicable legal requirements.

Attachment E.1
SDG&E Programmatic Agreement (PA)

PROGRAMMATIC AGREEMENT
BETWEEN THE CLEVELAND NATIONAL FOREST
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING SAN DIEGO GAS & ELECTRIC COMPANY'S
MASTER SPECIAL USE PERMIT AND
POWER LINE REPLACEMENT PROJECTS

WHEREAS, this Programmatic Agreement (hereinafter "Agreement") is developed under the authority of Section 106 of the National Historic Preservation Act (NHPA) at 54 USC 306108 (Section 106) and its implementing regulations found at Title 36 Part 800 of the Code of Federal Regulations (36 CFR Part 800); specifically 36 CFR 800.14(b), which provides the Cleveland National Forest (hereinafter "the Forest") with the authority to negotiate this Agreement to govern the resolution of adverse effects from complex project situations or multiple undertakings and 36 CFR 800.4(b)(2) which provides for a phased approach to historic property identification and evaluation efforts through such a Programmatic Agreement; and

WHEREAS, San Diego Gas & Electric Company (hereinafter "SDG&E") owns and operates approximately 102 miles of existing electric lines, and approximately 34 miles of existing access roads on lands administered by the Forest, and would replace certain power lines within the SDG&E system totaling approximately 149 miles both on and off the Forest in San Diego County, California, as part of the Power Line Replacement Projects; and

WHEREAS, SDG&E has applied to the Forest for a Master Special Use Permit (MSUP) for areas on the Forest within which it operates and maintains existing electric transmission and distribution facilities and existing access roads (hereinafter, "the facilities") in accordance with the Federal Land Policy and Management Act (FLPMA) (P.L. 94-579); and

WHEREAS, the Forest has determined that granting a Master Special Use Permit to SDG&E to operate and maintain existing facilities on public lands administered by the Forest, for an initial period of up to 50 years with the option to renew, and the associated removal and replacement of existing electric transmission and distribution lines included in the Power Line Replacement Projects constitutes an "Undertaking," as defined at 36 CFR §800.16(y) (hereinafter, "the Undertaking"); and

WHEREAS, cultural resources on federal public lands are managed according to the National Historic Preservation Act (NHPA, P.L. 89-665, as amended), Archaeological Resources Protection Act (P.L. 96-95, as amended), National Environmental Policy Act (P.L. 91-190, as amended), American Indian Religious Freedom Act (P.L. 95-341, as amended), and Native American Graves Protection and Repatriation Act (P.L. 101-601), applicable regulations (e.g., 36 CFR §60, §63,and §296; 43 CFR §10), and applicable Executive Orders (e.g., 13007, 13175, and 13287), and these have been considered during consultation for this Agreement; and

WHEREAS, pursuant to 36 CFR 800.14(b)(1)(i) and (ii), the effects on historic properties are likely to be similar and repetitive, across multiple regions, and cannot be fully determined prior to approval of the undertaking, the Forest seeks to phase final identification and evaluation of historic properties in accordance with 36 CFR 800.4(b)(2); and

WHEREAS, The Forest is the Lead Federal Agency (delegated by BIA on May 20, 2013; delegated by BLM on January 22, 2016), responsible for ensuring that all stipulations of this Agreement are carried out, and is a signatory to this Agreement; and

WHEREAS, the California State Historic Preservation Officer (SHPO), per 36 CFR 800(c)(2) reflects the interests of the State and its citizens in the preservation of their cultural heritage. In accordance with section 101(b)(3) of the National historic Preservation Act of 1966, as amended, the SHPO advises and assists Federal agencies in carrying out their section 106 responsibilities and cooperates with such agencies, local governments and organizations and individuals to ensure that historic properties are taking into consideration at all levels of planning and development. In that role, the SHPO is a Signatory to this Agreement; and

WHEREAS, the Forest has notified the Advisory Council on Historic Preservation (hereinafter "the Council") per 36 CFR §800.6(a)(1)(C), to address the potential for effects of the Undertaking on historic properties. The Council has elected not to participate in this Agreement at this time (per 36 CFR §800.6(b)(1), but reserves the right to participate in consultation to resolve any adverse effects to historic properties per 36 CFR §800.6(a)(1) and §800.6(b)(2) and Appendix A to 36 CFR §800, should it be necessary; and

WHEREAS, the Forest has invited the following federal government agencies to participate in development of this agreement: Bureau of Land Management (South Coast Field Office) and the Bureau of Indian Affairs (Southern California Agency), as well as California Department of Parks and Recreation (Cuyamaca Rancho State Park), a state agency; and has invited them to sign this Agreement as Concurring Parties; and

WHEREAS, the Forest has consulted with the SHPO pursuant to 36 CFR 800.14(b)(3), and is in the process of considering alternatives for the Undertaking that have the potential to adversely affect historic properties and may reach a decision regarding approval of the Undertaking before the effects on historic properties have been fully determined, the Forest chooses to continue its assessment of the Undertaking's potential adverse effects and to resolve any such effects through the implementation of this Agreement; and

WHEREAS, pursuant to the special relationship between the federal government and Indian Tribes, and Section 101(d)(6)(B) of the NHPA, 36 CFR 800.2(c)(2)(ii), the American Indian Religious Freedom Act (AIRPA), Executive Orders including but not limited to 13007, and 13175, and Section 3(c) of the Native American Graves Protection and Repatriation Act (NAGPRA), the Forest is responsible for Government-to-Government consultation with federally recognized Indian Tribes and is the lead federal agency for all Native American consultation and coordination; and

WHEREAS, the Forest has formally notified and invited the following Indian Tribes: Barona Band of Mission Indians, Campo Band of Mission Indians, Ewiiaapaayp Band of Kumeyaay Indians, Iipay Nation of Santa Ysabel, Inaja/Cosmit Reservation, Jamul Indian Village, Juaneño Band of Mission Indians Acjachemen Nation, Kwaaymii Laguna Band of Mission Indians, La Jolla Band of Luiseño Indians, La Posta Band of Mission Indians, Los Coyotes Band of Cahuilla and Cupeño Indians, Manzanita Band of Mission Indians, Mesa Grande Band of Mission Indians, Pala Band of Mission Indians, Pauma Band of Luiseño Indians, Pechanga Band of Luiseño Indians, Ramona Band of Cahuilla Indians, Rincon Band of Luiseño Indians, San Luis Rey Band of Luiseño Indians, San Pasqual Band of Mission Indians, Soboba Band of Luiseño Indians, Sycuan Band of the Kumeyaay Nation, Viejas Band of Kumeyaay Indians, to consult on the proposed Undertaking and its possible effects on historic properties throughout the project area that may be of religious and cultural significance; and to sign this Agreement as Concurring Parties. The Forest has documented its effort to consult with Tribes and a summary is provided in Attachment 4 to this Agreement; and

WHEREAS, the Forest will continue to consult with the Tribes throughout the implementation of this Agreement regarding the adverse effects to historic properties to which they attach religious and cultural significance. The Forest will carry out its responsibilities to consult with Tribes that request such consultation with the further understanding that, notwithstanding any decision by these Tribes to decline concurrence, the Forest shall continue to consult with these Tribes throughout the implementation of this Agreement; and

WHEREAS, the Forest has invited the following organizations and individuals to participate in the development of this Agreement: Kumeyaay Cultural Repatriation Committee (KCRC), San Diego Archaeological Society; and

WHEREAS, for the purposes of this Agreement, "Consulting Parties" collectively refers to the Signatories, Invited Signatories, and Concurring Parties who have signed this Agreement; and

WHEREAS, the terms used in this Agreement are consistent with the definitions found in 36 CFR 800.16; and

WHEREAS, the Forest in consultation with the SHPO, has defined the Undertaking's area of potential effects (APE) as described in Stipulation 1.0 below; and

WHEREAS, SDG&E has specific responsibilities for avoiding potential effects to historic properties within the APE for the Master Special Use Permit and Power Line Replacement Projects, including preparing and implementing Historic Properties Management and Historic Properties Treatment Plans (HPMP and HPTP); and

WHEREAS, the Forest, until the HPMP is finalized shall ensure SDG&E's operations and maintenance shall be implemented consistent with the *Programmatic Agreement Among the USDA Forest Service, Pacific Southwest Region (Region 5) California State Historic Preservation Officer and the Advisory Council on Historic Preservation Regarding the Processes for Compliance with Section 106 of The National Historic Preservation Act For*

Management of Historic Properties by the National Forests of the Pacific Southwest Region (R5 PA), located at: http://www.fs.usda.gov/detail/r5/recreation?cid=fsbdev3_049081; and

WHEREAS, SDG&E has participated in consultation per 36 CFR §800.2(c)(4), will carry out certain stipulations of this PA, and is an Invited Signatory to this PA; and

WHEREAS, in developing this PA, the Forest has consulted with and will continue to consult with all parties who may be interested in the granting of approval for the Master Special Use Permit or the Power Line Replacement Projects (see Attachment 4, Parties Consulted), and has invited interested parties to concur in this PA, including, but not limited to:

- federally recognized California Indian tribes (per 36 CFR §800.2(c)(3); 36 CFR §800.2(d); 36 CFR §800.14(b)(2); and 36 CFR §800.14(f),
- non-federally recognized California Indian tribes (per 36 CFR §800.2(c)(5)),
- Native American organizations (per 36 CFR §800.2(c)(5)), and
- groups interested in the history of the lands on which the project facilities are located (per 36 CFR §800.2(c)(5)); and

WHEREAS, in accordance with NHPA §110(d) the Forest intends to use this Agreement to advance the purposes of the NHPA by providing for the protection, preservation, and avoidance of effects to historic properties associated with SDG&E's performance of activities included in the Undertaking;

NOW, THEREFORE, the Forest and SHPO (Signatories) and SDG&E and CPUC (Invited Signatories) agree that the Signatories and Invited Signatories, to the extent of their respective legal authorities, shall ensure that the following stipulations of this Agreement are implemented to take into account the potential for effects of the Undertaking on historic properties within the APE of the Master Special Use Permit and Power Line Replacement Projects.

STIPULATIONS

The Forest shall ensure that the following measures are implemented.

Definitions

The definitions for various aspects of cultural resource management found at 36 CFR § 800.16 apply throughout this Agreement. Those definitions are supplemented in the following stipulations, and by the glossary of terms to be used in the HPMP.

1.0 AREA OF POTENTIAL EFFECTS

A. The Undertaking's APE is depicted in Attachment 1 to this Agreement. The APE is influenced by the scale and nature of the Undertaking and is defined as those lands that are incorporated into the area within the boundaries of the Master Special Use Permit and Power Line Replacement Projects (specific details regarding the APE map included in the HPMP).

B. The APE shall also include the entire area of spatially discrete historic properties (e.g., archaeological sites), if any part of such a property extends into the boundary of the Master Special Use Permit and Power Line Replacement Projects; except that management of linear cultural resources (e.g., NRHP-eligible roads and trails) shall not cause the APE to be extended beyond the boundaries of the Master Special Use Permit and Power Line Replacement Projects.

C. The APE shall also include contributing elements of NRHP-eligible historic districts that are within the boundary of the Master Special Use Permit and Power Line Replacement Projects.

D. The Forest may modify the APE, in consultation with the other Signatories, without amending the Agreement. If it is determined, in the future, that the undertaking may directly or indirectly affect historic properties located outside the currently defined APE, the Forest, in consultation with the other Signatories, shall modify the APE using the following process:

   i. Any Signatory may propose that the APE established herein be modified. The Forest shall notify all Signatories of the proposal to modify the APE and consult for no more than 30 days to reach agreement on the proposed modification.

   ii. If Signatories agree to the proposal, then the Forest will prepare a description and a map of the modification to which the Signatories agree. The Forest will keep copies of the description and the map on file for its administrative record and report the modification of the APE as part of the Annual Report (Stipulation 5).

   iii. If the modification to the APE adds a new geographic area which falls within an area of expected high sensitivity for cultural resources, the Forest shall identify historic properties in the new APE, and consult to

resolve adverse effects to such properties in accordance with the process outlined in Stipulation 4 of this Agreement.

iv. If the Forest and other Signatories cannot agree to a proposal for the modification of the APE through consultation, then they will resolve the dispute in accordance with Stipulation 11.

2.0 TRIBAL CONSULTATION

A. The Forest is the lead federal agency responsible for consultation and coordination with Indian Tribes under this Agreement. The Forest was designated as the lead federal agency by the Bureau of Land Management (South Coast Field Office) and the Bureau of Indian Affairs (Southern California Agency), who are serving as Concurring Parties to and have participated in the development of this agreement.

B. The appropriate federal agencies shall coordinate and consult on a Government-to-Government basis with designated tribal representatives in the identification, evaluation, and treatment of potential historic properties to which the Tribes may attach religious or cultural significance [36 CFR 800.16(l)].

i. Specific resources that meet these definitions will be identified through on-going consultation.

C. Agency and Tribal Points of Contact

i. The Forest points of contact (POC) for official correspondence shall be the Forest Supervisor and/or the Heritage Program Manager for the Cleveland National Forest.

ii. On behalf of each Tribe, the Tribal chairperson shall be the official point of contact. Representative(s) in addition to the Tribal chairperson should be designated in writing by the Tribal government to represent the Tribe for purposes of Section 106 consultation (36 CFR 800.2(c)(2)).

D. The Forest shall continue Government-to-Government consultation with Tribes throughout the implementation of this Agreement, notwithstanding any decision by Tribes to decline concurrence to this Agreement.

E. The Forest will invite and /or coordinate further Tribal participation in the Forest's Section 106 identification, evaluation, and treatment efforts.

F. Any archaeological materials that are collected during any work undertaken pursuant to this Agreement or the Undertaking shall be curated in accordance with 36 CFR 79.

3.0 PARTICIPATION OF CONSULTING PARTIES AND THE PUBLIC

A. Throughout the duration of this Agreement, the Forest will seek, discuss, and consider the views of the Consulting Parties, and will seek input from them [36 CFR 800.16(f)] when making decisions under the stipulations of this Agreement.

i. The Consulting Parties are responsible for providing updated contact information to the Forest.

ii. Unless otherwise agreed, Consulting Parties shall have 30 calendar days to respond to a review of documents and deliverables associated with this Agreement, from receipt of formal request for review. The Forest shall make reasonable attempts to contact Consulting Parties to confirm the participation of the Consulting Party in review. Reasonable attempts include contacting the Tribal Chairperson, designated staff or representatives of the Consulting Parties by Certified Letter, email and/or follow-up phone call. Where the period for review or comment has passed after reasonable attempts, the Forest shall assume that the Consulting Party has elected not to comment and will proceed with the proposed course of action.

iii. The Forest will continue to use the NEPA process to notify the Public regarding the activities of this Agreement. The Forest shall clearly state to the public that the NEPA process includes compliance with Section 106. The Forest shall ensure that any comments received from members of the public are taken under consideration and incorporated where appropriate.

4.0 IDENTIFICATION, EVALUATION AND TREATMENT OF HISTORIC PROPERTIES

A. On behalf of Forest, SDG&E is developing a Historic Properties Management Plan (HPMP) for the Undertaking detailing the manner in which they will:

i. inventory, identify, avoid, mitigate, monitor, and report any effects of the Undertaking on known or inadvertently discovered historic properties within the APE of the Undertaking;

ii. consult and coordinate with government agencies, tribes, and the public, as appropriate;

iii. provide for curation of all archaeological and historical items associated with the implementation of the Historic Properties Management or Treatment Plans for the Undertaking;

iv. support the Forest Section 110 program for interpretation of historic properties to the public and other public involvement in historic preservation; and

v. define the roles and responsibilities of the land management agencies

and SDG&E in the long-term management of historic properties within the Undertaking APE.

B. The HPMP addresses, in appropriate detail, the elements defined in the HPMP outlined in Attachment 2. The HPMP shall be formatted and distributed in a manner such that sensitive information (e.g., archaeological site or traditional cultural property locations) regarding historic properties is kept confidential.

C. The Forest shall distribute the Draft HPMP to the Consulting Parties and Tribes for review and comment. The Forest will pursuant to Stipulation 3.0 notify the public of the availability of the Draft HPMP. The Forest will accept comments from concurring parties on the Draft HPMP made within 30 days following its distribution and notification of availability.

D. The Forest shall take into account comments received from the Consulting Parties in the preparation of a Draft Final HPMP. The Forest will direct SDG&E to make appropriate changes in the Draft HPMP based on reviewer comments. The resulting document will be the Draft Final HPMP. The Forest shall provide the Draft Final HPMP to the SHPO, Tribes, and other concurring parties within 10 calendar days of receipt from SDG&E. The Forest will accept comments on the Draft Final HPMP made within 30 days following its distribution and notification of availability. The Forest will document and report the written comments received and their proposed responses. Should any of the Signatories to this Agreement object to the content of the Draft or Final HPMP, the Forest will proceed to resolve the objection consistent with Stipulation 8.0, Resolving Objections, below

E. The Forest and SHPO shall indicate their acceptance of the Final HPMP in signed letters of concurrence filed in the project record.

F. The Forest shall notify the public and Tribes that the Final HPMP has been completed. This notification will be made to the parties originally consulted regarding the Agreement. The Forest shall, within 30 calendar days of acceptance of the Final HPMP, provide copies of the Final HPMP to the Signatories and any concurring parties to this Agreement. The Forest shall provide copies, or provide access to copies, of the HPMP to members of the public who request copies, while following the measures detailed at Section12.0: Confidentiality of Records and Information.

G. The HPMP shall be implemented as follows. Upon written concurrence by the Forest and the SHPO, the HPMP shall be implemented under the authority of this Agreement as the Forest's HPMP for compliance with NHPA §106 and fulfillment of its 36 CFR Part 800 compliance requirements for the Undertaking.

H. Any changes made to the HPMP after its implementation will be made as follows.

Should, the Forest, or SHPO determine that changes to the HPMP are warranted, the parties shall consult to make the agreed upon changes. The Forest shall then give formal notice to the SHPO. The SHPO shall have 30 calendar days to respond in writing to the Forest's proposed changes to the HPMP. If the Forest and SHPO concur that the proposed changes do not constitute a significant revision to the HPMP, then the Forest shall proceed to revise and implement the appropriate elements of the HPMP. If the Forest or the SHPO believes the proposed changes to the HPMP constitute a significant revision to the historic preservation program, the signatories shall proceed to consult according to Stipulation 3.0 of this Agreement. Should the Forest or the SHPO object regarding proposed changes to the HPMP, the objecting party shall proceed according to Stipulation 11.0 of this Agreement. Amendment of the HPMP shall not require amendment of the PA.

I. SDG&E Operations and Maintenance activities are ongoing. Until the Final HPMP is executed and implemented, the Forest will continue to comply with the stipulations of the R5 PA to fulfill its NHPA Section 106 compliance responsibilities for SDG&E Operations and Maintenance activities on existing facilities on Forest lands, as codified in 36 CFR §800.4–800.6. Construction activities proposed under the Power Line Replacement Projects are defined in the HPMP and are not covered by the R5 PA; such activities will not be authorized by the Forest until the HPMP is finalized.

5.0 ANNUAL REPORTING AND ON-GOING CONSULTATION MEETINGS

A. The Forest will report annually to the Consulting Parties, a written summary of activities carried out under this Agreement during the previous fiscal year. The report should be provided by December 31 of each year.

i. Annual reports shall be programmatic summaries of data and significant findings. At a minimum the report will include:

a. Total acreage and road mileage inventoried.
b. Total number of condition assessments.
c. Descriptions, as appropriate, of historic properties recommended eligible for the NRHP.
d. Summaries of consultation efforts.
e. Summaries of inadvertent effects or unanticipated discoveries with appropriate considerations for confidentiality/sensitivity.

B. The Forest acknowledges the complexity and scale of the Undertaking and will continue to facilitate meaningful consultation throughout the life of this Agreement. The Forest will coordinate and facilitate Consulting Party meetings annually for the duration of this Agreement. The meeting purpose is to discuss the annual report, update the Consulting Parties on the progress of the Agreement implementation, and to receive feedback and information from the Consulting Parties regarding significant issues or resources.

i. The Forest POC identified in Stipulation 2.0(C)(i) is responsible for scheduling meetings. The Forest will provide telephone and web-based access to any in-person meetings when available.
ii. The Forest will schedule meetings generally on the anniversary of the execution of this Agreement.

6.0 FINAL DOCUMENTATION

A. In the final year of this Agreement, the Forest will produce a synthesis report of all findings and activities associated with this Undertaking.

7.0 STANDARDS

A. **PROFESSIONAL QUALIFICATIONS.** The Forest shall ensure that all actions carried out pursuant to this Agreement are completed by or under the direct supervision of a person or persons meeting the Secretary of Interior's Professional Qualifications Standards (48 FR 44738-44739, September 29, 1983) in the appropriate discipline. However, nothing in this Stipulation may be interpreted to preclude any party qualified under the terms of this paragraph from using the services of persons who do not meet the above standards so long as the work of such persons is directly supervised by someone who meets the Standards.

B. **DOCUMENTATION.** The Forest shall ensure that all final cultural resources reports and records resulting from actions pursuant to this Agreement meet the documentation requirements under 36 CFR 800.11 and the Secretary of Interior's Standards and Guidelines for Archeology and Historic Preservation, applicable ACHP guidance, and the current California Department Parks and Recreation (DPR 523) Forms. All associated digital Geographic Information Systems (GIS) data shall be collected, stored, and managed to current Forest standards. All DPR 523 records and all reports will be filed with the appropriate California Historic Resource Information Center. In areas of potential overlap with lands managed by other federal and state agencies, the Forest will file GIS data and site forms with the appropriate agency in addition to the above mentioned Information Centers.

C. **CURATION.** The Forest will avoid historic properties to the extent possible during the implementation of this Agreement. Any archaeological materials that are collected during any work undertaken pursuant to this Agreement or the Undertaking shall be curated in accordance with federal law and regulations, including 36 CFR 79, in repositories that meet federal standards and have no policies or conditions that violate federal laws or regulations.

8.0 TREATMENT OF HUMAN REMAINS

A. In the event of an inadvertent discovery of human remains on federal lands, the Forest Service (as lead Federal Agency) and the appropriate Federal Agency (if on non-Forest federal lands) must be notified immediately by telephone and with written confirmation [43 CFR 10.4(a)]. Notification will be made to the Forest Supervisor (in the case of Forest Service), or Field Manager (in the case of BLM), or equivalent. No additional disturbance may take place and all work in the area must cease immediately within a 100-foot radius of the discovery. The 100-foot radius must be secured and all personnel and equipment will be excluded from this area until a determination is made of the next action. All human remains, burial sites, and funerary objects will be treated with dignity and respect.

B. The Federal Agency shall notify the County Coroner's Office of the county where the remains are located, requesting, if possible, the remains be examined in place. The Coroner has two working days to examine the remains after notification. The Coroner must determine if the remains are related to a crime scene or a recent burial. For human remains determined by the Coroner to be related to a crime scene or recent burial, the Agency will follow the protocols determined by the appropriate law enforcement agents for resolving such findings.

C. For inadvertent discoveries of human remains determined by the Coroner to not be related to a recent burial or crime scene, the Agency will be immediately notified of this determination. The Agency will be responsible for determining if the human remains are Native American. Inadvertent discoveries of human remains on federal lands determined to be Native American and any associated funerary objects shall be treated in accordance with the provisions of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) and its implementing regulations at 43 CFR Part 10.

i. Pursuant to 43 CFR 10.4(d), as soon as possible, but no later than 3 working days after receipt of written confirmation of notification of the inadvertent discovery, the Agency Official will:

a. Certify receipt of the notification [43 CFR 10.4(d)(1)(i)];

b. Take immediate steps to further secure and protect the human remains and associated objects [43 CFR 10.4(d)(1)(ii)];

c. Notify any lineal descendants or culturally affiliated Tribes by telephone with written confirmation [43 CFR 10.4(d)(1)(iii)];

d. Initiate consultation on the inadvertent discovery pursuant to 43 CFR 10.5 [43 CFR 10.4(d)(1)(iv)];

e. If any part of the discovery must be excavated or removed, follow the requirements and procedures outlined in 43 CFR 10.3(b) [43 CFR 10.4(d)(1)(v)]; and

f. Ensure that disposition of all inadvertently discovered human remains, funerary objects, sacred objects, or objects of cultural patrimony is carried out following 43 CFR 10.5 [43 CFR 10.4(d)(1)(vi)].

D. Once it has been determined the remains are not recent and subject to the authority of the County Coroner and are Native American, and if the identified human remains could be disturbed by the proposed work, the SDG&E, in consultation with the Forest Service (as lead Federal Agency) will re-design the proposed activity to the extent practicable and permitted by law to avoid any further disturbance.

E. Pursuant to 43 CFR 10.4(d)(2), the activity that resulted in the inadvertent discovery may resume 30 days after the Forest certifies receipt of the written confirmation of notification of inadvertent discovery, if the resumption of the activity is otherwise lawful. The activity may also resume, if otherwise lawful, at any time that a written, binding agreement is executed between the Federal agency and the affiliated Indian tribe(s) that adopt a plan for the treatment of the human remains, funerary objects, sacred objects, or objects of cultural patrimony following 43 CFR10.3 (b)(1).

F. If human remains are discovered on non-federal lands, the California Public Utilities Commission (CPUC) shall ensure that the human remains will be treated in accordance with California Health and Safety Code Section 7050.5 and any other applicable state law. No construction activities will be allowed within 100 feet of the discovery until a Notice to Proceed is provided by the CPUC.

9.0 RESOLVING OBJECTIONS

A. Should any Consulting Party to this Agreement object to any action proposed or carried out pursuant to this PA, the Forest shall notify all signatories and consult with the objecting Consulting Party for a period of time not to exceed 30 calendar days to resolve the objection. If the Forest determines that the objection cannot be resolved, the Forest shall forward all documentation relevant to the dispute to the Council. Within 30 calendar days after receipt of all pertinent documentation, the Council shall either:

i. Provide the Forest with recommendations, which the Forest shall take into account in reaching a final decision regarding the objection; or

ii. Notify the Forest that the Council will comment in accordance with the requirements of Section 106 of the NHPA, and proceed to comment. Any Council comment provided in response shall be taken into account by the Forest, pursuant to the requirements of Section 106 of the NHPA.

B. Should the Council not exercise one of the above options within 30 calendar days after receipt of all pertinent documentation, the Forest may assume the Council's concurrence in its proposed response to the objection.

C. The Forest shall take into account any Council recommendation or comment provided in accordance with this stipulation with reference only to the subject of the objection; the Forest's responsibility to carry out all actions under this Agreement that are not the subjects of the objection shall remain unchanged.

10.0 AMENDMENT

A. Any Signatory, Invited Signatory, or Concurring Party to this Agreement may propose amendments, whereupon all Signatories and Invited Signatories shall consult to consider such amendments pursuant to 36 CFR §800.6(c)(7) and §800.6(c)(8). This Agreement may be amended only upon written agreement of all Signatories and Invited Signatories.

11.0 TERMINATION

A. Only Signatories and Invited Signatories may terminate this Agreement. If this Agreement is not amended as provided for in Stipulation 12.0, or if the SHPO or Forest proposes termination of this Agreement for other reasons, the Signatory proposing termination shall notify the other Signatories and concurring parties in writing, explain the reasons for proposing termination, and consult for no more than 30 calendar days to seek alternatives to termination.

B. Should such consultation fail, the signatory proposing termination may terminate this Agreement by promptly notifying the other Signatories in writing.

C. Prior to work continuing on the Undertaking, the Forest must either execute a Memorandum of Agreement pursuant to 36 CFR 800.6 or Programmatic Agreement pursuant to 36 CFR 800.14(b), or request, take into account, and respond to the comments of the ACHP pursuant to 36 CFR 800.7. The Forest shall notify the Consulting Parties to this Agreement as to the course of action it will pursue.

D. Beginning with the date of termination, the Forest shall ensure that unless and until a new Agreement is executed for the Undertaking, any Undertaking activity initiated by SDG&E that could have an effect on historic properties is reviewed, in accordance with 36 CFR 800.

12.0 CONFIDENTIALITY OF RECORDS AND INFORMATION

A. The Signatories shall maintain the confidentiality of records and information pertaining to the location and nature of cultural resources, including historic properties about which

there are culturally sensitive issues, consistent with NHPA 304 and ARPA Section 9. The Forest may determine that certain records and files are appropriate to distribute to parties outside the agency, providing that such parties have personnel that meet the professional qualifications standards identified in *The Secretary of the Interior Standards and Guidelines for Archeology and Historic Preservation* (36 CFR Part 61), i.e., "qualified personnel" that can ensure the confidentiality of such records and files, particularly SDG&E and tribes who have participated in this Agreement.

13.0 DURATION OF THIS AGREEMENT

A. The duration of this Agreement is a 5 year period beginning on the date it has been exectured by the Signatories. The Signatories and Concurring Parties may consult to renew the terms of this Agreement. Renewal may include continuation of the Agreement as originally executed, as amended, or the Agreement may be terminated per the process described in Stipulation 11.0 of this Agreement.

14.0 EFFECTIVE DATE

A. This Agreement will take effect on the date that it has been fully executed by the Signatories. Execution and implementation of the terms of this Agreement by the Forest and the SHPO shall evidence that the Forest has taken into account the effects of the Undertaking on historic properties for the Undertaking and that the Forest has afforded the ACHP a reasonable opportunity to comment on the Undertaking and its effects on historic properties. The Signatories and Invited Signatories to this Agreement represent that they have the authority to sign for and bind the entities on behalf of whom they sign.

PROGRAMMATIC AGREEMENT
BETWEEN THE CLEVELAND NATIONAL FOREST
AND
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER
REGARDING SAN DIEGO GAS & ELECTRIC COMPANY'S
MASTER SPECIAL USE PERMIT AND
POWER LINE REPLACEMENT PROJECTS

SIGNATORIES

U.S.D.A. FOREST SERVICE, CLEVELAND NATIONAL FOREST

William Metz 02/10/16

William Metz Date

Title: Forest Supervisor, CNF

STATE OF CALIFORNIA, OFFICE OF HISTORIC PRESERVATION

11 Feb 2016

Julianne Polanco Date

Title: State Historic Preservation Officer

PROGRAMMATIC AGREEMENT
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INVITED SIGNATORIES:

SAN DIEGO GAS & ELECTRIC COMPANY (SDG&E)

2-11-16

Lee Schavrien — Date

Title: Chief Administrative Officer & Chief Environmental Officer

CALIFORNIA PUBLIC UTILITIES COMMISSION

for 2/17/2016

Edward Randolph — Date

Title: Director, Energy Division

PROGRAMMATIC AGREEMENT
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CONCURRING PARTIES

BUREAU OF LAND MANAGEMENT, South Coast Field Office

John Kalish Date 4/12/2016

Title: Field Manager, Palm Springs – South Coast Field Office

BUREAU OF INDIAN AFFAIRS, Pacific Region

Amy Dutschke Date

Title: Regional Director

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CONCURRING PARTIES

CALIFORNIA DEPARTMENT OF PARKS AND RECREATION, CUYAMACA RANCHO STATE PARK

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Kevin Best Date

Title: Montane Sector Superintendent

PROGRAMMATIC AGREEMENT
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CONCURRING PARTIES

BARONA BAND OF MISSION INDIANS

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Clifford LaChappa, Chairman Date

PROGRAMMATIC AGREEMENT
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CONCURRING PARTIES

CAMPO BAND OF MISSION INDIANS

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Ralph Goff, Chairman Date

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CONCURRING PARTIES

EWIIAAPAAYP BAND OF KUMEYAAY INDIANS

Robert Pinto Sr 3/4/16

Robert Pinto, Sr., Chairman Date

PROGRAMMATIC AGREEMENT
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CONCURRING PARTIES

IIPAY NATION OF SANTA YSABEL

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Virgil Perez, Chairman Date

PROGRAMMATIC AGREEMENT
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CONCURRING PARTIES

INAJA/COSMIT RESERVATION

Rebecca Osuna 3-1-16

Rebecca Osuna, Chairwoman Date

PROGRAMMATIC AGREEMENT
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CONCURRING PARTIES

JAMUL INDIAN VILLAGE

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Kenneth Meza, Chairman Date

PROGRAMMATIC AGREEMENT
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CONCURRING PARTIES

JUANEÑO BAND OF MISSION INDIANS, ACJACHEMEN NATION

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Teresa Romero, Chairwoman Date

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CONCURRING PARTIES

KWAAYMII LAGUNA BAND OF MISSION INDIANS

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Carmen Lucas Date

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CONCURRING PARTIES

LA JOLLA BAND OF LUISEÑO INDIANS

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Thomas Rodriguez, Chairman Date

PROGRAMMATIC AGREEMENT
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CONCURRING PARTIES

LA POSTA BAND OF MISSION INDIANS

Gwendolyn Parada, Chairwoman — Date 3/10/16

PROGRAMMATIC AGREEMENT
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CONCURRING PARTIES

LOS COYOTES BAND OF CAHUILLA AND CUPEÑO INDIANS

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Francine Kupsch, Chairwoman Date

PROGRAMMATIC AGREEMENT
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CONCURRING PARTIES

MANZANITA BAND OF MISSION INDIANS

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Leroy J. Elliott, Chairman Date

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MESA GRANDE BAND OF MISSION INDIANS

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Mark Romero, Chairman Date

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CONCURRING PARTIES

PALA BAND OF MISSION INDIANS

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Shasta Gaughen, Tribal Historic Preservation Officer Date

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CONCURRING PARTIES

PAUMA BAND OF LUISEÑO INDIANS

Temet Aguilar, Chairman — Date: 3/15/16

PROGRAMMATIC AGREEMENT
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PECHANGA BAND OF LUISEÑO INDIANS

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Mark Macarro, Chairman Date

PROGRAMMATIC AGREEMENT
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RAMONA BAND OF CAHUILLA INDIANS

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Manuel Hamilton, Chairman Date

PROGRAMMATIC AGREEMENT
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RINCON BAND OF LUISEÑO INDIANS

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Bo Mazzetti, Chairman Date

PROGRAMMATIC AGREEMENT
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SAN LUIS REY BAND OF LUISEÑO INDIANS

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Mel Vernon, Chairman Date

PROGRAMMATIC AGREEMENT
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SAN PASCUAL BAND OF MISSION INDIANS

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Allen E. Lawson, Jr., Chairman Date

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SOBOBA BAND OF LUISEÑO INDIANS

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Scott Cozart, Chairman Date

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CONCURRING PARTIES

SYCUAN BAND OF THE KUMEYAAY NATION

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Cody Martinez, Chairman Date

PROGRAMMATIC AGREEMENT
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CONCURRING PARTIES

VIEJAS BAND OF KUMEYAAY INDIANS

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Robert J. Welch, Jr., Chairman Date

Attachment E.2
SDG&E Historic Properties Management Plan (HPMP)

Historic Properties Management Plan/ Historic Properties Treatment Plan for the Cleveland National Forest Master Special Use Permit and Permit to Construct Powerline Replacement Projects

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EXECUTIVE SUMMARY

This Historic Properties Management Plan (HPMP) was prepared in support of the Cleveland National Forest (CNF, Forest) Master Special Use Permit (MSUP) and Permit to Construct (PTC) Powerline Replacement Projects (Project). Under this effort, San Diego Gas and Electric Company (SDG&E or "Company") is proposing to combine multiple individual permits and easements for SDG&E electric facilities within the CNF into one MSUP to be issued by the United States Forest Service (USFS). SDG&E is also proposing to replace five 69 kV powerlines and six 12 kV distribution circuits located within and outside the CNF. Replacement would primarily include fire-hardening (wood-to-steel replacement), relocation, removal, reconductoring, and undergrounding that requires authorization by the USFS under the MSUP, as well as a permit to construct from the California Public Utilities Commission (CPUC).

The HPMP presents the measures that will be implemented to address the avoidance, minimization of impacts and mitigation of possible impacts to cultural resources for any operations and maintenance activities proposed by SDG&E for existing electric infrastructure under the MSUP on land managed by the USFS. Ongoing operations and maintenance activities within the CNF boundary are included in this document. This HPMP may be used as a guiding document for activities on lands not managed by the USFS.

This HPMP also addresses the proposed fire hardening effort for eleven powerlines and distribution circuits both within and outside the CNF and for ongoing Operations and Maintenance (O&M) of those specific facilities on land managed by the USFS.

This document was prepared in accordance with the Final Environmental Impact Report/Environmental Impact Statement (FEIR/EIS) for the Project and the *Programmatic Agreement among the Cleveland National Forest, San Diego Gas & Electric Company, and the California State Historic Preservation Officer Regarding San Diego Gas & Electric Company's Master Special Use Permit and Powerline Replacement Projects Powerline* (PA) between USFS, State Historic Preservation Officer (SHPO), SDG&E, and CPUC.

GLOSSARY OF TERMS AND ABBREVIATIONS

Glossary

The following terms are defined for describing the historic preservation program in the HPMP. The terms defined in Stipulation 1 of the PA, the definitions below, and others as appropriate, will comprise the glossary of the HPMP.

"**Consultation**" is as defined at 36 CFR §800.16(f). Any discussion relative to the activities of SDG&E contained in the Undertaking, and pertaining to historic preservation, that takes place among Forest managers, Forest qualified personnel, SHPO, SDG&E qualified personnel, tribes, Native American organizations and individuals, and other members of the public is considered to be part of the consultation process for meeting the requirements of NHPA §106. Formal consultation on a Government-to-Government basis between the Forest, including appropriately designated managers of the Forest, and federally recognized tribes in compliance with EO 13007 may also be considered as consultation per 36 CFR §800.16(f) when it addresses historic properties.

"**Cultural Resource**" means any property or location that was created, modified, or used by people at least 50 years ago.

"**Historic Property**" refers to any property that has been determined eligible to the NRHP and includes any property that has not yet been evaluated for its eligibility to be nominated to the National Register of Historic Places (NRHP) according to the criteria at 36 CFR §60.4, but is being treated as eligible until evaluated, determined ineligible, and the determination of ineligibility is concurred on by the SHPO; and any property that has been determined eligible to the NRHP.

"**Historic Preservation**" or "Historic Preservation Program" means any activity carried out per this PA to identify, manage, plan for, or avoid potential adverse effects to historic properties resulting from SDG&E's performance of activities in the Undertaking authorized by the SUP in accordance with NHPA §106 or §110, as addressed in the HPMP.

"**Native American Organization**" refers to the Kumeyaay Cultural Repatriation Committee.

"**Qualified Personnel**" means an individual who meets the appropriate professional qualifications defined at 36 CFR Part 61 for such roles as Architectural Historian, Historic Architect, Archaeologist, etc.

"**Master Special Use Permit**" or "MSUP" means that Forest land specifically authorized by the Special Use Permit as described therein and located according to the permit map and Geographic Information System (GIS) data provided by SDG&E.

"**Distribution Line**," "**Distribution Facility**," and "**Distribution Line Access Road**" are as defined in the MSUP document as those electric lines and facilities under 50kV or roads serving such facilities. In general, these terms refer to existing electric distribution lines including towers and poles and/or other overhead support structures, wires and cables, foundations, footings, cross-arms and other fixtures, as well as roads used by SDG&E to gain access to these facilities for maintenance and operation purposes.

"**Powerline**," "**Powerline Facility**," and "**Powerline Line Access Road**" are as defined in the MSUP document as those electric lines and facilities over 50kV or roads serving such facilities. In general, these terms refer to existing electric transmission lines including towers and poles and/or other overhead support

structures, wires and cables, foundations, footings, cross-arms and other fixtures, as well as roads used by SDG&E to gain access to these facilities for maintenance and operation purposes.

"**Tribe**" refers to the following federally recognized California Indian tribes consulted per 36 CFR §800.2(c)(3), 36 CFR §800.2(d), 36 CFR §800.14(b)(2), and 36 CFR §800.14(f)) in association with the development of this PA: Barona Band of Mission Indians, Campo Band of Mission Indians, Ewiiaapaayp Band of Kumeyaay Indians, Iipay Nation of Santa Ysabel, Inaja/Cosmit Reservation, Jamul IndianVillage, Juaneño Band of Mission Indians Acjachemen Nation, Kwaaymii Laguna Band of Mission Indians, La Jolla Band of Luiseño Indians, La Posta Band of Mission Indians, LosCoyotes Band of Cahuilla and Cupeño Indians, Manzanita Band of Mission Indians, Mesa Grande Band of Mission Indians, Pala Band of Mission Indians, Pauma Band of Luiseño Indians, Pechanga Band of Luiseño Indians, Ramona Band of Cahuilla Indians, Rincon Band of Luiseño Indians, San Luis Rey Band of Luiseño Indians, San Pasqual Band of Mission Indians, Soboba Band of Luiseño Indians, Sycuan Band of the Kumeyaay Nation, and Viejas Band of Kumeyaay Indians. .

"**Undertaking**" refers to the granting of Master Special Use Permit by the Forest to SDG&E and the terms and conditions in its Operation and Maintenance (O&M) Plan. The HPMP is incorporated as part of the O&M Plan for the Master Special Use Permit.

Abbreviations

ADI	Area of Direct Impact
AND	Avoidable New Discovery
APE	Area of Potential Effect
APM	Applicant Proposed Measures
ARMR	Archaeological Resource Management Report
ARPA	Archaeological Resources Protection Act
ASM	ASM Affiliates
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CEQA	California Environmental Quality Act
CM	Corridor Maintenance
CNF/Forest	Cleveland National Forest
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
FEIR/FEIS	Final Environmental Impact Report / Final Environmental Impact Statement
HPM	Heritage Program Manager
HPMP	Historic Properties Management Plan
HPTP	Historic Properties Treatment Plan
LMRA	Laguna Mountain Recreational Area
MLD	Most Likely Descendant
MM	Mitigation Measure
MSUP	Master Special Use Permit
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
O&M	Operations and Maintenance
PA	Programmatic Agreement
PI	Principal Investigator
PM	Pole Maintenance

PTC	Permit to Construct
RM	Road Maintenance
SCIC	South Coastal Information Center
SDG&E	San Diego Gas and Electric Company
SHPO	State Historic Preservation Officer
UND	Unavoidable New Discovery
USFS	United States Forest Service
WS	Wood to Steel

1.0 GENERAL INFORMATION RELATED TO THE HPMP

1.1 INTRODUCTION

The HPMP was prepared as a requirement of a PA that allows SDG&E to continue the operation and maintenance of existing electric powerlines, distribution lines, ancillary facilities and access roads within the CNF boundaries, and to address potential adverse effects from the replacement of existing wood poles with steel poles as part of the CNF MSUP and PTC Powerline Replacement Projects (Project). The authorization on CNF lands will be implemented through a MSUP which will contain conditions. An inventory of cultural resources within the utility line area of potential effect (APE) was a condition of issuance of the MSUP and FEIR/FEIS. The inventories were conducted by ASM (Hector, Kyle, Pallette, James, and Briggs 2009; Schaefer and Williams 2013). The inventory reports describe the goals and methods that were used to conduct archaeological surveys to support the Project. Cultural resources work during the Project will be conducted in compliance of this HPMP and any work done on SDG&E facilities on USFS Property outside of the above listed lines will continue to be done under the Forest's Regional Programmatic Agreement or 36 CFR 800, as appropriate.

The inventory projects included pedestrian surveys around existing and proposed SDG&E facilities on and outside CNF, site recordation, preparation of a technical report, meetings and consultation, supporting CNF with Native American consultation, development of an HPMP, and supporting consultation with the SHPO as necessary. Pursuant to MM CUL-1c, a Historic Properties Treatment Plan (HPTP) for unavoidable adverse effects is included in this HPMP document.

When the easement renewal process began in 1990s, SDG&E contemplated replacing existing utility poles as part of ongoing operations and maintenance activities. The Forest required Phase I and II cultural resource studies with this objective in mind. Concern with fire-hardening the powerlines and distribution circuits in CNF led SDG&E to propose converting existing wood poles to steel poles in 2009. The Forest then required a MSUP to replace the existing easement agreements. Since powerlines are regulated by the CPUC, compliance with the California Environmental Quality Act (CEQA) was also necessary for the MSUP.

Phase I of this study was conducted by Mooney and Associates (Carrico, Cooley, Barrie, Craft, and Jordan, 2003), and consisted of development of the sampling strategy used for the inventory project. Site location information based on records searches was used by Mooney and Associates to create a digitized database of point information on site location. For the Phase II inventory, ASM then obtained the relevant site records from CNF and South Coastal Information Center (SCIC). This inventory included all distribution and powerline corridors within the Descanso and Palomar Ranger Districts. The Wood-to-Steel inventory conducted by ASM consisted of specific surveys for locations where existing wood poles will be removed or replaced by steel poles. Routine operations and maintenance on Trabuco were not part of this inventory.

The HPMP follows, in general, the outline provided in the PA. Pursuant to MM CUL-1a the APE inventory phase has already been completed for the SDG&E Proposed Project, and avoidance measures have been developed by SDG&E. Pursuant to MM CUL-1c, historic properties where unavoidable adverse effects may occur will be identified in the individual HPTP portions of this document (unwritten).

Cultural resources on public lands administered by the Forest, Bureau of Indian Affairs (BIA), and Bureau of Land Management (BLM) are managed according to the National Historic Preservation Act (NHPA, P.L. 89-665, as amended), Archaeological Resources Protection Act (ARPA, P.L. 96-95, as amended), National Environmental Policy Act (NEPA, P.L. 91-190, as amended), American Indian Religious Freedom Act (P.L. 95-341, as amended), and Native American Graves Protection and Repatriation Act (NAGPRA,

P.L. 101-601), applicable regulations (e.g., 36 CFR §60, §63, and §296; 43 CFR §10), and applicable Executive Orders (e.g., 13007, 13175, and 13287). Any cultural resources encountered on California State, County or private lands were reviewed following guidelines and regulations set forth in the CEQA (see PRC §5024.1, Title 14 CCR, Section 4852 and §15064.5(a) (3)) and/or Local Ordinances. These regulations have been considered during development of the HPMP.
The HPMP is intended to:

- Describe activities necessary for ongoing operations and maintenance activities within the MSUP area,
- Define impact/adverse effect avoidance measures for performing operations and maintenance activities,
- Summarize the results of the pedestrian survey and identification of potential historic properties including any Traditional Cultural Properties (TCP) in the area of potential effects (APE) of the selected MSUP alternative project to fire-harden utility components,
- Develop ways to avoid, minimize, or mitigate adverse effects on historic properties in a manner consistent with the Final Environmental Impact Report/Environmental Impact Statement (FEIR/EIS),
- Comply with the Mitigation Measures (MM) and Applicant Proposed Measures (APM) identified in the Mitigation Monitoring, Compliance, and Reporting Program (MMCRP) of the FEIR/FEIS developed jointly by the CPUC and USFS, specifically, MM CUL-1b and 1c, APM CUL-04 and -09,
- Address the assessment of effects and how adverse effects to historic properties will be resolved in consultation with SDG&E and other consulting parties,
- Describe a process for evaluation of cultural resources for eligibility for inclusion on the National Register of Historic Places (NRHP and/or CRHR),
- Develop a process for incorporating design changes to the powerline replacement projects to avoid or minimize adverse effects on historic properties,
- Determine the process for requiring on-site monitoring by cultural resource professionals and Native American participants,
- Establish the process for managing unanticipated discoveries,
- Determine the curation process for all recovered cultural resources as a result of the project,
- Confirm the process for managing discovery of human remains taking into account applicable state laws, local laws, and the Native American Graves Protection and Repatriation Act (NAGPRA; 25 U.S.C. § 3001) on federal lands, and
- Identify the requirements for Historic Properties Treatment Plans (HPTPs) for eligible historic properties that will be directly impacted and cannot be avoided through project design or avoidance.

1.2 PROJECT DESCRIPTION AND BACKGROUND

1.2.1 Project Description

SDG&E operates and maintains electric facilities and associated access roads on CNF land within the Descanso, Palomar, and Trabuco Ranger Districts (Figure 1). Since SDG&E held multiple license agreements with CNF to conduct these activities, SDG&E is in the process of obtaining a single MSUP to replace the multiple license agreements. The MSUP will allow SDG&E to conduct ongoing operations and maintenance activities on electric lines, facilities, and access roads on the CNF.

In addition to ongoing operations and maintenance activities under the MSUP, a fire-hardening project (collectively, "Project") is proposed to replace certain existing powerlines on and outside CNF lands. The CPUC will issue a PTC as a result of the completion of a joint EIR/EIS with CNF. This action is needed because: (1) the existing authorizations are expired, (2) the existing powerlines are needed to supply power to local communities, residents, and government-owned facilities located within and adjacent to the National Forest, and (3) improvements are needed to operate the system in a manner that minimizes the risk of powerline related wildfires. The Forest Service completed an Environmental Analysis (EA) for the proposal in March, 2009. Based on the risk of powerline related wildfires, the Forest Service determined that an EIS was necessary to support the agency action. A Final EIR/EIS was issued in June, 2015.

The proposed powerline replacement projects include three types of electric lines: overhead powerlines (TL#), overhead distribution lines (DL# or C#), and underground distribution lines. TLs include segments of 625, 626, 629, 682, 6923 and 6931, and DL/C include sections of 78, 79, 157, 440, 442 and 449. Powerlines are attached to power poles, carry 69 kilovolts, and generally have a 30-foot wide right-of-way (ROW). Most distribution lines are attached to power poles, they carry 12 kilovolts and generally have a 20-foot ROW. Underground distribution lines are buried, carry 12 kilovolts and generally have a 10-foot wide ROW. Exclusive-use roads include approximately 38 miles of roadways that are associated with the powerlines. These roads are typically 14 feet wide. The CPUC will issue a PTC as a result of the completion of a joint Environmental Impact Report/Environmental Impact Study (EIR/EIS) with CNF. Cultural resources work during the fire-hardening project will be conducted in compliance of this HPMP. This includes any typical O&M work conducted on a facility considered in the fire hardening project that will be built to final engineering standards for that alignment. Any work done on SDG&E facilities on USFS Property outside of the above listed lines and final engineering design standards will continue to be done under the Forest's Regional Programmatic Agreement or 36 CFR 800, as appropriate.

1.2.2 Geographic Setting and Master Special Use Permit Boundaries

As shown in Figure 1, the Project study area is located within the Trabuco, Palomar, and Descanso Ranger Districts of the CNF, Orange and San Diego Counties, California. The existing powerlines and distribution facilities proposed to be replaced are located within the central portion of San Diego County approximately 4.5 miles north of the U.S.–Mexico Border, 14 miles east of the City of El Cajon, in the vicinity of the unincorporated communities of Pauma Valley, Warner Springs, Santa Ysabel, Descanso, Pine Valley, and Campo. The proposed powerline replacement projects not only traverse the Palomar and Descanso Ranger Districts of the CNF, but due to the patchwork of land ownership in the project study area, also traverse public lands managed by the Bureau of Land Management (BLM); tribal lands on the La Jolla and Campo Indian reservations; Cuyamaca Rancho State Park lands; and private holdings within unincorporated San Diego County. Within the Trabuco District, activities will consist of routine operations and maintenance activities only.

As shown in Table 1, the MSUP would authorize approximately 100 miles of powerline and distribution lines, and approximately 34 miles of access roads on the CNF (Figure 1).

Table 1. SDG&E Electric Facilities to be included in the MSUP as part of the Proposed Project (Dudek 2013)

Alignment	Miles of Overhead Line	Miles of Underground Line	Total Miles of Circuit	Miles of Exclusive Use Access Roads
C67	0.0[1]	-	0.0	-
C73	6.0	0.0	6.1	-
C78*	1.7	-	1.7	0.0
C79*	6.2	-	6.2	-
C157*	2.5	-	2.5	0.3
C212	4.0	0.0	4.1	-
C214	1.3	-	1.3	-
C220	0.1	-	0.1	-
C236	-	0.0	0.0	-
C237	1.9	-	1.9	-
C240	0.5	-	0.5	-
C358	2.5	0.1	2.6	-
C440*	12.0	9.8	21.8	0.6
C441	4.9	0.3	5.2	-
C442*	10.6	-	10.6	3.0
C449*	2.7	1.5	4.2	0.4
C524	0.1	-	0.1	-
C970	-	0.1	0.1	-
C973	0.0	0.0	0.0	-
C1166	1.5	-	1.5	-
C1243	0.5	-	0.5	-
C1458	0.2	-	0.2	-
TL625*	6.5	-	6.5	11.0
TL626*	8.2	-	8.2	9.9
TL629*	9.6	-	9.6	6.9
TL637	0.4	-	0.4	-
TL682*	2.5	-	2.5	1.1
TL6923*	1.7	-	1.7	1.1
Glencliff Substation	-	-	-	-

Notes

* = proposed powerline replacement projects
[1] Values of 0.0 reflect very short segments (less than 250') of line that when rounded to a tenth of a mile round to zero.

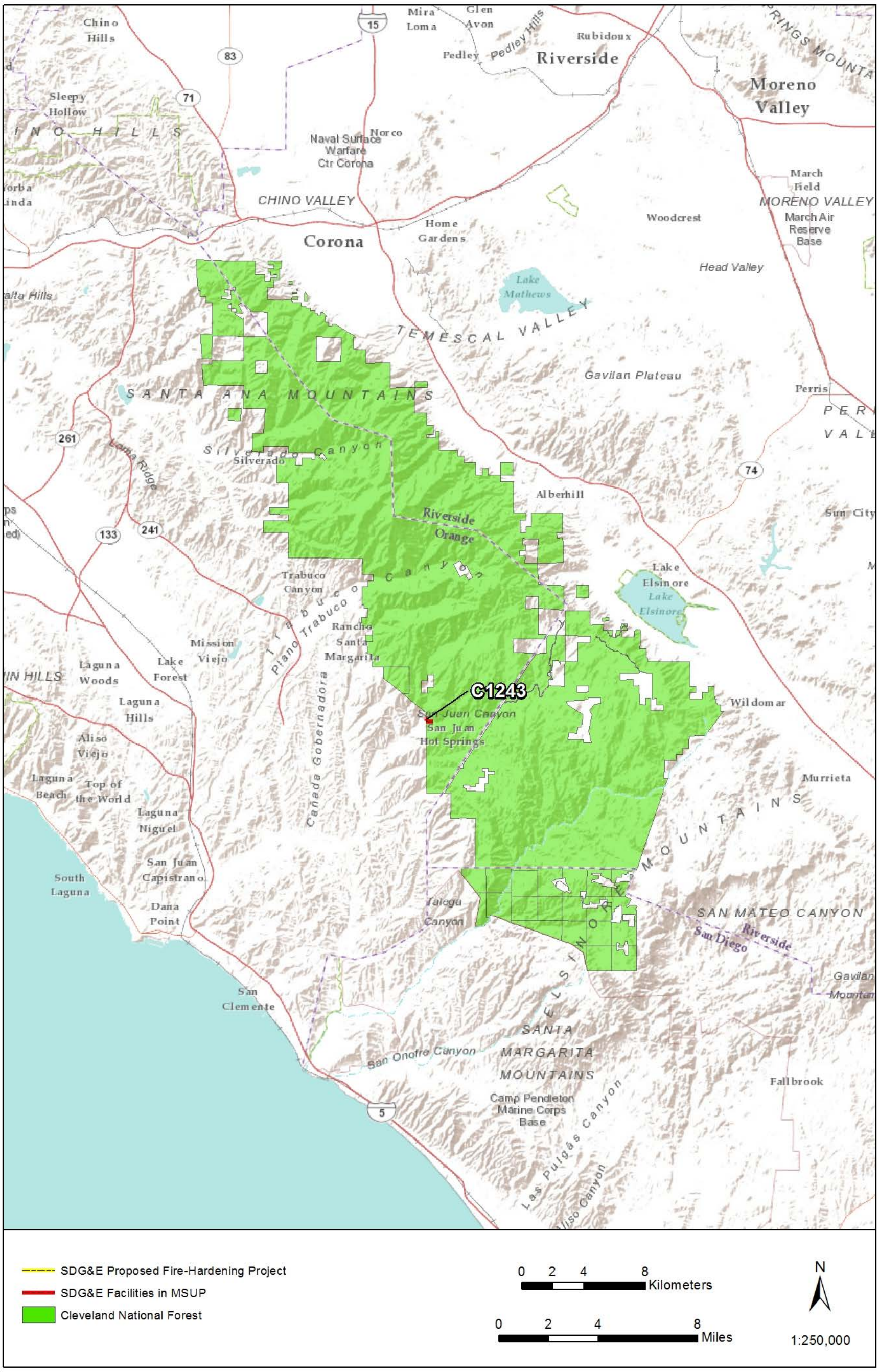


Figure 1. Trabuco District.

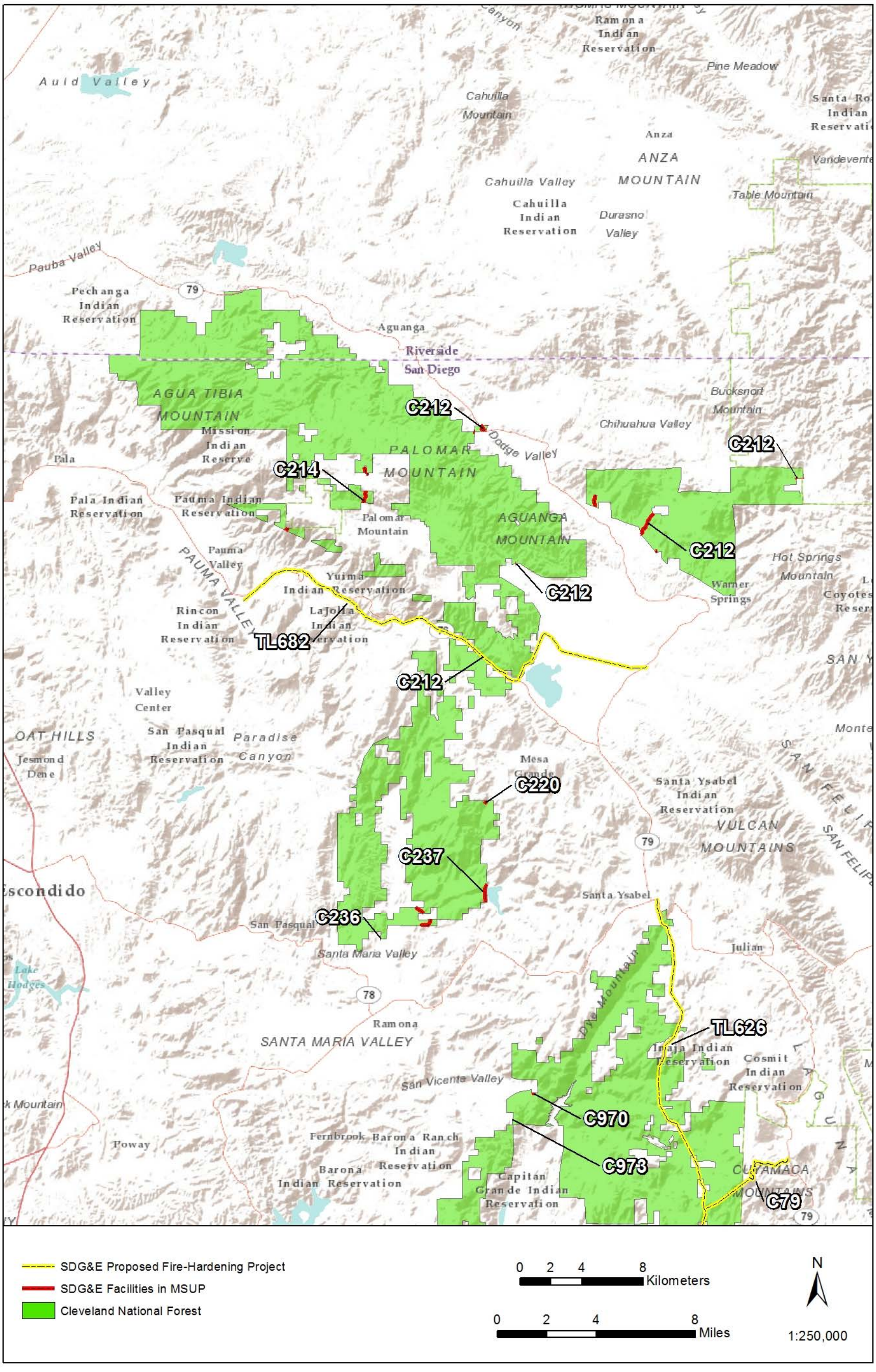


Figure 2. Palomar and Descanso Districts.

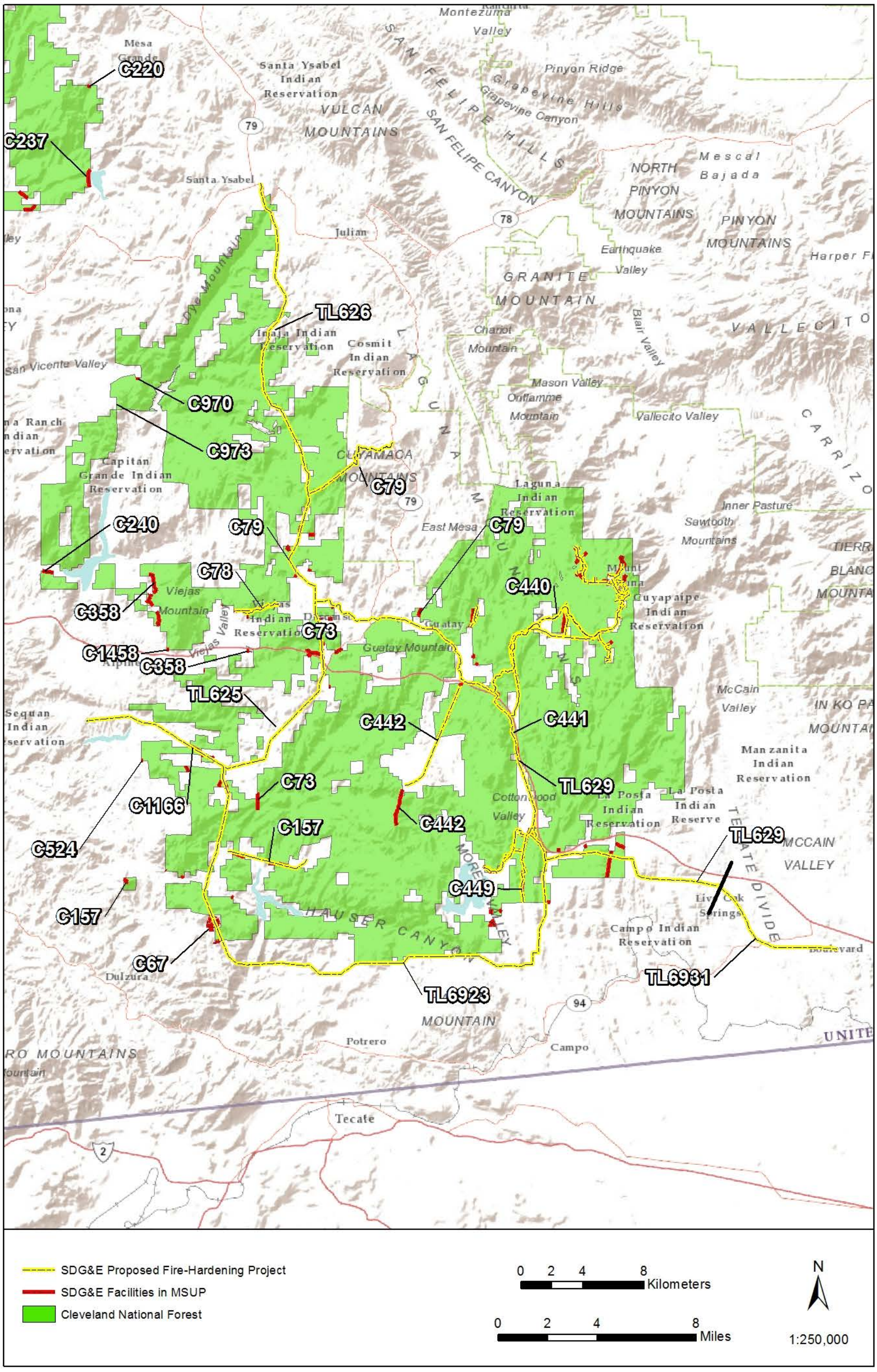


Figure 3. Descanso District.

1.3 OBJECTIVES AND RESPONSIBILITIES

1.3.1 Objectives of the HPMP

The Historic Properties Management Plan has two main objectives: to direct management of historic properties during routine utility operations and maintenance programs under the MSUP on CNF land (Section 2.0), and to address adverse effects from construction of the powerline replacement projects (Section 3.0). Following completion of the powerline replacement projects, all long-term work on CNF land will be conducted in consultation with the USFS and in accordance with the O&M Plan for SDG&E Electrical Powerline and Distribution Facilities Located on Federal Lands Administered by the USDA Forest Service-Cleveland National Forest (TBD) prepared by SDG&E and the Forest and to which the HPMP may be appended.

The HPMP addresses the elements defining the historic preservation program outlined in Attachment 1 of the PA. The HPMP has been written and organized in a manner so that sensitive information (e.g., archaeological site or traditional cultural property locations) regarding historic properties is kept confidential. The HPMP discusses the management of historic properties in a manner that can be summarized and provided for review and comment by the public. Per the stipulations of the PA, the treatment objectives presented in this HPMP address the following:

1) A process for survey and identification of potential historic properties including any Traditional Cultural Properties in the APE;
2) A process for evaluation of cultural resources for eligibility for inclusion on the NRHP, CRHR and/or Local Listing;
3) Address design changes to the Project to avoid adverse effects to historic properties;
4) Ways to avoid, minimize, or mitigate adverse effects on historic properties;
5) Conditions and stipulations set forth in the FEIS/FEIR for the Project to meet both CPUC and USFS requirements, specifically MM CUL-1b/1c, APM CUL-04 and -06;
6) A provision for curation of archaeological and historical items;
7) Support for the Forest program for interpretation of historic properties to the public and other public involvement in historic preservation;
8) Definition of the roles and responsibilities of the jurisdictional agencies and SDG&E in any long-term management of historic properties in the APE;
9) Preparation of a Historic Properties Treatment Plan; and
10) Provision of a list of the known cultural resources in the APE.

This management plan addresses various proposed methods to reduce adverse effects to these cultural resources including: minimization and avoidance through project redesign; the establishment of Environmentally Sensitive Areas (ESAs) that would be off-limits to all ground disturbing activities; and appropriate treatment for those resources that cannot be protected from direct impacts, and may require eligibility testing, and possibly, data recovery. Finally, this management plan defines the methods for curation of the archaeological materials recovered as a result of this project.

1.3.2 Roles and Responsibilities

SDG&E has developed this HPMP to provide a detailed historic preservation program to:

a) Inventory, evaluate, manage, and treat adverse effects to historic properties within the Project APE;

b) Consult and coordinate with government agencies, tribes, and the public;

c) Provide for curation of archaeological and historical items associated with the historic preservation program;

d) Support the Forest program for interpretation of historic properties to the public and other public involvement in historic preservation; and

e) Define the roles and responsibilities of the land management agencies and SDG&E in any long-term management of historic properties in the APE.

The USFS is the Lead Agency for Section 106 and the CPUC is the Lead Agency for CEQA. The USFS will apply all National Register Criteria at 36 CFR 63 and will make the final determination of eligibility and finding of effect, in consultation as appropriate with the signatories and concurring parties to the PA and local Tribes. In consultation with those parties and SHPO, the USFS will negotiate appropriate treatments or other actions to resolve adverse effects to historic properties. If there is no CEQA action, the CPUC has no involvement. For the powerline replacement projects, the USFS will be responsible for coordination with consulting parties to the PA and other jurisdictional land management agencies as appropriate and necessary.

The USFS will be responsible for consultation with the SHPO on the agency's eligibility determinations. Determinations of eligibility for archaeological sites will be based on a draft report of site testing to be prepared by SDG&E. The draft evaluation report is intended to provide sufficient detail to allow the USFS to evaluate the eligibility recommendations provided and concur with the findings. Prior to consultation with the SHPO on the eligibility of any cultural resource in the APE for inclusion in the NRHP, the USFS will also seek the views and comments, as appropriate, from the consulting parties to the PA on any such determination that the USFS may propose. The USFS will also consult with Indian Tribes irrespective of their decision to sign the Agreement as a concurring party and seek the views and comments of Tribal Organizations and individual tribal members regarding places to which they attach religious or cultural significance in order to ascertain the status of these places relative to NRHP, CRHR or Local Listing eligibility criteria. If any objections are made during this period, The Guidelines Stipulation 9.0 from the Project PA will be followed.

USFS will consult with SHPO only when the Project will result in a non-adverse effect where avoidance is not possible or an adverse effect to an historic property. The process for identification, evaluation and consultation as well as determinations of effect and mitigations for historic properties during planning efforts is outlined in Section 1.6.2. The process for resolving inadvertent effects and unanticipated discoveries during O&M procedures is outlined in section 2.2.2. The process for resolving inadvertent effects and unanticipated discoveries during construction activities is outlined in section 3.1.6.

Long-term management of resources on CNF land under the MSUP will be conducted in consultation with the USFS and in accordance with the O&M Plan for SDG&E Electrical Powerline and Distribution Facilities Located on Federal Lands Administered by the USDA Forest Service-Cleveland National Forest (TBD) prepared by SDG&E and the Forest and to which the HPMP will be appended. Where long-term operations and maintenance activities occur on non-CNF land, SDG&E will continue to consult with

jurisdictional land managers, as appropriate, in accordance with existing internal SDG&E policies and procedures.

1.3.3 Professional Qualifications

All historic preservation activities carried out pursuant to the PA shall be carried out by or under the direct supervision of a person or persons meeting at a minimum the Secretary of Interior's *Professional Qualifications Standards* for archeology or history, as appropriate (48 Federal Register 44739).]
The USFS and SDG&E shall implement any historic preservation activity subject to the Archaeological Resources Protection Act (ARPA) per regulations at 36 CFR Part 296, and 36 CFR §296.8(a)(1) pertaining to the professional qualifications of the ARPA permit applicant, and shall ensure that all work in the Undertaking authorized to SDG&E pursuant to this PA and HPMP regarding management of historic properties will be carried out, or conducted under, the supervision of individuals meeting the professional qualifications standards identified in *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (36 CFR Part 61), i.e., "qualified personnel", as follows:

- All work in the Undertaking authorized to SDG&E pursuant to the PA regarding historic buildings and structures will be carried out or conducted under the supervision of a person or persons meeting the professional qualifications for Historian, Architectural Historian, or Historic Architect, as defined at 36 CFR Part 61.
- All work in the Undertaking authorized to SDG&E pursuant to the PA regarding prehistoric and historic archaeological resources will be carried out or conducted under the supervision of a person or persons meeting the professional qualifications for Archeologist, as defined at 36 CFR Part 61. Professionally qualified cultural anthropologists or ethnographers, minimally meeting Office of Personnel Management standards at the journeyman GS-190-11 level, may be used to supplement information for traditional cultural historic properties.
- SDG&E will ensure that all appropriate personnel responsible for making decisions regarding the planning, construction, maintenance, preservation, or rehabilitation standards for the performance of work on historic properties potentially affected by SDG&E activities in the Undertaking as authorized by the MSUP receive annual training in the application of *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (36 CFR Part 68).

The USFS or SDG&E or any agent thereof may use the services of persons who do not meet the Secretary of the Interior's professional qualifications standards as defined under 36 CFR Part 61 as long as they are properly supervised by someone who does meet professional standards.

1.3.4 Curation

Under 36 CFR 79, the Forest is responsible for the long-term management and preservation of any collections made during the Project. SDG&E or its qualified agent shall be allowed to temporarily retain artifacts, items, records, and other material remains collected, compiled, or otherwise obtained in the process of historic preservation activities associated with the Undertaking and that originate on public lands provided that:

- Such items are kept at a facility that is secure from theft, fire water damage, or other loss as in a typical, limited access, secure business office storage environment;
- Such facility is approved by the Forest and the Forest is provided with a complete inventory of all artifacts, items, records, and other material remains temporarily retained by SDG&E;

- Such artifacts, items, records, and other material remains are clearly marked in a manner that allows for their ready identification and alerts any person handling the materials that they are not to be discarded;
- Collections will focus on diagnostic artifacts/elements or will directly support research questions developed in the evaluation phase or the specific site HPTP, otherwise curation on site is the preferred method;
- No "cultural items" as defined by the Native American Graves Protection and Repatriation Act (NAGPRA) are to be included among the materials retained by SDG&E (described below in Section 3.1.7);
- The artifacts, items, records, and other material remains will be released to a curation facility approved by the Forest in coordination with SDG&E as the repository for the artifacts, items, records and other material remains associated with the Undertaking within ninety (90) days of the date of receipt by SDG&E of notification by the Forest that such a repository has been designated by the Forest and that the Forest wishes the artifacts, items, records, and other material remains to be transferred to the designated curation facility;
- Initial processing and one year of associated curation expenses will be paid by SDG&E, after which financial responsibility for curatorial needs will revert to the Forest;
- SDG&E may at any time notify the Forest that it intends to return the artifacts, items, records, and other material remains to the Forest and SDG&E may return the artifacts, items, records and other material remains any time after notification is given to the Forest;
- With the exception of those artifacts, items, records, and other material remains that are the legitimate private property of SDG&E or other persons, the artifacts, items, records, and other material remains associated with the Undertaking and originating from lands under the administration of the Cleveland National Forest remain the property of the United States government;
- SDG&E or its agent will not be obligated to incur any special costs associated with the temporary curation of the artifacts, items, records, and other material remains either in the form of insurance against loss, theft, or damage by fire, water, or by any other cause; security or other protective devices; or for any other reason except as may be incurred voluntarily by SDG&E.

1.4 CULTURAL CONTEXT AND ASSOCIATED PROPERTY TYPES

Multiple jurisdictional boundaries including CNF, BLM, BIA, and DPR, are intersected by the Project. What follows is a general overview and context of these areas followed by specific discussion of each CNF District. The CNF includes the Palomar, Descanso, and Trabuco Districts. The Palomar District consists of Palomar Mountain. The Descanso District consists of the Cuyamaca and Laguna mountain ranges and foothills. The Trabuco District is located within the Santa Ana mountain range.

1.4.1 Natural Setting

The Project extends from Pauma Valley to Hwy. 79 near Warner Springs, then south from Santa Ysabel, along the Peninsular Ranges in coastal San Diego County to the Barrett Lake and Cameron Corners areas. Landforms within the region typically consist of marine terraces transitioning into rolling hills to the east, extending to the Peninsular Ranges. Sediments accumulated through stream, wind, and gravitational activities characterize recent geologic deposits. The region is characterized by a Mediterranean semiarid steppe climate, moderated by coastal proximity (Bowman 1973; Hines and Rivers 1991:4). Precipitation averages 270 mm per year and falls primarily in the winter (from December to April). A series of major plant communities are present within the region, including coastal sage scrub, freshwater marsh, riparian, grasslands, oaks, and chaparral (Munz 1974). A wide range of small mammals, birds, and reptiles are

indigenous faunal resources of the region. Some of the mammals that occur in the area include several species of mice and bats, desert cottontail, California ground squirrel, desert woodrat, bobcat, coyote, and mule deer, among others. Waterfowl, geese, and ducks are also found in the region. In prehistoric times, the area would have also supported a wide range of terrestrial resources, pronghorn, and black bear.

Palomar Mountain is actually a series of mountains or a mountain range located in the northeastern portion of San Diego County. It contains the headwaters of the San Luis Rey River, and faces the Anza-Borrego Desert to the east. Its steep sides rise dramatically from the coastal mesas of North County. Several major creeks cut through the ridges and slopes of the mountain, and wide valleys and meadows are located near the summit and on its eastern flanks.

Palomar Mountain is the wettest and coolest location in San Diego County. It receives between 30 to 70 inches of annual rainfall; 48 inches is the average amount of rain. The mountain has up to 40 inches of annual snowfall. The average temperature in July is 85°F, and the January average is 32°F. The mountain's highest point is 6,140 ft. above sea level.

The high slopes and canyons of Palomar Mountain are covered with Montane Coniferous Forest vegetation (Beauchamp 1986). The forest contains large trees with thick understories. Tree species that are present include Bigcone Douglas Fir (*Pseudotsuga macrocarpa*), Jeffrey Pine (*Pinus jeffreyi*), Black Oak (*Quercus kelloggii*), Canyon Live Oak (*Quercus chrysolepis*), and Coast Live Oak (*Quercus agrifolia*). Sparkman (1908:193-194) stated that the Luiseño thought that the acorn of the Black Oak was the most palatable, followed by the Coast Live Oak. The Canyon Live Oak acorn was palatable but hard to grind. The Black Oak and Canyon Live Oak are abundant at the higher elevations of Palomar, although groves of Coast Live Oak are present on the mountain.

At lower elevations of the mountain, Mixed and Chamise Chaparral vegetation covers the hillsides; there are also some areas of Montane Meadow Grassland. The meadows contained ethnobotanically important grasses such as Deergrass (*Muhlenbergia rigens*), as well as rushes (*Juncus* spp.). Patches of Deergrass still exist in some of the meadows.

Palomar Mountain is part of the Peninsular Range mountain system. These mountains, which extend from Riverside into Baja California, are composed of igneous and metamorphic rocks that formed together in a batholith (Walawender 2000). The batholith dates to the Mesozoic era (approximately 100 million years ago), when the western part of the U.S. was the location of extensive volcanic activity. The batholith contains a multitude of smaller volcanic formations, each with its own geological signature. Its most notable feature is the abundance of granitic rock outcrops, which provided the original occupants of the county, the California Indians, with materials for processing plant and animal products. Bedrock outcrops, containing mortars, basins, and slicks, are often found at prehistoric archaeological sites located within the Peninsular Range; these types of archaeological features are common at sites on Palomar Mountain.

The Cuyamaca and Laguna Mountains are also part of the Peninsular Range mountain system.
Cuyamaca Peak, at 6,512 feet, is the second highest mountain in San Diego County. Two other nearby peaks rival this elevation. The climate in the mountains is classified as "Mediterranean/Cool," and varies between hot and dry, to snow. The average annual precipitation at Cuyamaca Rancho State Park is approximately 37 inches, some of which falls as snow. The average summer high temperature is 85°F, and the average winter low temperature is 28°F. This broad range of temperatures and relatively high amount of precipitation has resulted in a rich habitat for plants and animals.

The Cuyamaca and Laguna Mountains are covered with Montane Coniferous Forest vegetation (Beauchamp 1986:6-7). The conifers and broadleaf trees present in this plant community include many species. Conifers consist of white fir, incense cedar, Coulter pine, Jeffrey pine, sugar pine, and ponderosa

pine. The broadleaf trees include white alder, Arizona ash, California sycamore, Fremont cottonwood, coast live oak, canyon live oak, Engelmann oak, California black oak, interior live oak, and red willow.

In areas not covered by a dense forest, shrub vegetation blankets slopes and ridges. Larger shrubs include chamise, Eastwood manzanita, Cuyamaca manzanita, Mexican manzanita, cupleaf mountain lilac, whitebark mountain lilac, Palmer mountain lilac, mountain mahogany, creek dogwood, Parish goldenbush, yerba santa, Parish burning bush, toyon, California barberry, laurel sumac, hollyleaf cherry, western choke cherry, scrub oak, coffeeberry, western azalea, white sage, and elderberry. Many of these grow in large concentrations, creating a nearly impenetrable thicket.

The smaller shrubs in the region's mountains include California buckwheat, Wright buckwheat, chaparral honeysuckle, basketbush, California rose, creeping sage, snowberry, and poison oak. There are also many perennial and annual flowering plants that are found only in the mountains, and are considered very sensitive and rare.

The Trabuco District includes a portion of the Santa Ana Mountains, a relatively short range of mountains (61 miles) along the coast of southern California. The highest point is Santiago Peak, which is almost 5,700 feet in elevation. Plant communities include coastal sage scrub, chapparal, riparian woodland, and coniferous forest – much the same as the Cuyamaca and Laguna Mountains to the south. However, unlike the mountains to the south, the Santa Ana Mountains contain large complexes of vernal pool habitat. The terrain is generally very steep and rugged.

1.4.2 Cultural Setting

1.4.2.1 Archaeology

Archaeological investigations in southern California have indicated that there was a diverse range of human occupation extending over the past 10,000-12,000 years, until the time of contact with European civilizations (Byrd and Raab 2007; Erlandson and Colten 1991; Jones 1991, 1992; Moratto 1984). Archaeologists have divided this time period into sequential cultural phases or periods, each distinguished by specific material culture and occupation patterns.

Malcolm Rogers (1929, 1945) established the basic cultural sequence for southern California, and subsequent scholars have generally refined it by subdividing cultures, combining cultures, or renaming the sequence. The most enduring local culture historical classifications are those generated by Rogers (1945) with a later synthetic treatment by Wallace (1955) that integrated San Diego County with other portions of the southern California coast.

This HPMP uses the terms Paleoindian, Archaic, and Late Prehistoric to structure an overview of San Diego County and southern Orange County prehistory. These terms refer to assemblages of artifact and site types, and do not imply that different groups of people lived in the region over time. Rather, the terms are archaeological constructs that provide a way to discuss and describe the cultural traits observed throughout prehistory. The discussion begins with a brief mention of Early Man, a controversial element of regional prehistory.

1.4.2.1.1 Early Man: Human Occupation Prior To 11,500 B.P.

San Diego has become a focus of the controversy related to the earliest occupation of the New World. The antiquity of human occupation in the New World has been the subject of considerable debate over the last few decades and a number of sites have been proposed as representing very early occupation of the Americas (Owen 1984; Taylor 1991). The most widely accepted archaeological model is that humans first entered North America between 15,000 and 12,000 B.P.; no sites are reliably dated prior to 15,000 B.P.

(e.g., Haynes 1969; Jelinek 1992; Johnson, Stafford, Ajie, and Morris 2002; Meltzer 1993). Several notable Early Man sites have been reported in San Diego County (e.g., Buchanan Canyon and Texas Street; see Gross [2004] for a summary of George Carter's local work), but these locations have problems with context and provenience. Many reported Early Man sites are surface scatters of "ancient" tools, or are cobble tools extracted from geological contexts. Radiocarbon dates that supported Early Man presence in the region have been corrected with improvements in technology, with the result that these dates are now proven to be much more recent (Bada 1985). The reported presence of Early Man in San Diego remains controversial. The oral history of many local tribal groups attests to their presence in San Diego since the beginning of time.

1.4.2.1.2 Paleoindian Period (11,500 - 8500 B.P.)

The antiquity of human occupation in the New World has been the subject of considerable debate over the last few decades. The currently accepted model is that humans first entered the western hemisphere between 12,000 and 15,000 years before present (B.P.). While there is no firm evidence of human occupation in coastal southern California prior to 12,000 B.P., dates as early as 23,000 B.P., and even 48,000 B.P., have been reported (Bada et al. 1974; Carter 1980; Rogers 1974), although these dates are not generally accepted (Taylor et al. 1985). Despite intense interest and a long history of research, no widely accepted evidence of human occupation of North America dating before 15,000 B.P. has emerged.

As in most of North America, the earliest recognized period of California prehistory is termed Paleo-Indian. In southern California, this period is usually considered to date from at least 10,000 B.P. until 8500 to 7200 B.P. (Moratto 1984; Warren et al. 2008), and is represented locally by what is known as the San Dieguito complex (Rogers 1966). San Dieguito assemblages are composed almost entirely of flaked stone tools, including scrapers, choppers, and large projectile points (Warren 1987; Warren et al. 2008). Until recently, the near absence of milling tools in San Dieguito sites was viewed as the major difference between Paleo-Indian economies and the lifeways which characterized the later Archaic period.

Based upon rather scant evidence from a small number of sites throughout San Diego County, it has been hypothesized that the people linked to the San Dieguito complex lived within a generalized hunter-gatherer society with band-level organization (Warren et al. 2008). This portrayal is essentially an extension to the inland and coastal areas of San Diego County of what has long been considered a continent-wide Paleo-Indian tradition. This immediate post-Pleistocene adaptation occurred within a climatic period characterized by somewhat cooler and moister conditions than exist presently (West et al. 2007). The range of possible economic adaptations of San Dieguito bands to this environment are poorly understood at present, but it is typically assumed that these groups followed lifeways similar to other Paleo-Indian groups in North America.

This interpretation of the San Dieguito complex as the local extension of a post-Clovis big game hunting tradition is based primarily on materials from the Harris Site (Ezell 1983, 1987; Warren 1966, 1967). An unusually high percentage of large bifaces in the Harris assemblage seems indicative of a retooling station, a pattern not found at any other purported San Dieguito sites. Still, there does appear to be some evidence that large biface technology was typical of the earliest occupations of San Diego County, and that this pattern is shared by other complexes in the greater Southwest. What is less clear is how large a role these objects played in the day-to-day subsistence activities of their creators.

1.4.2.1.3 Archaic Period (8500 - 1500 B.P.)

The Archaic (also referred to as the Early Milling Period) extends back at least 7,200 years, possibly to as early as 9000 B.P. (Rogers 1966; Warren et al. 2008). Archaic subsistence is generally considered to have differed from Paleo-Indian subsistence in two major ways. First, gathering activities were emphasized over hunting, with shellfish and seed collecting of particular importance. Second, milling technology, frequently

employing portable ground stone slabs, was developed. The shift from a mostly maritime-based subsistence focus to a terrestrial focus is traditionally seen as marking the transition from the Paleo-Indian to the Archaic period. In reality, the implications of this transition are poorly understood from both an economic and cultural standpoint (see Warren et al. 2008 for a broader review).

Early Archaic occupations in San Diego County are most apparent along the coast and the major drainage systems that extend inland from the coastal plains (Moratto 1984). Coastal Archaic sites are characterized by cobble tools, basin metates, manos, discoidals (disk-shaped grinding stones), a small number of Pinto- and Elko-series dart points, and flexed burials. Together these elements typify what is termed the La Jolla complex in San Diego County, which appears as the early coastal manifestation of a more diversified way of life.

For many years, the common model has included what D. L. True (1958) termed the Pauma complex, an archaeological construct based upon a number of inland Archaic period sites in northern San Diego County that appeared to exhibit assemblage attributes different from coastal Archaic sites. Pauma complex sites were typically located on small saddles and hills overlooking stream drainages, and were characterized by artifact scatters of basin and slab metates, manos, some scraper planes, debitage, and occasionally ground stone discoidals. Further analysis suggests that the Pauma complex is simply an inland counterpart to the coastal La Jolla complex (Cardenas and Van Wormer 1984; Gallegos 1987). Given that the distance between the coastal and inland environments is only a few dozen kilometers, and that sites attributed to each complex appear to be contemporaneous, it seems more parsimonious to consider the differences in materials as seasonal manifestations of a mobile residence strategy using both coastal and inland resources. When similar environmental variability exists within Archaic complexes in other regions, such sites are usually considered to represent different aspects of the annual positioning strategies of a single hunter-gatherer culture complex (Bayham and Morris 1986; Sayles 1983; Sayles and Antevs 1941).

In recent years, local archaeologists have questioned the traditional definition of the Paleo-Indian San Dieguito complex as consisting solely of flaked lithic tools and lacking milling technology. There is speculation that differences between artifact assemblages of “San Dieguito” and “La Jolla” sites may reflect functional differences rather than temporal or cultural variability (Bull 1987; Gallegos 1987; Wade 1986). Gallegos (1987) has proposed that the San Dieguito, La Jolla, and Pauma complexes are manifestations of the same culture, that is, different site types are the result of differences in site locations and resource exploitation (Gallegos 1987:30). This hypothesis, however, has been strongly challenged by Warren and colleagues (2008).

In short, our understanding of the interplay between human land use, social organization, and material culture for the first several millennia of San Diego prehistory is poorly developed, although some progress has been made. Recent data collection has accelerated in the areas of paleoenvironmental analysis, paleoethnobotany, faunal analysis, and lithic technology studies. More importantly, efforts are being made to re-examine the assumptions surrounding existing artifact typologies and climatic reconstructions that form the basis of the standard systematics. Specifically, during work at SDI-7074 for the East County Substation project (ECSP), five features, all presumed earth ovens, produced a cluster of dates within the Archaic period (Williams 2014). These features from SDI-7074 are among the oldest in the western United States and are representative of the very beginning of the proliferation of “hot rock cookery” practices that occurred throughout much of North America in the early Archaic (Thoms 2009). These features also bear a striking resemblance to similar features and deposits of the similar age from coastal San Diego, including use of milling slabs in oven construction. The technological/cultural implications, then, support the concept that San Dieguito, La Jolla and Pauma may all be manifestations of the same culture.

1.4.2.1.4 Late Prehistoric Period (1500 - 200 B.P.)

The onset of the Late Prehistoric period in southern California is generally considered to have occurred approximately 1,500 years ago (Moratto 1984; Rogers 1945; Warren et al. 1993). The timing of this period may vary within the region (potentially earlier in the east and later in the west). In general, the Late Prehistoric period is characterized by the use of small, pressure-flaked projectile points indicative of bow and arrow technology, the appearance of ceramics, the replacement of flexed inhumations with cremations, and an emphasis on inland plant food collection and processing (especially of acorns) (Meighan 1954; Rogers 1945; Warren 1964, 1968). Late Prehistoric village or base campsites are relatively large, and contain internal activity areas attesting to the complexity of behavior of site occupants (Hector 1984).

In his later overviews of San Diego prehistory, Malcolm Rogers (1945) hypothesized that Yuman-speaking people from the Colorado River region began migrating into southern California around 2,000 years ago. This hypothesis was based primarily on patterns of material culture in archaeological contexts and his reading of ethnolinguistics. This "Yuman invasion" is still commonly cited in the literature, but some later linguistic studies suggest that the movement may have actually been northward from Baja California (Laylander 2010). It is plausible that the migration occurred from both areas simultaneously.

Assemblages derived from Late Prehistoric sites in San Diego County differ in many ways from the Archaic tradition. The occurrence of small, pressure-flaked projectile points, the replacement of flexed inhumations with cremations, the introduction of ceramics, and an emphasis on inland plant food collection, processing, and storage (especially acorns) are only a few of the cultural patterns that were well established by the second millennium A.D. The centralized and seasonally permanent residential patterns that had begun to emerge during the Archaic period became well established in most areas. Inland semi-sedentary villages appeared along major watercourses in the foothills and in montane valleys where seasonal exploitation of acorns and pinyon nuts was common, resulting in permanent milling stations on bedrock outcrops. Mortars for acorn processing increased in frequency relative to seed-grinding basins.

The Late Prehistoric period is represented by the Cuyamaca complex in the southern portion of the county (True 1970) and reflects the material culture of the Yuman ancestors of the Kumeyaay (also known as Diegueño or Kamia).

According to True et al. (1974), the Cuyamaca complex, is differentiated from other regional material cultures by greater frequencies of side-notched points and flaked stone tools, ceramics, and milling stone implements, a wider range of ceramic forms (e.g.,. Hakataya figurines; Hedges 1973), a steatite industry, and cremations placed in ceramic vessels. Assigning cultural significance to these patterns should be done with caution, however, since it is obvious that seasonal camps in upland areas would reflect a different economic focus and would involve a slightly different set of trade relations than would be expected for populations focused on the Pacific Coast or Gulf of California. Thus a good deal of the variation in artifact form might be attributable to functional differences or point of origin. Gross and others (1989) have suggested that these differences may not serve as indicators of cultural affiliation, and some may be due to different levels of organization. In regard to site structure, we might also expect occupational spans to differ between coastal and inland camps given the shorter summers at higher elevations.

1.4.2.2 Ethnography

1.4.2.2.1 The Kumeyaay

The people living in the southern part of San Diego County at the time of Spanish contact were called the Diegueño, after the mission at San Diego. However, as Hedges (1975:80) pointed out, many of the people living in the region were not affiliated specifically with the mission. In general, the term Kumeyaay has come into common usage to identify the Yuman-speaking people living in the central and southern part of

the county. Luomala (1978) uses the terms Tipai and Ipai to refer to the southern and northern Kumeyaay, respectively. The dividing line between the Tipai and the Ipai runs approximately from Point Loma to Cuyamaca Peak and Julian. The name Kamia has been used by anthropologists to refer to the Yuman-speaking people living in Imperial Valley. This report uses the generally accepted term Kumeyaay to refer to the people who lived in the Descanso District of CNF.

The Kumeyaay people established a rich cultural heritage that is described in detail by Waterman (1910), Spier (1923), Hohenthal (2001), and others. The Kumeyaay were organized into large groups, each having base camps and an extensive territory exploited for specific resources. Based on ethnohistoric and ethnographic information, a large number of village sites have been identified throughout San Diego County. Many of these villages were located along the coast, near river mouths; the varied environments offered by the ocean and riparian areas attracted large numbers of people to these areas (although a study by Christenson [1992] indicates that maritime resources were not as large a part of the diet as previously believed). The Kwaaymii band established several large villages in the Laguna Mountains. Other named locations for this band are given in Spier (1923: 303).

Examples of baskets and pottery dating from the nineteenth and early twentieth centuries indicate a high level of artistic achievement and craftsmanship. Many different types of stone material were used for manufacturing tools, and exotic material types were procured from other parts of the region. The remains of structures that were built at village sites can be seen in the archaeological record as stone foundations and circles. Many traditional cultural areas were recognized by the Kumeyaay, and these locations continue to be considered sacred today.

In California, Spanish explorers first encountered coastal villages of Native Americans in 1769 with the establishment of Mission San Diego de Alcalá. The missions “recruited” coastal Native Americans to use as laborers and convert them to Catholicism. This had a dramatic effect on traditional cultural practices. Missionization, along with the introduction of European diseases, greatly reduced the Tipai population. Most villagers, however, continued to maintain many of their aboriginal customs while adopting the agricultural and animal husbandry practices learned from Spaniards.

By the early 1820s, California came under Mexico’s rule, and in 1834 the missions were secularized. This resulted in a political imbalance and a series of Native American uprisings against the Mexican rancheros. Many of the Kumeyaay left the missions and ranchos and returned to their original village settlements (Cuero 1970). When California became a sovereign state in 1850, the coastal Indians were heavily recruited as laborers, and experienced even harsher treatment. Conflicts between Native Americans and encroaching Anglos finally led to the establishment of reservations for some villages. Other Mission groups were displaced from their homes, moving to nearby towns or ranches. The reservation system interrupted the social organization and settlement patterns, yet many aspects of the original culture still persist today including certain rituals and religious practices, along with traditional games, songs, and dances.

The diet of the Kumeyaay included both plant and animal foods. There was considerable seasonality in the relative importance of plant versus animal food, and also the types of plant and animal foods. Nutritionally, the plant foods were high in fat, carbohydrates, and protein, and thus provided a high-energy diet. Some of the plants exploited for food included acorns, annual grass seeds, yucca, manzanita, sage, sunflowers, lemonade berry, chia, and various wild greens and fruits. All of these plants are available were only seasonally available; none were available year-round. For example, elderberries are available during July and August, chia is available mainly in June, acorns in the fall only, and many grasses are summer and fall resources. Of course, if these resources were stored, they could be consumed throughout the year.

Given the general ethnohistoric accounts of the Kumeyaay, groups residing in the CNF could have utilized several ecological niches varying by altitude. During early and mid-summer, subsistence activities could

have focused on staple seed-bearing plants. Grasses would have been available in the valley and low hills, and open upland settings. Important plant resources such as elderberries, chia, manzanita, and sage were collected extensively during the summer months, while settlements may have focused on acorn harvests during the fall and winter months. Animal exploitation may have been most extensive during the months when plant resources were meager, and supplementary plant foods including yucca and cactus were also exploited seasonally as needed.

The Kumeyaay treasure their culture and their way of life. Even after roads and settlements had been built on their tribal lands, the Kumeyaay of San Diego County continue to gather basketry materials and acorns, hold ceremonies, and engage in traditional ways. They are described as "passionately devoted to the customs of their fathers" (Kroeber 1970:711). The Kumeyaay remain in the mountains of San Diego, decades after the coastal population had been removed to missions or ranches.

1.4.2.2.2 The Payomkowishum

Palomar Mountain and the southern portion of the Trabuco Ranger District are within the ethnohistoric Native American Payomkowishum (Luiseño) cultural group, according to Kroeber's study (1970:636; see also Rivers 1993). This group is a Shoshonean speaking population that has inhabited what are now northern San Diego, southern Orange, and southeastern Riverside counties through the Ethnohistoric period into the twenty-first century. They are linguistically and culturally related to the Gabrielino and the Cahuilla, and represent the descendants of local Late Prehistoric populations. They are generally considered to have migrated into the area from the western Great Basin possibly displacing the prehistoric ancestors of the Yuman speaking Kumeyaay (Ipai-Tipai) that during ethnohistoric times lived directly to the south.

The Mission of San Juan Capistrano, which initially had jurisdiction over the northern part of San Diego County, was subsequently established in 1776. Later, Mission San Luis Rey de Francia was founded in 1798. Native Americans were inducted into the mission system as laborers and religious converts. This had a dramatic effect on traditional cultural practices. Inland Payomkowishum groups were not as heavily impacted by Spanish influence until 1816, when an outpost of the mission was established 20 miles further inland at Pala (Sparkman 1908). At the time of contact, Payomkowishum population may have ranged from 5,000 to as many as 10,000 individuals. To the south, Kumeyaay population was at the same level or probably somewhat higher. Missionization, along with the introduction of European diseases, greatly reduced their populations. Most villagers, however, continued to maintain many of their aboriginal customs while adopting the agricultural and animal husbandry practices learned from Spaniards.

Territorial distribution of ethnohistoric groups is of critical importance in reconstructing adaptations and ethnohistoric modeling for prehistoric interpretation. The Shoshonean inhabitants of northern San Diego County were called Luiseño by Franciscan friars. They also named the San Luis Rey River and established the San Luis Rey Mission in the heart of Payomkowishum territory. Payomkowishum territory encompassed an area from roughly Agua Hedionda on the coast, east to Lake Henshaw, north into Riverside and Orange Counties, and west through San Juan Capistrano to the coast (Bean and Shipek 1978; Kroeber 1970). The Payomkowishum shared boundaries with the Tongva (Gabrielino) and Acjachemen (Juaneño) to the west and northwest, the Cahuilla from the deserts to the east, the Cupa (Cupeño) to the southeast, and the Kumeyaay to the south. All but the Kumeyaay (Ipai or Northern Diegueño) are linguistically similar to the Payomkowishum, belonging to the Takic subfamily of Uto-Aztecan (Bean and Shipek 1978).

The diet of the Payomkowishum included both plant and animal foods. There was considerable seasonality in the relative importance of plant versus animal food, and also the types of plant and animal foods. Nutritionally, the plant foods were high in fat, carbohydrates, and protein, and thus provided a high-energy diet. Some of the plants exploited for food included acorns, annual grass seeds, yucca, manzanita, sage, sunflowers, lemonade berry, chia, and various wild greens and fruits. None of these plants are available throughout the year; instead they were only seasonally available. For example, elderberries are available

during July and August, chia is available mainly in June, acorns in the fall only, and many grasses are summer and fall resources. However, if these resources were stored, they could be consumed throughout the year.

There are many Payomkowishum places on Palomar. Paauw means "mountain." The highest peak on Palomar is called Wikyo. There are many named ethnographic villages, but few have been identified archaeologically. For example, the Pala Indians had camps during acorn gathering season. The Pauma Indians established summer camps on Palomar. The Cuca and La Jolla Indians also camped on Palomar. True, Meighan, and Crew (1974) matched several named camps or villages with archaeological sites, based on conversations with tribal members.

The settlement pattern for Palomar Mountain reflects the general pattern of occupation and resource use of the Payomkowishum. Sparkman (1908:190) stated that each Payomkowishum band had a settlement in the San Luis Rey River valley, and one on Palomar for acorn gathering. Oxendine's (1983:46-50) analysis of the Luiseño settlement pattern consisted of group and individual ownership of resource areas. A village population might own or claim a large territory. Within that territory, there were several settlements, and several additional resource exploitation areas, owned by the group as a whole, by families, or by individuals. Extended families may have established both summer and winter campsites; True and Waugh (1982:34) believed that the same families reoccupied these over many years, creating a "formal" system of seasonal transhumance. Which of these types of settlement should be called a village? The traditional term "rancheria" more properly refers to a permanent territory or group settlement area that could include villages and seasonal camps, as well as claimed resource exploitation areas. Oxendine (1983:50) considered the village to be the largest occupation area within the territory; population size varied greatly from one village to the next. The average appeared to be 60. Within that village site, each family had an area for acorn processing, and each woman had her own grinding spaces. Oxendine (1983:53) suggested that the patterning of bedrock milling features could reflect the pattern of house construction within a village. Extended families created small clusters of residences within a larger settlement.

1.4.2.3 History

European contact with coastal southern California began as early as 1542, with the voyage of Juan Rodríguez Cabrillo. However, intensive interactions and contacts with interior areas only came after the establishment of the Spanish presidio and mission of San Diego in 1769. During the Spanish period, exploratory probes into eastern San Diego County were made by Pedro Fagés and others, and the southern immigrant trail came into use by colonists from Sonora. Thus, the mission culture may have begun to impact Aboriginal culture within the present APE.

With the achievement of Mexico's independence from Spain in 1821, California's administrators began to shift their focus away from the Franciscan mission system and toward Hispanic lay settlement of the province. Avenues for foreign trade were opened, and private land grants became more numerous and extended farther inland from the coast.

During the Mexican-American War of 1846-1848, California was occupied and subsequently annexed by the United States. Land ownership was complicated by this transition. The Treaty of Guadalupe-Hidalgo, signed in February 1848, obligated the U.S. government to recognize legitimate land claims in Alta California. While Mexicans initially made up the majority of the population, the Gold Rush after 1849 stimulated large-scale immigration into the region. With large land holdings and a strong cattle industry, many "gente de razon" or upper class nevertheless found themselves overextended when the northern California miners' demand for meat dwindled. In order to pay their taxes and bills, some were forced to offer up their lands at public auction (Garcia 1975:22). Many small farmers had difficulty maneuvering through the process and acquiring land (Garcia 1975:16). Settlers increasingly squatted on land that

belonged to Mexicans, citing their preemption rights, which was the tradition that squatters had the first opportunity to buy the unimproved, unclaimed land for a fair price before auction (Garcia 1975:22). Squatters increasingly challenged the validity of Spanish-Mexican claims through the Board of Land Commissioners created by the California Land Claim Act of 1851 (Garcia 1975:22-23). Most Californios did not retain their original land holdings by 1860, including Santiago Arguello, who was granted the former Mission San Diego land in 1846 and eventually lost $24,000 in property (Garcia 1975:24).

By 1860, most of the land in San Diego was unimproved farmland that included ranches (Garcia 1975:15). Settlement of the area primarily occurred through homesteading authorized by the Homestead Act during the Civil War by Abraham Lincoln on May 20, 1862. The Act offered 160 acres to settlers for a nominal filing fee in return for five years of residency and cultivation. At the end of five years, a settler would receive a land patent if the terms were met and the examiner was satisfied with the results (Robinson 1948:168-169). Another option for land settlement was the Timber Culture Act, passed on March 13, 1873. This act required a 10-year cultivation period of healthy trees, a requirement that was later amended to reduce the necessary time and acreage. Some speculators and ranchers used this law as a way to obtain land for purposes other than what the patent stated. In the 1870s and 1880s, small farming communities were quickly established throughout San Diego County as settlers took up homestead claims on government land or small holdings purchased from real estate developers.

The transcontinental railroad reached southern California in November 1885, resulting in an unprecedented real estate boom for the city and county of San Diego. Settlers poured into San Diego, lured by real estate promotions offering a salubrious climate, cheap land, and the potential to realize great profits in agriculture and real estate. The population of San Diego increased by 700 percent from a total population of 5,000 in 1885 to 40,000 in 1889 (Hector, Ni Ghabhláin, Becker, and Moslak 2004:18). Population continued to expand, irregularly but persistently, during the century that followed, approaching 2,000,000 by the year 2000. However, most of the growth was concentrated in the coastal areas and adjacent inland valleys.

A variety of themes characterized the history of the APE and its vicinity during the twentieth century (Pryde 2004). Road and rail transportation routes were created or improved to link urban San Diego with regions of the country farther east. Limited amounts of development for farming and grazing occurred in the inland valleys. Mining in the Peninsular Ranges was small to large scale and of varying economic importance. Substantial areas were set aside for resource protection or recreational use, as portions of Cleveland National Forest and Cuyamaca Rancho State Park. Large blocks of land in the Peninsular Ranges were given wilderness designation.

1.4.2.3.1 Trabuco (Santa Ana Mountains)

The Cleveland National Forest was created on July 1, 1908, when the Trabuco Canyon National Reserve was joined with the San Jacinto National Reserve; it is named after president Grover Cleveland. The Reserves were established in 1891 through the Forest Reserve Act. Historic sites consist of mining settlements and locations made famous as outlaw hideouts. The mountains were named by the Gaspar de Portola expedition, who camped nearby on Saint Ann's Day, July 26, 1769.

1.4.2.3.2 Palomar

The name Palomar Mountain means "place of the pigeon" in Spanish, and the mountain was referred to as Sierra del Palomar as early as 1840 (Stein 1978:96; Wood 1937:34). The Spanish obtained timber for Mission San Luis Rey and other structures from the mountain (Engelhardt 1921:53).

The mountain was called Smith Mountain for many years; the name appeared on county maps until the turn of the twentieth century. Joseph Smith was a prominent citizen who homesteaded on the mountain. He was a member of the County Board of Supervisors, and worked to support the mail road through the desert

(Wood 1937:47). He was murdered in the 1860s. The name Palomar was reestablished by the USGS in 1901 in response to a local petition.

Among the early farmers and ranchers who lived on Palomar was Nathan Harrison, the first permanent African-American resident of San Diego County. Usually referred to as Nate, he was a notable resident of the mountain. Sometime between 1848 and 1857, Harrison built a cabin halfway up the west slope of Palomar Mountain. Wisely, he did not claim the land legally until after the repeal of California's anti-black homestead law provisions. He worked on several of the farms and ranches in the region, because his own property was too rugged to farm. The road going up the west side of Palomar Mountain to his cabin is memorialized as Nate Harrison Grade. He died in 1920.

During the late 1800s and early 1900s, Palomar was a popular summer resort. Located close to both Los Angeles and San Diego, it featured seasonal hotels and a tent city that grew each summer in the Doane Valley. Stages brought visitors up the steep mountain roads to visit. Birch Hill was divided into camp sites in 1920 (Wood 1937:91).

The isolation of Palomar ended in the 1930s when the California Institute of Technology (Caltech) began a search for the ideal location for a new observatory. Mount Wilson was the home of large telescopes used by astronomers in southern California, but with the increased light pollution from a rapidly urbanizing Los Angeles, it was no longer an ideal site. Between 1930 and 1934, in affiliation with Caltech, George Hale searched for less populated areas for a new 200-in. telescope. Many sites were considered, including nearby Volcan Mountain, but the winner was a site at 5,600 ft. in elevation on Palomar Mountain. Close enough to Caltech for convenience, Hale bought 160 acres of land from the local ranchers and from the U.S. Forest Service.

Then, the road up to the mountain had to be improved to accommodate the large trucks that would carry the pieces of the telescope. In 1936, while roadwork was underway, water and electricity were installed. Residences were built for staff, and other workers lived on a nearby cattle ranch.

The dome was completed in less than two years. This required a substantial effort, since the telescope piers are anchored to the bedrock 22 ft. below, while the dome supports extend approximately 7 ft. into the granite.

On November 12, 1947, the 200-in. mirror was transported from Caltech in Pasadena to Palomar Mountain. The 40-ton cargo required three diesel tractors to push it up the mountain; the trip of 125 miles took 32 hours, with an early storm complicating the trip. Since then, Palomar Observatory has become a major scientific institution, as well as a popular local landmark and tourist destination. Trails and recreation facilities provided by the U.S. Forest Service, California State Parks, and San Diego County Parks and Recreation offer visitors an opportunity to experience Palomar Mountain and its history.

1.4.2.3.3 Descanso (Cuyamaca and Laguna Mountains)

In October 29, 1772, Colonel, at that time Captain, Pedro Fages passed through Cuyamaca searching for army deserters. He met with natives from three villages: Cuyamaca, Mitaragui, and Jamatayune. This event is marked by a plaque near the edge of Sunrise Highway near its intersection with State Route 79. Fages wrote of the mountain tribal groups as "… among those discovered is the most numerous, is also the most restless, stubborn, haughty, warlike and hostile towards us. Absolutely opposed to all rational subjections and full of the spirit of independence…" (Rensch 1950). Fages returned to the area in 1782.

After that, it was many years before the mountains again had the attention of non-Native settlers. It was the discovery of gold in Cuyamaca in 1870 that triggered a massive influx of people. Although this local gold

rush was brief, it resulted in the establishment of towns and settlements. The Julian and Banner mining districts contained a series of gold mines which were established between 1870 and 1880, although the majority were played out by the mid-1870s (Stewart 1958). At this time, stagecoach service was established between Julian and Ramona (LeMenager 2001:97).

Banner was settled in the early 1870s, named after a mining claim that used an American flag as its emblem (Stewart 1958:22). Initially, equipment and supplies were lowered from Julian to Banner by using a sled tied to a rope (LeMenager 2001:116). At that time, the population of Banner was growing and a road was built to improve access -- the precursor of State Route 78 down Banner Grade. Later, after the Relief for the Mission Indians Act in 1891, the Cuyapaipe Band of Mission Indians and the Laguna Band of Mission Indians reservations were established in the area as well.

Cuyamaca City was a major settlement near Julian that is now an archaeological site. This company town was established around the Stonewall Mine and prospered into the early twentieth century. The city and mine were taken down when Ralph Dyer bought the property in 1923 (LeMenager 2001:122). The town of Julian was left to dominate the Cuyamaca and Laguna Mountains as the major center of population. With improved road access and the growing population of San Diego County, people began to settle the back country. In the 1930s, there was a small revival in gold mining activities in the Julian area (LeMenager 2001:82). The second gold rush during the Depression created renewed interest in the region; it was this second gold rush that may be associated with small historic sites found along State Routes 78 and 79.

Permanent non-Indian settlers who grazed cattle and sheep entered the Laguna Mountains in the 1870s (Graham 1981:159-160); their numbers were very small into the early 1900s. In 1908, Cleveland National Forest was created, with the present boundaries established in 1915 (Graham 1981:167). Soon afterwards, the public demand for recreation resulted in the establishment of summer home sites. Additional facilities were added. Today, the Laguna Mountains are enjoyed by San Diegans as a cool green refuge in the summer, and for snow play in the winter. Vacation cabins on land leased from the Forest include many historic properties dating to the 1920s (Newland 2008).

1.5 CULTURAL RESOURCES STUDIES WITHIN THE APE OF THE PROJECT

1.5.1 Previous Studies within the Forest

The Forest Service database includes more than 2,000 cultural resource numbers, which consist of sites, isolates, historic properties, non-sites, areas important in Native American oral tradition, and basketry gathering areas. The various resources are located on, or near, National Forest system lands. At least 752 surveys have been completed for all three CNF districts (384 in Descanso, 156 in Palomar, and 212 in Trabuco). The earliest survey reports date to the 1970s (1970 through 1979), during which 49 surveys were conducted in all three districts (Trabuco, Palomar, and Descanso). During the 1980s, 357 surveys were conducted, and during the 1990s, 221 surveys were conducted in the three districts. Currently, there are less than 10 surveys listed for the years subsequent to 1999. This most recent trend clearly reflects a change in resource management as indicated by a reduction in the number of surveys completed, report completion, and/or the entering of data into the database. Because most of the surveys were conducted more than 10 years ago and were performed in an uneven fashion, these earlier surveys cannot generally be used for federal compliance purposes. Therefore, SDG&E did not use the surveys older than 5 years in lieu of conducting surveys for the current APE.

Portions of CNF have been surveyed by Forest personnel and consultants (Fulmer, Almstead, Noah, and Oetting 1979; Graham 1981), both for specific projects and as part of Section 110 efforts. Administrative structures and recreation structures were the subject of a survey and evaluation, resulting in eligibility

recommendations for many of the cabins on Laguna Mountain (Newland 1995a, 1995b). The Forest maintains detailed records on previous cultural resource inventories and results. Measures such as fencing and capping have been used in the Forest to limit public access to sensitive resources, and to protect the resources from inadvertent damage.

The effort to inventory cultural resources associated with utility lines operated and maintained by SDG&E has been in process for over a decade. The Phase I overview prepared for the Cleveland National Forest consisted of a study to compile, update, and synthesize the information and map data resulting from records and literature searches (Carrico et al. 2003). A cultural context for interpretation and evaluation was developed. Sites were classified by type: residential, multi-use temporary camps, special use, ceremonial, rock art, trails, isolates, and historic resources. Research questions related to each site type were generated in the overview. Some ambiguity exists in regard to these resources with variations in definition resulting in inconsistent categorization of site types and/or of site versus isolate status. Among federal and state agencies, there is no set standard or formula for the categorization of prehistoric and historic resources. For purposes of general consistency in the area, the taxonomy used in this document to categorize the sites for the CNF was adapted and refined from a site typology used by Carrico, Cooley, Barrie, Craft, and Jordan (1982:5-6) to perform a similar function in the nearby San Bernardino National Forest. Carrico et al. developed this typology based on typologies originally developed by Bettinger (1982). With minimal modification, this basic typology works well to categorize the functional settlement pattern of the prehistoric hunter-gatherers of these adjacent southern California mountain range areas. As with all models, this typology may or may not actually define the prehistoric lifestyle or settlement system.

The Forest Service Archaeological Reconnaissance Report (ARR) form provides six categories of cultural resource survey coverage methodology: complete, general, cursory, intuitive controlled, intuitive uncontrolled, and controlled sample. No precise definitions could be found, however, to distinguish between these survey approaches. Consequently, of the 129,236.61 acres and 120.84 linear miles previously surveyed, it is unclear in some instances what the level of coverage may have been. Therefore, surveys previously conducted on CNF lands were divided into either complete or other, with other encompassing the remaining five ARR headings.

Complete surveys are defined as intensive and systematic with the intention being to find all cultural resources within the overall boundary of the area covered. Other would include surveys conducted using methods that result in areas within the overall coverage boundary not being examined, leaving the possibility that undiscovered resources could be present in the unsurveyed areas. Examples of the latter survey type would be: a “sample” survey that may have been statistically generated; a “reconnaissance” survey, in which areas within an overall area are selectively or intuitively examined (e.g., surveying only along all drainages and/or ridgelines); or “cursory,” where only “likely” locations are examined. It should also be noted that a seventh term, “spot check,” not listed on the form for selection, was also used. The intention of this type of survey appears to have been only to revisit and examine previously recorded resources.

1.5.2 Phase II Cultural Resources Study

The Phase II cultural resources study conducted by ASM (Hector et al. 2009) consisted of an intensive field survey of all existing electric facilities, distribution pole locations, and access roads with the exception of those areas over 35 percent slope, areas with dense chaparral vegetation, areas distant from water sources, and areas previously surveyed -- all areas that were excluded by the sampling strategy. ASM conducted inventory surveys in compliance with the NEPA of 1969, as amended (42 USC 4321 and 4331-4335), the NHPA of 1966, as amended (16 USC 470 et seq.), and the requirements set forth in Protection of Historic Properties (36 CFR 800), implementing regulations of the NHPA. The content of the resulting technical reports are consistent with, and included information recommended in Archaeological Resource

Management Reports (ARMR): Recommended Contents and Format (Office of Historic Preservation 1990).

ASM also conducted a resurvey of approximately 12.5 miles of previously surveyed lines within the Laguna Mountain Recreation Area (LMRA) to confirm the presence or absence of sites, due to variances in site mapping of previously recorded resources. The survey included the APE defined as all federal land with the CNF with a 20-ft.-wide easement (10 ft. on either side of a centerline) for distribution lines, 30-ft.-wide (15 ft. on either side of a centerline) for powerlines, and 10 ft. on either side of access roads.

ASM updated previously conducted archival research to determine if archaeological studies have been conducted on or within one-half mile of the APE. Using this information, an intensive pedestrian survey was performed to verify previously recorded sites within the APE, if any, and to identify, map, and describe all new prehistoric and historic cultural resources encountered.

The project area was surveyed in systematic transects and those areas deemed to have higher potential were more extensively examined utilizing systematic transects spaced 15 m (approximately 50 ft. apart).

The following describes the field methods used for the Phase II study:

ASM conducted a review of existing survey and inventory reports for the project area. Most of the information on previous studies was provided by CNF. Site location in the vicinity of the project elements was obtained as point data from the Phase I study prepared by Mooney and Associates. Site records for those sites were obtained from CNF and the South Coastal Information Center. All site records were scanned and digital files were provided to CNF for their future use.

ASM/PanGIS prepared maps for implementation of the sampling strategy. PanGIS obtained information on site locations from CNF and SDG&E.

1) Implemented the sampling strategy to select areas for field survey. PanGIS provided ASM's Principal Investigator (Hector) with a set of 103 maps covering the project area. Each map showed SDG&E facilities, slope, and whether the area had been previously surveyed. Because the maps were on current aerial photographs, vegetation cover was visible. Previously recorded site locations, based on information from the Phase I study, were also shown on the maps. SDG&E GIS coverage divided the area into three slope categories: 0-25 percent, 26-35 percent, and >36 percent. As discussed previously, areas of >36 percent slope were not included in the survey. Previously surveyed areas were also eliminated from the areas included in the survey, although if a recorded site was present, the mapped site location was visited by the survey team. Areas of dense vegetation were eliminated from the survey; in most cases, these areas coincided with steep slopes.

2) Completed a field survey of the project area, as defined above. The pedestrian surveys complied with the Secretary of the Interior's Standards and Guidelines for Identification and Evaluation Guidelines for Local Surveys (Derry, Jandl, Shull, and Thorman, 1985). All prehistoric and historic sites were recorded. Sites were defined as any concentration of three or more artifacts in a 25-m2 area. Separate sites were recorded when artifact concentrations were separated by more than 50 m. Isolated artifacts were defined as fewer than three artifacts in a 25-m2 area. Cultural resources that met the definition of an archaeological site were assigned a temporary site number by ASM and Kyle Consulting in the field.

3) All cultural resources within the survey areas, both new and previously recorded (if relocated), were documented. Site documentation included definition of site boundaries, features, and diagnostic artifacts. A detailed sketch map was made, showing the relationship of the site's location to topographic features and other landmarks. More detailed information on environmental context, artifact content and density, cultural affiliation, and function was recorded on the site forms. Department of Parks and Recreation (DPR) forms were submitted to the South Coastal Information Center for assignment of Primary and Trinomial site numbers. Each site was plotted on a 7.5-minute USGS topographic quadrangle, and UTM coordinates were recorded to accurately locate the site and its relationship to the navigation points. Photographs were taken of each site.

4) GPS data were collected for each archaeological site, feature, and isolate. The Lambert Coordinate system of 1983 was used as the base coordinate system. The GPS instrument had a horizontal accuracy to within ±3 m of the object being mapped.

5) New site forms or updates for existing site forms for each site or isolate were completed. Standard DPR 523 forms were used; two copies were submitted to the South Coastal Information Center, in the case of new sites, for assignment of a Primary and/or a Trinomial site number. The final report included one copy of the new and updated site record forms as a Confidential Appendix.

The survey effort was undertaken by two teams, each consisting of two people. The northern section was surveyed by Del James and Steven Briggs (for Kyle Consulting). The southern section was surveyed by Drew Pallette, Michael Garnsey, and John Elford (ASM Affiliates). The field surveys were conducted between December 2005, and February 2006. Weather did not constrain the surveys.

Before the field survey could commence, the survey crews needed detailed maps of areas they were to survey within the CNF. To produce these maps, relevant GIS data for the CNF was obtained. Relevant data layers include: recent aerial photography, SDG&E pole locations, powerline structures, cultural resources, previous surveys, CNF boundaries, roads in need of survey (as designated by SDG&E), substations, circuits, and slope. PanGIS obtained DOQQ aerial images from Resource Strategies Inc. for the entire CNF. All other layers were obtained from the Forest Service.

The first step in data preparation was to clip the GIS layers to the CNF boundary so that only the resources within CNF would be considered. Once layers were clipped, a 20-ft. (approximately 6 m) buffer (40 ft. total) was created around poles, powerline structures, circuits, and roads. The buffered area is the potential survey area. The potential survey area was then intersected with previously surveyed areas and with the three slope categories available, based on existing GIS coverage (0-25 percent, 26-35 percent, and >35 percent). Previously surveyed areas, within past five years of Phase II effort, were eliminated, as were areas with a slope of >35 percent. Maps using the aerial photos as a base were then generated at a scale of 1:5,000. It took 103 maps and two additional key maps to cover the potential survey areas within CNF. Using these maps, final survey areas were selected and the crews were dispatched to the field. Crews were sent into the field with color aerial photographs showing previously recorded site locations, previously surveyed areas, poles, corridors, and roads to be surveyed.

SDG&E facilities included in the survey are listed in Hector et al. 2009, Table 1. This information has been omitted from the HPMP for reasons of confidentiality because archaeological site location information is included in the table. The table uses facility designations as shown on the GIS coverage provided to ASM. The designations included pole numbers without a prefix; pole numbers with the prefix of P; and facilities with the prefix of Z. The Z facilities are powerlines, and could be equipment on poles designated with P or without a prefix, or they could be individual poles with equipment mounted on them. In some cases, there

were separate corridors of Z poles parallel to P or unprefixed poles. Both sets of facilities could have the same number, with the only difference being the prefix. In other cases, the Z designations referred to equipment mounted on poles, and no other poles were present. All numbered facilities provided to ASM were included on the map to provide complete information to SDG&E.

Some challenges that could affect the results of the survey included inaccurate mapping of previously recorded sites; scaling error resulting in mistakes in the location of existing facilities; and errors in baseline data about the facilities.

1. Inaccurate mapping. On several occasions, the baseline data showed a previously recorded site located near or within a facility, when in fact there was no site in that location. If the site was nearby, the crews identified it during their transect surveys. However, sites located outside the survey corridor were not searched for. Site location errors can result from a number of factors, such as errors with the original site record, mapping errors during preparation of field maps for site form submittal and/or in transferring that information to maps maintained at the information centers. These errors in site location mapping do not affect the accuracy of the field survey. However, inaccuracies in plotting previously recorded sites in areas identified as previously surveyed could result in accidental adverse impacts to archaeological sites. This is because, with the exception of LMRA, ASM and Kyle Consulting did not resurvey areas identified by the USFS as previously surveyed. Therefore, there could exist a situation where a previously recorded site is mapped as being not near or within the SDG&E facility, but is in fact near or within the facility. Since ASM and Kyle Consulting would not have resurveyed these areas, this error would not have been corrected.

2. Scaling error in locating existing facilities. The field crews noted that the mapped location of powerlines and roads did not always match the actual locations. The crews always surveyed the actual locations in these cases.

3. Baseline data errors. In a few cases, there were no power poles or facilities in the field, yet they were shown on the maps. In one case, the poles had burned and been replaced nearby, with the new locations not shown on the maps provided. In another case, the poles had been removed entirely, yet were shown on the maps. In these cases, if the crew could tell where the poles had been, they surveyed that line. If the poles were completely gone, the general area was surveyed if a site was recorded in the vicinity.

The following paragraphs describe the sampling strategy developed during the Phase I study, and implementation under Phase II.

1.5.2.1 Powerline Corridors

There are approximately 69 miles of powerlines within the CNF including some overlap with distribution circuits. Of the 69 miles of powerline, approximately 10 miles are at a slope of greater than 30 percent and were excluded from the inventory. Approximately 7 miles of powerline have been previously surveyed and did not require re-survey. The sampling strategy for the remaining 52 miles of corridor was to conduct Phase II intensive survey of one-half (50 percent) of the corridor, comprising 26 miles of powerlines, at an interval of no more than 10 ft. (6 m).

The surveys focused on the areas with the highest archaeological potential including meadows, areas of low to moderate slope, corridors near water sources, and corridors below the conifer tree lines. The 50 percent of the corridor not surveyed at the Phase II level, was surveyed intensively during the 2009 and 2010 PEA Technical Support Study (Schaefer and Williams 2011) and is addressed in the PA and this HPMP with specific measures provided for future surveys and assessments (e.g., after a fire).

1.5.2.2 Distribution Circuits

There are approximately 327 miles of distribution circuits, of which 231 miles were surveyed using a 20-ft. radius as the APE. Survey for the presence of archaeological resources was accomplished for a 10 percent sample of the 6,549 distribution poles. The 10 percent sample was focused on those poles located in areas not previously surveyed, areas of less than 30 percent slope, areas with minimally dense chaparral, and areas below the conifer tree lines.

1.5.2.3 Authorized Roads

There are approximately 35 miles of roads within the project area that are used almost exclusively by SDG&E to service and maintain their structures, lines, and facilities. Phase II field inventory was conducted for 27 miles of these roads; the other 8 miles are at a slope of more than 30 percent and did not require survey.

1.5.2.4 Substations

There were five substations identified during Phase I as being within the CNF. Based on GIS information provided by CNF and SDG&E, none of these fell within CNF boundaries, and so were not surveyed.

1.5.2.5 Areas Excluded from the Phase II Surveys

Based on the results of past field surveys in the CNF and through application of the model provided by Carrico et al. (2003), areas that were on more than a 30 percent slope did not require field survey. The rationale for this was that few sites eligible for the NRHP are likely to be present at this degree of slope. The existing SDG&E GIS coverage available for the project grouped slope into three categories: 1-25 percent, 26-35 percent, and greater than 35 percent. It was not possible to obtain a layer for 30 percent slope, as specified in the model. Therefore, the survey strategy eliminated areas of greater than 35 percent slope, and the areas of 26-35 percent slope were evaluated individually based on terrain and vegetation cover. Approximately 10 miles of powerlines and distribution lines were not proposed for survey for this reason.

Areas containing distribution lines that are situated in heavily vegetated chaparral or dense coastal sage scrub (totaling approximately 96 miles) were excluded from field survey as ground visibility is extremely poor in these areas. Distribution lines within in-holdings were not to be surveyed if permission for access is denied. Every effort was made to obtain permission for access and areas where access was denied were mapped and noted.

The project entailed archaeological examination of 44.51 miles of powerline corridor, 717 distribution circuits (poles), and 35.62 miles of exclusive access road. This resulted in the relocation of 9 previously recorded sites and the discovery of 14 new sites within the surveyed areas. Sites types include historic refuse deposits, prehistoric use areas, and habitation sites.

ASM's survey strategy resulted in coverage of all areas identified by the sampling strategy as meeting the criteria for highest potential to contain archaeological resources. The Phase I study proposed that additional surveys would be needed in the future to cover the high probability areas not included in the Phase II survey.

1.5.3 Class III Wood to Steel Surveys

Subsequent to the completion of the Phase II study, SDG&E began the Wood-to-Steel (WS) cultural resources inventory effort. Five powerlines and six distribution circuits within and outside the Descanso and Palomar Ranger Districts were fully inventoried for potential adverse effects to historic properties from replacement of existing wood poles with steel poles (Schaefer and Williams 2013). There was some overlap with the Phase II study areas, although the WS effort did not include all areas covered during the Phase II

surveys. As a result of the WS survey project, SDG&E facilities outside the land ownership of CNF were also covered by a cultural resources inventory, and specific construction methods for pole replacement were evaluated to develop measures to avoid or minimize adverse effects to historic properties.

The ASM WS inventory (Schaefer and Williams 2013) included existing and proposed pole locations, proposed undergrounding of lines, powerline realignments, laydown yards, helicopter pads, and stringing sites for the SDG&E proposed powerline replacement projects. The Area of Potential Effects (APE) for the inventory included 90 feet on either side of the centerline, staging and equipment storage areas, 30 feet on either side of the center line for access roads including stringing sites, and the actual footprint of the proposed activity for laydown and staging areas, and for helicopter landing zones.

Approximately 2,450 acres were surveyed within the APE for five powerlines (119 linear miles) and six distribution circuits (42 linear miles). Lands within the La Jolla Indian Reservation were not surveyed due to absence of tribal permission. Based on the inventory results, 207 sites and isolates were identified within or adjacent to the Project as defined in January 2011. Of these resources, 23 sites and isolates are recommended as not eligible for NRHP-listing, based on their status as isolates or having limited quantity, quality, and variety of artifacts and cultural features. At 155 sites, investigation to determine the presence and integrity of a subsurface deposit would be required for a definitive determination of eligibility, meaning that additional evaluation beyond survey level assessment is necessary to determine their eligibility status. For the purposes of this project, these sites are categorized as unevaluated but are afforded the protection and management consideration of eligible sites until eligibility is ascertained. Twenty-eight sites within the project APE were previously recommended as eligible, and one site is listed in the NRHP/CRHR.

Historic built environment resources within the APE of the powerline replacement projects were addressed in a separate evaluation study that was reviewed by the SHPO (Gorman, Castells, and Ni Ghabhláin 2015). In summary, after documenting and evaluating the history of the 11 powerlines and distribution circuits, and careful consideration of the ability of the potential historic resources to reflect the historic contexts with which they are associated, ASM recommended that C78, C79, C157, C440, C442, C449, TL625, TL626, TL629, TL682, and TL6923 are not individually eligible for the NRHP, CRHR, the County of San Diego's RPO, or the Local Register under any of the applicable criteria. The USFS agreed with this assessment and received concurrence from the SHPO. Ineligible resources will not be considered Historic Properties for the purposes of NEPA/CEQA compliance.

ASM researched traditional cultural locations in the APE using available published information and archival materials. Traditional cultural locations are named landmarks that collectively constitute maps of indigenous groups' territories and use areas. Each set of landmarks guided its people through space and at the same time encapsulated their history, values, and beliefs (King 2003:67). None of the traditional cultural locations discussed below have been evaluated as Traditional Cultural Properties. A Sacred Lands search was also conducted for the Project and several of the lines returned "positive" for identified sacred lands within their proximity. The NAHC does not provide the forms prepared for these resources given their sensitive nature, so any sharing of the information is at the discretion of the local tribal groups. As such, the list prepared below does not constitute a complete list of potential traditional cultural places or tribal cultural resources, rather a review of just the public knowledge for these locations.

Protohistoric Kumeyaay (Ipai-Tipai-Diegueño-Kamia) territory extended from approximately the San Luis River mouth in the north to about Todos Santos Bay near Ensenada, Mexico in the south (Luomala 1978:593). From the Pacific Ocean, the Kumeyaay ranged inland across San Diego and Imperial counties to about Sand Hills. No list exists of all Kumeyaay settlements, names and locations (Luomala 1978:597). Many villages were only temporary campsites that a band occupied in its territory during a year. A campsite was selected for access to water, drainage, boulder outcrops or other natural protection from weather and

ambush, as well as abundant flora and fauna of that ecological niche. A concentration of campsites in an area was considered a permanent village, settlement or "Rancheria."

Specific Kumeyaay traditional cultural locations or places were identified on a map by Kroeber (1925: Plate 57) and include the following 27 locations (Appendix D):

- Along the San Dieguito River: Kuiaumai; Hapai; Sinyau-pichkara; Ahmukatlkatl; Pauha; Tukumak (near Mesa Grande); Setmunumin; and Atikwanon.
- Between the San Dieguito and San Diego Rivers: Pauwai and Pamo.
- Along the San Diego River: Kosoi; Nipawai; Sinyeweche; Witlimak; Anyaha; Kosmit; and Sinyau-tehwir.
- Between the San Diego and Sweetwater Rivers: Amotaretuwe.
- San Diego Bay and Sweetwater River: Totakamalare; Pauipa; Hamacha (Jamacha); Sekwan (Sycuan); Ekwianiak; and Tlokwih.
- Along the Otay River: Hamul (Jamul).
- Between the Otay River and Cottonwood Creek: Otai (Otay Mountain).
- Along Cottonwood Creek: Kwatai (Guatay)—see also Carrico et al. (1983) for an excerpt of an interview with Tom Lucas, Kwaaymii, of Laguna Reservation (or Lucas Ranch) regarding this village.

Delfina Cuero (1970) notes that the Kumeyaay had names for locations in their territory that referred to characteristics of that place (Shipek 1991:24). "Otay" refers to a kind of weed that grows at that location. "Jamacha" is the name of a wild gourd that grows abundantly in that named-area. "Jamul" was named after another weed that is common where water is abundant in that area. Point Loma was called "black earth" because of its appearance from a distance.

Shipek (1987:13-14) also notes that within the greater Kumeyaay territory, smaller band territories associated with a rancheria were well-defined with rocks marking group boundaries defended by sorcery and arms. The band territory included such things as trails within the area open to use by all members, general hunting territories, religious and ceremonial areas, band gathering areas, and locations with family or individual tenures. Most important to the Kumeyaay at both the "national" and band levels was the concept of sacred lands. The greater Kumeyaay lived within a territory encompassed by their creation stories. Often, specific locations and features are described in these stories. Kumeyaay holy places include Kuuchamaa or Tecate Peak (Shipek 1985) and Wee'ishpa or Signal Mountain (Gifford 1931). A holy place associated specifically with healing is Table Mountain (Shackley 1981; Shipek 1984; Welch 1984; Woods 1982).

Each band also had specific and individual sacred sites (Shipek 1987:13-14), such as a "sun watcher" mountain used by the band's sun shaman for ceremonies on the solstice and equinox. All bands had some central brush- or pole-enclosed structure used as an altar or worship area that only the shamans and leaders might enter. Each band also had a cemetery or cremation area that was used for sacred disposal of the dead and that was maintained as a restricted sacred area.

The band-specific cultural places of the Kwaaymii Laguna Band of Mission Indians are particularly well-documented (Cline 1979; 1984:12-18). Cline notes and maps the locations of permanent villages, temporary winter campsites and gathering areas provided by Tom Lucas. There were originally three main villages on

Mount Laguna: the largest was known as Iiahkaay, meaning "wooded area across a meadow;" three quarters of a mile to the south was Kwaaymii, the last occupied village (where Tom Lucas was born), named after the legendary Kwaaymii bird which lived at the spring common to all the villages; and about one-quarter mile to the southeast was Wiihanull ("flat rock"). The closest village to the north was Teshill and the neighboring village to the south was Kwatatl. The "Kwaaymii Homeland" was nominated to the NRHP as a Traditional Cultural Property/District (Lucas and Hector 2015) and was listed on the register in August 2015.

The Kwatatl people used Storm Canyon for their temporary winter migration and camped in the area of Spencer Ranch in the westernmost section of Vallecito Valley. There was also a permanent village there known as Amat Haapshuu.

Southeast of Kwatatl was the village of Wiiapaayp ("leaning rock"). The Wiiapaayp people moved down the Canebrake Wash to Palm Spring, not far from Vallecito Creek.

The village of Haawii ("water in rock") is at Agua Caliente Springs. In Mason Valley, the temporary winter campsites (ahktaa) were mostly at the base of the canyon in the southwest, while the permanent village and the people who lived there were called Amat Inuk. All of the groups mentioned above gathered on Hapaha Flat for their spring ceremony before returning to their permanent homes. Acorns (kapash) were gathered in the fall before the Kwaaymii began their long journey into the desert to their winter homes. Their gathering place was at the base of Sheephead Mountain.

The Cottonwood Canyon Trail to Mason Valley was named wiipuk uun'yaw ("desert path"). Two specific locations to this Kwaaymii trail are discussed by Cline (1979; 1984:20) and include a trail shrine and the Guardian of the Trail in Cottonwood Canyon. The Guardian of the Trail is a granite outcrop which looks like an old, shawl-covered woman, watching over the trail to Mason Valley. The Kwaaymii call this uun'yaw kuupsaw, "the guardian of the trail" or "Spirit of the Trail Guardian," which is a separate entity from the other trail shrines. The second location, a trail shrine, is about half-way down the canyon. A huge white boulder along the trail marks the border of this sacred area. A Kwaaymii custom was to lay bay leaves on the marker when passing. The shrine can be seen directly below the boulder. The shrine is a massive granite outcrop about 8 meters (25 feet) high. Erosion has formed a natural cave, which the Kwaaymii call wiitaawhiitl. A protruding ledge at its high northern entrance extends into the cavity forming the floor. It is on this ledge that travelers tossed thousands of small, rounded, granite stones in an appeal to the Trail Guardian for protection on their journey. The Cottonwood Canyon district has been recommended eligible for NRHP listing and is currently under review for determination and potential listing. The entire Cottonwood Canyon Trail area is considered sacred.

Sacred places within greater Kumeyaay territory encompassed by their creation stories include the following (Cline 1979; 1984:87-105; Johnston 1914):

- Corte Madera Mountain (Hilsh Ki'e or "Pine Tree"): The Battle of the Peaks
- West side of the south peak of the Cuyamacas (Hutstah' Tah-mil'tah): Hanging Head
- The cold spring on the high peak of the Cuyamacas (Ahaawiiahaa): Water Colder Water
- A huge white boulder with spots of red on west side of Cuyamaca Peak (Aakwerap): Disease Cure
- Another large boulder on west side of Cuyamaca Peak (Huulyaw Nimuuluukaa): Phantom Basket
- Mount Guatay near Descanso (Awaataay): Big House
- A spring at the edge of the river flat at Descanso (In-yar'en Ah-ha'): No Eyes in Water
- The Laguna Mountains (Siinyahaw Haawak): Old Woman's Twins

- The Laguna Mountains (Siinyahaw Hampuu): Old Woman's Whip
- The summit of Viejas Mountain (Kwut'ah Lu'e-ah): Kwut'ah Lu'e-ah-Song Dance
- Iron oxide deposit at the foot of the Coyote Mountains (Aakwer): Red Paint

In addition to the above mentioned unevaluated traditional cultural locations, there are several archaeological districts that have also not been evaluated as Traditional Cultural Places. Table Mountain was nominated for listing in the NRHP by the BLM as an archaeological district in 1982 because of its use by the Kumeyaay and other tribes as a prehistoric gathering and medical practice area (Iversen, Garcia-Herbst, Laylander, and Williams 2010; Woods 1982). According to the nomination form, archaeological evidence of prehistoric practices includes trade (Shackley 1981) as well as rites and rituals due to the presence of pictographs and prayer sticks. Several Late Prehistoric long-term habitation camps, as well as numerous short-term habitation camps, roasting pit features, and lithic reduction and extraction stations were documented throughout the district, for a total of 182 sites over 1,796 acres.

The Jacumba area was proposed as a discontiguous NRHP archaeological district by Wirth Associates, Inc. in 1981 and encompasses the town of Jacumba and its surrounding valley and hills. The district was recommended as eligible for listing because of its use by the Kumeyaay as a prehistoric gathering and trade area; the presence of many sacred sites such as springs, mountains and burial areas; as well as gathering areas, habitation sites and trails (Iversen et al. 2010; Wirth 1981; Woods 1982). Archaeological evidence of prehistoric practices includes trade and settlement sites. Three Late Prehistoric long-term habitation camps, numerous short-term habitation camps, lithic quarrying and tool manufacture sites, as well as a few cairns, ceramic scatters and a rock alignment, were documented throughout the district, for a total of 70 sites over 441 acres.

More recently, several other traditional cultural locations discussed below have been identified as part of consultation for the Sunrise Powerlink project that have also not been evaluated as Traditional Cultural Properties (Iversen et al. 2010). These places include the Plaster City area, Coyote Mountain, Sugarloaf Mountain and the Mountain Springs Grade area, the Jacumba Valley area, McCain Valley, the Border Patrol Station area near La Posta, the Long and Round Potrero valley areas, the Suncrest Substation area near Alpine, the Chocolate Canyon area nearest to El Capitan Reservoir and the El Capitan area (El Cajon Mountain). Also, as stated above, there are likely additional tribal cultural resources in these areas and ongoing communication with the local tribal groups is necessary.

In summary, although approximately 95 traditional cultural locations and two archaeological districts have been documented in greater Kumeyaay territory, none have been formally evaluated as Traditional Cultural Properties. Although not formerly designated, these locations are still considered Traditional Cultural Places because of their importance to the local tribal community. None of these identified Traditional Cultural Places are located within the current project APE. Additionally, pursuant to PRC Section 5097.9 the Project will not interfere with the expression or exercising of Native American religion nor cause knowingly cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property, except on a clear and convincing showing that the public interest and necessity so require. If any future Project changes are found to have adverse effects to any of these resources or any as yet identified TCPs or tribal resources, then a non-archaeological (i.e. non-data recovery program) means to mitigate the effects will also be considered and consulted upon with local Tribal organizations.

1.6 IDENTIFICATION AND EVALUATION OF HISTORIC PROPERTIES

1.6.1 Regulatory Context

The regulatory context for the identification and evaluation of cultural resources during the Project is discussed in Section 1.1 above and detailed in depth below. In summary, cultural resources on public lands will be regulated according to the NHPA and resources on State, City and Private lands will be regulated in accordance with CEQA or Local Ordinances. These regulations have been considered during consultation for the PA and HPMP. Where adverse effects to properties cannot be avoided as provided for in Section 1.6.2, Section 2.2.2 below or Section 3.1.6, the Forest will consult with SHPO on eligibility of those properties pursuant to CFR 800.4(c)(2). The Forest shall ensure the views of any consulting parties are considered in their eligibility determinations submitted for SHPO concurrence.

1.6.2 Identification and Evaluation

Pursuant to MM CUL-1a, historic properties in the APE were identified as a result of cultural resource inventories (Hector et al. 2009; Schaefer and Williams 2013). The APE is defined in Stipulation 1.0 and depicted in Attachment 1of the Project PA. The APE is influenced by the scale and nature of the Undertaking and is defined as those lands that are incorporated into the area within the boundaries of the Master Special Use Permit and Power Line Replacement Projects. Specifically, the APE's defined in Schaefer and Williams 2011 and Shaver and Baksh 2012 will be followed. The APE shall also include the entire area of spatially discrete historic properties (e.g., archaeological sites), if any part of such a property extends into the boundary of the Master Special Use Permit and Power Line Replacement Projects; except that management of linear cultural resources (e.g., NRHP-eligible roads and trails) shall not cause the APE to be extended beyond the boundaries of the Master Special Use Permit and Power Line Replacement Projects. The APE will include contributing elements of NRHP-eligible historic districts that are within the boundary of the Master Special Use Permit and Power Line Replacement Projects. Following these Stipulations, the historic properties identification process included:

a) Reviewing existing published and unpublished literature, reports, archives and other writings and photographs that pertain to the ethnography, archaeology, and history of cultural resources in the APE and adjoining areas to determine the locations and nature of previously identified cultural resources and historic properties in the APE; and
b) Consulting with tribal representatives and other Native Americans prior to and during efforts, as well as other groups and individuals with knowledge of cultural resources in or immediately adjacent to the APE; and
c) Conducting an archaeological field inventory of existing SDG&E access roads, distribution and powerline tower and pole pads, and other areas of the Project APE to locate, describe, and record previously undocumented archaeological resources or to relocate and update records of previously recorded archaeological resources that could be affected by the Undertaking; and
d) Conducting field trips, informal group meetings, interviews, or formal public meetings with government agency staff, tribes, Native American organizations and individuals, and other groups and members representing the public and government agencies to solicit and record information regarding cultural resources in the APE and the historical or cultural significance of those resources to those interested parties, these would occur prior to and/or during any evaluation efforts.

Appendix B (Native American Consultation Requirements and Participation) describes the process for tribes to provide input on the MSUP and effects to historic properties. Any CRHR/NRHP evaluations will be conducted with a qualified and compensated Native American monitor.

Linear facilities such as access roads and that may extend beyond the limits of the ROW were inventoried and documented only for that portion of the linear facility that is within the Project APE. The entirety of linear facilities will be considered for any evaluation efforts. Adverse effects will be considered for the portion of the linear resource within the APE. Project redesign will be the preferred approach to any resources with rich midden or burial deposits, identified through surface survey or during previous evaluation and data recovery efforts, or that are identified as ceremonial or sacred places. Delineation of these resources may be achieved through noninvasive methods if deemed necessary and will be agreed upon through consultation efforts.

As SDG&E's consultant, ASM identified and will evaluate cultural resources within the APE that may be affected by the Undertaking authorized in the Project to determine the eligibility of those cultural resources for listing in the NRHP/CRHR according to the eligibility criteria for historic properties at 36 CFR §60.4. Historic properties for which there is documentation of prior consultation with the SHPO and/or Keeper of the NRHP regarding a determination of eligibility may or may not be re-evaluated at the discretion of the Forest. SDG&E and Forest qualified personnel shall consult pursuant to 36 CFR §800.4(c)(2) to seek agreement with any determination on NRHP eligibility. Any of these properties that do not have previous documentation of tribal involvement during the review of that resource's eligibility status may also be re-evaluated to include tribal participation.

1.6.2.1 Reporting (During Project Plan)

Resources recommended as not eligible will follow the process outlined below in Section 3.1.6. For resources recommended eligible the following will guide the reporting process. The Forest will invite consulting parties identified in the PA to participate in this process prior to proceeding with eligibility determinations. Consulting parties must indicate their desire to participate within 10 days. Additional consulting parties can join this process at any time by indicating their interest to the Forest.

- A draft eligibility report with recommendations for additional mitigation will be provided to participating consulting parties for a 30-day review;
- Upon receipt of comments, SDG&E and the Forest will have five days to respond and produce a final eligibility report;
- SDG&E/Forest will submit the final eligibility report to SHPO who will have 10 days to provide any additional comments on the final eligibility report;
- USFS shall notify all consulting parties regardless of their active participation in this process of eligibility determinations and make those available for public inspection. A notice posted on the Forest's website will be the primary method for notifying the public that eligibility determinations have been completed. These documents are confidential and will only be distributed to those with the appropriate qualifications;
- Following submittal of the final eligibility report, SDG&E will prepare a draft HPTP for any recommended eligible resources that cannot be avoided;
- The draft HPTP will be submitted to the consulting parties for a 30-day review;
- Upon receipt of comments, SDG&E and the Forest will have five days to respond and produce a final HPTP;
- SDG&E/Forest will submit the revised HPTP to SHPO who will have 10 days to provide any additional comments on the draft final HPTP;
- Absent any comments, the HPTP will be considered final and the Forest and/or CPUC will notify SDG&E that work can commence;

- Within five days of the completion of all fieldwork described in the HPTP, and prior to completion of any special studies or laboratory analyses, SDG&E will submit to the Forest a summary letter report documenting the field efforts and preliminary findings;
- The consulting parties will have 10 days to review the letter. Absent any comments, the fieldwork portion of mitigation efforts will be considered fulfilled and construction can proceed;
- A draft mitigation report will be submitted to the Forest within 90 days of completion of fieldwork;
- The Forest will submit the draft mitigation report to consulting parties for review; and
- Within 90 days of acceptance by SHPO of all draft final reports, SDG&E will prepare and submit to the Forest a final version of the reports.

The USFS will determine if shorter review periods are appropriate and necessary (required to address immediate health and safety concerns), whereupon consulting parties will be notified of the shorter review period. A shorter review period may be required.

1.6.2.2 Fieldwork Methodology

This section describes in more detail the methods used to conduct evaluations. These methods are the same as those used for site-specific evaluations. NHPA Section 106 is applicable to federal undertakings, including projects financed or permitted by federal agencies, regardless of whether the activities occur on land that is managed by federal agencies, other governmental agencies, or private landowners. Its purpose is to determine whether adverse effects will occur to significant cultural resources, defined as "historic properties" that are listed in or determined eligible for listing in the NRHP. The criteria for NRHP eligibility are defined at 36 CFR § 60.4 and include:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:

a) Are associated with events that have made a significant contribution to the broad patterns of our history; or
b) Are associated with the lives of persons significant in our past; or
c) Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
d) Have yielded or may be likely to yield, information important in prehistory or history.

The CRHR is a listing of State of California resources that are significant within the context of California's history, and includes all resources listed in or formally determined eligible for the NRHP. The CRHR is a state-wide program of similar scope to the NRHP. In addition, properties designated under municipal or county ordinances are also eligible for listing in the CRHR. A historic resource must be significant at the local, state, or national level under one or more of the following criteria defined in the California Code of Regulations Title 14, Chapter 11.5, Section 4850:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or
2. It is associated with the lives of persons important to local, California, or national history; or
3. It embodies the distinctive characteristics of a type, period, region, or method or construction, or represents the work of a master, or possesses high artistic values; or
4. It has yielded, or has the potential to yield, information important to the prehistory or

history of the local area, California, or the nation.

The CRHR criteria are similar to NRHP criteria, and are tied to CEQA, as any resource that meets the above criteria is considered a historical resource under CEQA.

The Project undertaking may cross cultural resources that comprise districts or linear cultural resources (e.g., roads and trails) that are individually so geographically extensive that the properties extend well beyond the boundaries of the Project. Per Stipulation 1.0 B of the Project PA, the management of linear cultural resources (e.g., NRHP-eligible roads and trails) shall not cause the APE to be extended beyond the boundaries of the Master Special Use Permit and Power Line Replacement Projects. For such geographically extensive properties, SDG&E will:

a) Prepare historic contexts for the whole of any potential districts and cultural resources, except for historically known Native American trails for which SDG&E will collaborate with the Forest to prepare historic context statements;
b) Evaluate the NRHP eligibility of potential contributing elements of districts and linear resources that are within the APE; and
c) Evaluate the NRHP eligibility of individual cultural resources within the APE.

Where the resource protection measures in this HPMP cannot prevent adverse effects occurring to cultural resources resulting from the otherwise lawful performance of the Undertaking authorized in the MSUP, those resources that may be adversely affected by Undertaking activities must be evaluated for NRHP eligibility to determine effects to historic characteristics that make them NRHP eligible and to design reasonably feasible measures to mitigate adverse effects to historically significant characteristics.

It may be appropriate or necessary that the NRHP evaluation of historic properties be reconsidered. In which case:

- SDG&E shall re-evaluate the NRHP eligibility of historic properties previously evaluated within the APE if requested by the Forest or the SHPO, or if SDG&E believes that there is good reason to re-evaluate the significance of the properties in the context of this Undertaking and the Forest and SHPO agree.
- If the Forest or SDG&E objects to the re-evaluation of historic properties that extend outside the APE, the Forest and SDG&E may recommend assess the effects of the Undertaking on only those portions of the properties in the APE. The recommendation of the SHPO will be informally sought by the Forest and will be considered prior to any decision to limit a re-evaluation. To inform this recommendation the Forest will provide adequate background information, including a summary of potential site specific effects, consultation with Tribes and available new research as a justification for the limited re-evaluation.

Evaluation methods are essentially sampling methods geared toward recovering a reasonably-sized assemblage to estimate the density and diversity of the cultural deposit, and to expose enough of the site deposit to determine integrity. A general approach is described below, from surface inspection and collection, to the various kinds of subsurface investigation. Considerations of site-specific methods are described next, with particular attention paid to hypothetical plans for unit distribution relative to proposed areas of impact. The Principal Investigator will make recommendations on site-specific measures and a final approach will be made in consultation with the USFS and SDG&E. Any objections made to these recommendations will be resolved follow the procedures set forth in Stipulation 9.0 of the Project PA.

Fieldwork will be conducted exclusively within the Project APE. It will consist of an archaeological survey with 5-meter transects to establish the presence or absence of cultural resources within the APE, complete mapping of all cultural resources and the full recording of any prehistoric or historical features.

The cultural resource evaluation for archaeological sites will be conducted within the APE only and will establish the presence or absence of subsurface site components, within the APE. It will consist of a surface collection and detailed mapping of the resource with subsurface testing. The subsurface testing will be used to identify and define subsurface deposits and subsurface deposit integrity and variability. Any datable materials recovered during the testing program will be analyzed to provide temporal context to the resource. The testing program will be expanded if intact subsurface deposits are identified, however, if more than 4 cubic meters of soil or 5-percent of area of the site need to be examined then the Forest will consult on any further testing efforts with the SHPO.

The first step in site evaluation is to relocate datum points, artifact concentrations, features, and landforms noted on the original site forms. The next step is to conduct regular-interval sweeps of the site surface pin-flagging artifacts, concentrations, and features to confirm original mapped items and site boundaries and establish a real-time visual perspective of site properties. This phase is made more efficient with the use of color-coded pin flags representing diagnostic artifacts, features, etc.

After the site is defined with pin-flags, a surface collection strategy will be implemented; during this phase. At prehistoric sites, areas containing high enough densities of surface artifacts will be sampled with 15-by-15-meter, controlled surface collections (called a CSC). Each of these CSC units will be divided into a 5-by-5-meter grid, and each grid collected and labeled (A through I). Enough whole grids, and or portions thereof in some cases, will be collected to ensure the recovery of at least one half of all surface area in the dense artifact concentrations. The CSC units will be supplemented by collection of all formed artifacts identified outside the collected CSC grids. The pin flags will be left in place until site mapping is completed. On sites where there is either no artifact concentration sufficiently dense for the collection of a CSC, or the CSC collections are numerically small, a general site collection will be made to supplement the CSC collection, or in some cases to simply provide some data where the CSC units are not used. The general site collections are essentially random samples of the artifacts on the surface.

Four types of units will be used for subsurface excavation. All units have square corners to enable expansion of units to more thoroughly explore deposits. Shovel Test Pits (STPs) are small, 0.5-by-0.25-meter exploratory units excavated in 20-centimeter increments to depths of no more than 80 centimeters, and typically spaced at 10-meter intervals or subjectively placed. STPs are typically used to explore the edges of cultural deposits, providing a positive-negative indication with little reliability in terms of estimating depth of cultural deposits. The second type of excavation unit—Shovel Test Units (STU)—measures one by 0.5 meters in size; STUs can be excavated in 10-centimeter or 20- centimeter levels, generally to depths between 40 and 100 centimeters, and can provide a profile of sediments. The number and placement of STUs will depend upon the distributions of artifacts on the surface. In general, at least one STU will be excavated in each locus, with additional STUs excavated in the artifact concentrations. On most sites at least one STU will also be placed in the areas between the artifact concentrations. If an STU produces a high artifact yield, a larger Control Unit (CU) measuring one meter by one meter will be placed adjacent or near to the STU. CUs will be excavated in standard 10-centimeter levels. The third type of unit is the shovel scrape unit (SSU). Shovel scrape units are rectangular in shape, but vary in size depending on the deposit. Typically, a SSU will not be more than 10 centimeters deep, and usually even shallower. These units will be placed where the terrain or other excavations suggested that the depth of deposits is very shallow. As a result, these units will cover larger areas than the STU or CU, with the idea being to increase the excavated volume from the shallow deposits, thereby increasing the quantity of artifacts recovered.

All excavated matrix, regardless of unit type, will be screened through 1/8-in (3 millimeter) mesh. Typically, most of the excavated prehistoric sites will terminate between 40 and 80 centimeters below the surface, when either a calcareous B-horizon or bedrock is typically encountered. Where deeper deposits are discovered, an auger with a 4-inch diameter blade will be used to examine deeper, sub-cultural strata below excavation levels when artifact yields drop to trace quantities. Sidewall profiles will be drawn and photographed where appropriate, with small soil samples taken for Munsell color and constituent classification.

The site will be mapped using a Trimble Pathfinder global positioning system (GPS) receiver with real-time correction capabilities and down to 10-centimeter accuracy to plot all formed artifacts, CSCs, excavation units (STUs and CUs), and the boundaries of any defined loci and features. The GPS will also be used to record site boundaries, landform edges, drainages, roads, and other relevant surface information. In addition to the mapping, a series of overview photographs will be taken to show the site landscape situation. Photographs will also be taken of features or other site attributes when appropriate.

All recovered artifacts will be transported for laboratory analysis and cataloging at the completion of the fieldwork, and will be prepared for curation at a federally accredited facility per 36 CFR 79, unless other arrangements are required, such as, repatriation to local Tribal groups.

1.6.3 Evaluation of Prehistoric Archaeological Properties

This section briefly identifies themes to be addressed by analysis of prehistoric sites. Preliminary concerns are the chronological placement of the site and its contents, and an assessment of its depositional integrity. Potential contributions to regional archaeological research include defining patterns of resource utilization and assessing evidence of intercommunity exchange and travel.

Chronological Placement
Chronology is a prerequisite to effectively addressing regional phenomena. Radiocarbon dates, when they can be obtained, have traditionally provided the most reliable and precise method for dating archaeological sites in this region. Organic materials such as charcoal, bone, or shell have been previously identified in the sites identified along the proposed Project. Additionally, thermoluminescence dating offers a potential optional and promising chronometric alternative. Artificially fired materials, such as the ceramics and fire-affected rock that have been reported in the Project area and can be tested to determine the amount of time that has elapsed since their firing.

Obsidian artifacts may offer another potential chronometric tool. If obsidian is present, measurement of hydration rinds to arrive at rough relative or absolute dates may be possible. Relative dates associated with exposure of the Obsidian Butte source near the Salton Sea is also valuable. Type and trait analyses of ceramics offers the most promising artifact-based approach to determining the chronology of the site.

Specific research questions related to chronology may include:

- Is a Pleistocene “Pre-Projectile Point” pattern represented in the region?
- Is the Early Holocene “San Dieguito” pattern chronologically distinct from a preceding Pleistocene “Clovis” pattern and subsequent Middle Holocene “Archaic” patterns?
- When did mortars begin to be used with frequency in the region?
- When were small projectile points, indicative of bow-and-arrow technology, introduced into the region?
- When was pottery-making introduced in the region?
- When were various changes in buff ware pottery introduced into the region?
- When was the practice of cremation introduced into the region?

Can obsidian hydration be used as an effective regional chronometric method, and what is the precision that can be obtained with it?

Integrity
Another preliminary question concerns whether the archaeological remains are substantially in situ, in the locations where they were deposited prehistorically, or whether they have subsequently been redeposited. In the latter case, their value for addressing regional research issues may be substantially diminished.

Settlement Types and Patterns
Investigations should shed light on the function of any site, specifically whether it was a resource extraction area, temporary camp, or was used for a more extended period as a residential base. The functional range of artifacts present at the site may provide one clue: a residential base would be expected to contain evidence of more diverse activities than a temporary camp. Another line of evidence may be the amount and character of non-local items that are present in the assemblage. While some artifacts of exotic origin might well be carried along during a group's move to a temporary camp, the camp's occupants would not be expected to have made extended treks to bring in distant resources in a logistical manner. Another indicator might be the relative importance of resource processing and resource consumption; a temporary camp might see a substantial amount of processing of resources that were to be subsequently consumed elsewhere, whereas processing and consumption would probably be more evenly balanced at a residential base.

- Are the prehistoric settlement systems in various parts of the region and during various time periods better categorized as those produced by "foragers" or by "collectors"?

Resource Utilization
Some general inferences may be drawn from the types of artifacts and features that are present at a prehistoric site. However, more specific evidence would come from faunal remains and protein residues, if those are present and preserved. An issue of particular importance concerns the role, if any, of domesticated crops in this region. The introduction of agriculture is still very poorly known. If residues from agricultural crops are detectable and datable, they would potentially shed significant light on evolving regional adaptations. Specific questions may include:

- Did agave roasting (earth ovens) become substantially more important in the region during the latest prehistoric period?
- Did the exploitation of acorns and pine nuts become substantially more important in the region during the latest prehistoric period?
- What factors determined prehistoric choices of lithic materials to be used in the manufacture of flaked lithic artifacts?
- Are the prehistoric settlement systems in various parts of the region and during various time periods better categorized as those produced by "foragers" or by "collectors"?
- Was agriculture practiced prehistorically in the region?

Exchange and Mobility
How strong were the prehistoric trade and travel links at the specific resource and surrounding regions, and how widely did they extend? This issue may be addressable at through analysis of lithic materials and ceramics.

Previously reported lithic materials in the Project area include "metavolcanic" rock (i.e., volcanic rock, including volcanic porphyry), "chert" (cryptocrystalline silica), and quartzite. It is likely that all of these materials may have been available fairly locally, in the exposed volcanic plugs and dikes of the Peninsular

Range, and surrounding alluvial deposits. More geographically diagnostic materials that may possibly be encountered include obsidian and "wonderstone." Obsidian would potentially have been available from the Obsidian Butte source, with the closest alternative obsidian source located near San Felipe in northeastern Baja California (McFarland 2000). Wonderstone, a fine-grained, silica-rich material, has been reported at two Colorado Desert sources: Cerro Colorado, in northern Baja California and Rainbow Rock, in northwestern Imperial County (Pigniolo 1995). If these materials are present at the site, x-ray fluorescence studies may be able to match them with their sources. Steatite or soapstone is another material imperfectly understood in the region.

Pottery may also be geographically diagnostic, although with difficulty. Tumco Buff (or type BT), characterized in particular by the scarcity of its mineral inclusions, was previously argued as having been produced in the lower Colorado River valley, but recent observations at sites to the west of Lake Cahuilla suggest that it was also locally produced; the essential chemical identity of the clays deposited in the two areas and the scarcity of inclusions would make distinguishing such sherds' origins difficult (Waters 1983). Brown ware, as distinct from buff ware, has often been treated as a marker for pottery produced in the Peninsular Range rather than locally in the Colorado Desert. However, a Salton Brown type manufactured within the Salton Basin has been increasingly recognized, although it is difficult to distinguish macroscopically from the Tizon Brown type produced in the Peninsular Range (Gallucci 2001, 2004; Hildebrand et al. 2002). X-ray fluorescence analysis may be useful in distinguishing a mountain or desert origin for the brown ware sherds. Research questions that might be addressed include the following:

- What were the character and composition of communities in various parts of the region and during various prehistoric periods?
- What were the patterns of community mobility in various parts of the region and during various prehistoric periods?
- What methods, other than community mobility, were used to deal with spatial and temporal incongruities between resource availability, labor availability, and consumption needs?
- How was the intercommunity exchange of obsidian organized, and how did exchange patterns change through time?
- How was the intercommunity exchange of cryptocrystalline silica (chert, chalcedony, jasper, etc.) organized, and how did it change through time?
- What patterns of intercommunity exchange are evidenced by prehistoric ceramics?
- What patterns of intercommunity exchange do prehistoric shell beads and ornaments exhibit?

Any additional research questions developed through research for specific site assemblages will be reviewed and commented on by the consulting parties.

1.6.4 Evaluation of Traditional Cultural Properties (TCP)

According to National Register Bulletin 38, a TCP is a resource that is associated with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. With sufficient integrity and importance to the community identity, TCPs may be considered historic properties that are eligible for inclusion in the National Register. TCPs include built or natural locations, features or landscapes considered culturally significant, such as sacred places or traditional gathering, hunting, and fishing areas. No TCPs have been identified within the direct Project area to date. However, several areas of concern have been identified through consultation and site visits and are summarized above in Chapter 4. At least one of these areas of concerns and potential TCP (Laguna Mountain) is bisected by the proposed Project along C440 and will need to be documented and evaluated to determine if adverse effects will be created by the Project. As the sacred lands files are not provided by the NAHC, the USFS will conduct additional Tribal consultation

throughout the identification of the properties, design avoidance process and eligibility determinations. Should a TCP be identified in an area that would be adversely or significantly affected by construction activities or indirect impacts, avoidance of the TCP is preferred (MM CUL-1b). The USFS will first consult with interested tribal groups and the consulting parties regarding the elements of the TCP that make it a significant resource and qualify it for the National Register. A qualified ethnographer will be retained by SDG&E. Qualifications for the ethnographer will be vetted and consulted on with the Forest, SDG&E and local tribal groups involved. Then the USFS will confer with the consulting parties regarding the methods for avoidance, which may be specific to the TCP in question. If the TCP cannot be avoided, the property will require a formal evaluation by a qualified ethnographer to determine its eligibility for listing on the NRHP/CRHR, and actions will be required to resolve the adverse effect. Evaluation of TCPs would include an assessment of the property's integrity of relationship and integrity of condition, and whether the property meets the criteria for inclusion on the Register in accordance with National Register Bulletin 38. The identification of new TCPs and the formal evaluations recommendations for any TCPs will be included in Appendix A of this document. Final eligibility determinations would be made by the USFS and/or CPUC in consultation with SHPO, the affected Native American Tribes or other affected stakeholders.

1.6.5 Evaluation of Historic Era Properties

Research themes relevant to the historical sites involve chronology; technology, subsistence and settlement organization; and the structure and integrity of cultural deposits (Iversen et al. 2010). The contextual history of an individual historic site is necessary to provide the basic framework for interpretation of the archaeological data. Essential information about the site should be established, such as the nature of the site, when was it established, by whom, and the extent and boundaries of the property. In addition to providing basic details that define the function of the site. Specific questions might include the following, however, this list is not exhaustive and additional questions and topics may be necessary to accurately assess a given resource.

Historic Site Formation and Context
The contextual history of an individual historic site is necessary to provide the basic framework for interpretation of the archaeological data. Essential information about the site should be established, such as the nature of the site, when was it established, by whom, and the extent and boundaries of the property. In addition to providing basic details that define the function of the site, research questions relating to site structure and land use would include:

- When was a particular site first constructed and by whom? How long was the site in use? Was the property owned and operated over several generations?
- Did site function change over time? Are changes in land use or site structure attributable to generational changes in the household? Can foundation and structural remains be identified with specific buildings or functional areas?
- Are specialized work areas present? Is there evidence of a high degree of specialization or more generalized use of the property? Was production specialized or diversified and did the focus of production change over time? How do changes in production relate to broader historical changes?
- Do foundations provide insight into construction methods and alterations?
- How were artifact deposits formed, and when did deposition take place?
- How did post-depositional processes, such as later construction, affect the degree of historical integrity of deposits and features?

Consumption Patterns
Consumer profiles for assemblages from working-class and middle-class lives, including small hotels, lodgings, and saloons, are available from recent studies in downtown San Diego. As such, intra-site comparisons can be made. Research questions relating to consumption patterns include:

- Can a subsistence pattern be defined?
- Do the consumer profiles for the assemblage differ from similar construction in other areas?

Changing Economic Conditions
Development within the region began in the late nineteenth century and has continued to the present day. San Diego has experienced several boom-and-bust cycles during this time. Periods of economic growth were generally followed by bust cycles when property values plummeted, production slowed, unemployment rose, and population dropped. Data analysis of material from the San Diego city dump (1908-1913) suggests that periods of boom were characterized by high ceramic and faunal economic values and a shorter time lapse between manufacture and discard of bottles (Christenson 1991; Van Wormer 1991, 1995). Analysis of deposits from the San Diego Justice Center site dating to the recession years of the 1890s had considerably lower ceramic and faunal economic values than deposits from the same site dating to the boom of 1900-1920 (Allen et al. 1996; Christenson 1996; Van Wormer and Manley 1997). Do these finds reflect conditions across the region?

In rural areas the economic strategies employed by property owners and farm workers to achieve basic subsistence or to produce income and meet household needs. Archaeological studies are ideally suited to the study of consumer behavior and economic strategies of rural households, and they provide an opportunity to examine how rural households adapted to economic conditions compared to households in other settings such as urban households.

The difference in household values between successful farm families and middle- and upper-middle-class urban residents is manifested through cross-site comparisons of functional profile and economic indexing data. Profiles of rural assemblages show higher frequencies of hardware, livery items, and equipment and machinery parts than those representing urban sites (Van Wormer 1991;1996). In addition, rural site assemblages tend to exhibit reduced ceramic index values (i.e. cheaper ceramic wares), that remain unaffected by fluctuating economic trends, as well as excessive ceramic and bottle manufacture-deposition lag time when compared to urban assemblages from the same period. These patterns indicate that rural households exhibited a different style of consumption from urban residents by spending less money on ceramic tableware and being more conservative about disposing of items only a few years old. Trash deposits from ranch and farmstead sites provide an excellent opportunity to test hypotheses relating to consumption patterns of rural versus urban dwellers. Remote rural dwellers survived in very difficult conditions and the rural consumer pattern may be further accentuated at these sites.

Archaeological data needs to address these questions include mapped locations of buildings and/or building foundations; structural remains of known function; sheet refuse indicative of specialized activity areas; intact archaeological deposits of known association containing residential and agricultural waste, including trash-filled cisterns, privies and trash pits; landscape features; environmental adaptations such as windbreaks; remnants of fencing and corrals; and presence of orchards and evidence of other land uses. Artifacts collected from defined contexts, a sufficient variety and quantity of materials, items associated with specific activities, and the frequency and proportion of items can assist in supporting any interpretations. Documentary data sources include land patent files; property and tax assessment records; property deeds; leases; probate records; census records; marriage and death records; financial and production records, if available; and oral history.

Research questions relating to changing economic conditions include:

- Are temporally diagnostic artifacts present in sufficient numbers to allow close dating of discrete deposits?
- Can specific adaptations to boom-and-bust cycles be detected? This question assumes that time-discrete archaeological deposits are available.
- Can a common culture for working-class, middle-class, and upper-middle-class residents be defined? How did successful rural farm families define wealth and spend money compared to middle- and upper-middle class urban dwellers. Research has indicated that after achieving a basic standard of living that included inexpensive ceramics and a few luxury items, farm families invested in equipment, land, livestock and outbuildings rather than in status symbols favored by urban dwellers such as fine furniture, table settings and clothes.

Archaeological data needs to address these questions include mapped locations of buildings and/or building foundations; structural remains of known function; sheet refuse indicative of specialized activity areas; intact archaeological deposits of known association containing residential and agricultural waste, including trash-filled cisterns, privies and trash pits; landscape features; environmental adaptations such as windbreaks; remnants of fencing and corrals; and presence of orchards and evidence of other land uses. Artifacts collected from defined contexts, a sufficient variety and quantity of materials, items associated with specific activities, and the frequency and proportion of items can assist in supporting any interpretations. Documentary data sources include land patent files; property and tax assessment records; property deeds; leases; probate records; census records; marriage and death records; financial and production records, if available; and oral history.

Specific research questions can be developed for historic agricultural and ranching sites, depending on the site function, variety and quantity of historic materials present and the availability of historical documentary data sources. Research topics specific to types of historic era resources (i.e. Water Conveyance Systems, Agricultural Properties, Mining Properties, Townsite Properties, Work Camp Properties, etc…) have previously been established in the California Department of Transportation's Historical Context and Archaeological Research Design series. Which will be utilized if those types of properties are encountered on the Project. The testing program will focus on determining if any subsurface deposits are present and on developing a land use history for this site.

The term "built environment" is a relatively new term used in its broadest sense to designate "the part of the environment formed and shaped by humans, including buildings, structures, landscaping, roads, signs, trails, and utilities" (www.co.tompkins.ny.us/planning/vct/glossary. html).

Section 8110 of the BLM Manual offers specific guidance for identifying and evaluating cultural resources, including historic built environment resources. According to the manual, "The same criteria and integrity standards are applied to all cultural properties, whether archaeological, historical, architectural, or traditional. In order to be listed in or found eligible for listing in the National Register, a property must have integrity and must meet one or more of the four criteria. No type of property is automatically eligible for listing in the National Register." Further, "In determining the National Register eligibility of a cultural property, an appropriately qualified cultural resource specialist must apply each of the four NRHP criteria for evaluation (36 CFR Part 60.4; see .32E). If a cultural property has integrity, meets one or more of the criteria, and is not ruled out by a criterion exception, the specialist should recommend to the responsible manager that it be considered an eligible 'historic property' as defined in the NHPA and related regulations. The National Park Service's National Register Bulletins provide guidance on applying the evaluation criteria and assessing integrity."

As a first step in identifying potentially eligible built environment resources historic maps will be consulted and conference with local archivists (e.g. local museums) will conducted in an effort to identify additional sources of history for the resource. Like other resource types, the Built Environment will be evaluated using the criteria for inclusion of both the NRHP and CRHR. In order to be eligible for listing in the NRHP or the CRHR, a property must also retain sufficient integrity to convey its significance. The seven elements of integrity defined by the NRHP are: location, design, setting, materials, workmanship, feeling and association (National Park Service 1991). To retain historic integrity, a property must possess several, and usually most, aspects of integrity.

> **Location**: "the place where the historic property was constructed or the place where the historic event occurred" (National Park Service 1991:44)
>
> **Design**: "the combination of elements that create the form, plan, space, structure, and style of a property" (National Park Service 1991:44)
>
> Setting: the "physical environment of a historic property" (National Park Service 1991:45)
>
> **Materials**: the "physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property" (National Park Service 1991:45)
>
> **Workmanship**: the "physical evidence of the crafts of a particular culture or people during any given period in history or prehistory" (National Park Service 1991:45)
>
> **Feeling**: "a property's expression of the aesthetic or historic sense of a particular time" (National Park Service 1991:45)
>
> **Association**: "the direct link between an important event or person and a historic property" (National Park Service 1991:45)

1.6.6 Considering the Effects of the Undertaking on Historic Properties

No significant changes in the operation and maintenance of the electric distribution and powerline facilities and access roads serving those facilities by SDG&E are proposed in the MSUP. Operation and maintenance activities are described in the document Operation and Maintenance Plan for San Diego Gas and Electric Electricity Powerline and Distribution Facilities Located on Federal Lands Administered by the USDA Forest Service-Cleveland National Forest (TBD) prepared by SDG&E and the Forest and to which the HPMP may be appended. This HPMP may be incorporated into SDG&E's Operations and Maintenance Plan for the Special Use Permit, as appropriate.

SDG&E operations and maintenance activities are constrained by the Master Special Use Permit to the area within the Special Use Permit boundary as noted in Figure 1. Consequently, SDG&E's operation and maintenance activities will not directly affect any historic properties outside the Special Use Permit and on lands administered by the Forest as long as SDG&E complies with the terms and conditions stipulated in the Special Use Permit. Any past alterations to the characteristics or uses of historic properties within, adjacent to, or extending beyond the Special Use Permit APE are historical in nature and are not considered to be effects of operations and maintenance or the MSUP Undertaking.

The following examples may be effects of the Undertaking that may potentially alter the characteristics that qualify historic properties for listing in the NRHP and which may occur as the direct result of the otherwise lawful ongoing operation and maintenance of the electric facilities.

a) Physical damage to or destruction of cultural deposits, artifacts, or features associated with archaeological sites or districts determined to be historic properties.

b) Deliberate interruption, constraint, or other impediment to the use of traditional cultural properties, or ceremonial or sacred sites that qualify as historic properties.

SDG&E and Forest qualified personnel shall assess adverse effects of the Undertaking on historic properties in the APE in accordance with 36 CFR §800.5 and the PA. SDG&E shall have historic preservation responsibility only for SDG&E effects to historic properties in the APE resulting from the otherwise lawful performance of activities in the Undertaking. Potential effects may be both direct and indirect (e.g., increased vandalism resulting from SDG&E improved access where access roads are exclusive to SDG&E use).

2.0 OPERATIONS AND MAINTENANCE ACTIVITIES

2.1 DESCRIPTION OF SDG&E OPERATIONS AND MAINTENANCE ACTIVITIES WITHIN THE MSUP APE

The following and Table 2 is a detailed description of routine maintenance activities included within the scope of the MSUP. Though the list may not be exhaustive, the activities included herein have the potential to affect historic properties.

Table 2. Routine Maintenance Activities

Activity	Description	Equipment Used	Frequency
Aerial inspections	Aerial survey of powerlines or distribution lines	Helicopter	Powerline:12-months distribution: 5-year cycle or 2-year rural safety check or as required
Ground inspections	Visual & physical inspection	4WD truck, ATV, or on foot	Powerline: 36-months distribution: 5-year cycle or 2-year rural safety check or as required
Wood pole test & treat	Take bore samples and inject internally with chemical preservative	4WD truck, ATV, or on foot	Powerline:10-year except for radial feed lines re on 5-year cycle distribution: 10-year
Insulator replacement	Replacement of insulators	4WD truck, ATV, helicopter or boom or line truck	As needed
Cross arm replacement	Replacement conductor supports	4WD truck, ATV, helicopter or boom or line truck	As needed
Anchor/ guy replacement	Replace anchor or down guy	4WD truck, helicopter or line truck for digging anchor hole	As needed
Vegetation management	Removal of trees and brush from authorized area and hazard tree zone	4WD truck, ATV, or large truck, chainsaw, chipper or weed whip	Annual or as needed
Road maintenance	Vegetation removal, waterbar or culvert cleaning/repair, road grading	4WD truck, grader, excavator, or D8 CAT	Biennial or sooner as needed
Installation and maintenance of avian protection measures.	Placement of cover over conductor	4WD truck, ATV, or large truck,	As needed
Telecommunications and weather monitoring equipment	Placement of equipment on poles, grounding rod installation, upgrades for safety, paths to poles and facilities	4WD truck, boom or line truck	Installation on poles as needed for safety and communications requirements

2.1.1 Inspections

Inspections are done from the air using helicopters, and from the ground using 4x4 vehicles, ATVs or on foot, depending on the terrain. All vehicles are operated only on authorized roads. The frequency and scope of inspections are specified by the California Public Utility Commission (CPUC) General Orders (GO).

- **Powerline**: Powerlines have four different types of inspection, two aerial per year (visual and IR), a wood poles ground line inspection on a ten-year cycle (except for radial feed which are on five-year cycle) and a ground patrol on a three-year cycle.

- **Distribution**: Distribution overhead GO 165 inspections are on a five year cycle. (All distribution poles are inspected once every 5 years). SDG&E also has a GO requirement for patrol "safety checks" in rural areas (mountains etc.) every 2 years and in urban areas every year. In the mountain areas Company personnel may also patrol "at will" or when there is an urgent need to do so, due to weather, fire, etc.

2.1.2 Annual Routine Vegetation Management Work

Annual routine vegetation management work consists of removal of brush, trimming of trees and falling hazard trees in compliance with Public Resources Codes 4292 and 4293, and California Department of Forestry fire protection requirements. Work is identified during the annual inspections. Routine hazard trees are trees that will grow sufficiently within a year to compromise the regulatory mandated clearance between vegetation and the conductors. Removal of brush and grasses from the base of identified poles will be done bi-annually in spring or early summer and in the fall.

Vegetation management work is typically carried out by crews using chain saws and non-powered hand tools. Chippers are sometimes used depending on vehicle access and the volume of slash to be disposed of. Crews typically leap-frog each other as they work down the line. The crews reach the area by a truck and/or walking into work sites depending on accessibility and terrain. After the trees are fallen the slash is lopped and scattered to meet fuel loading requirements. It is the Company's intent that this work occur on an annual basis on every power and distribution line.

2.1.3 Routine Pole/Tower and Conductor Maintenance

Routine pole/tower and conductor work consists of wood pole test and treat, insulator replacement, cross arm replacement, anchor/guy or incidental pole replacement.

- **Powerline**: Inspectors classify the work from the most critical as "force out/perform work now" to perform work within 2 to 30 days, to perform work within 1 to 6 months, to perform work within 6 to 12 months and so on. This does not include wood pole replacement, which would require amended Forest Service authorization.

- **Distribution**: Inspection follow-ups are done within the next year. Typically, there is a 10-month backlog window to do the follow-up repairs after the initial inspection.

Wood pole test and treat work consists of taking pole bore samples and injecting the pole with chemical preservative. Insulator and/or cross arm replacement work requires the use of a truck, or helicopter to bring in and handle the required components for the work. Anchor/guy or incidental pole replacement also requires use of a truck or helicopter. The crews reach the area by a truck using Authorized Roads or walking into work sites not accessible by vehicles. On an annual basis only a small fraction of the total power and distribution lines would be subject to pole/towers or conductor work.

2.1.4 Authorized Road Access and Maintenance

The Company's Authorized roads consist of roads used for powerline maintenance. They are typically dirt surfaced, 14 feet wide and passable only by a truck or high ground clearance vehicles. Road maintenance includes vegetation removal on the road surface, stormwater Best Management Practices (BMPs) (e.g., water-bars) installation or maintenance (e.g., or culvert cleaning or repair), and road grading (i.e., to the original line and grade). Company road maintenance activities for Authorized roads are typically done to maintain minimum accessibility requirements, address problems that may prohibit access, prevent erosion and protect National Forest System resources. Watershed protection and erosion prevention are emphasized during road maintenance activities.

2.2. AVOIDANCE OF POTENTIAL EFFECTS TO HISTORIC PROPERTIES DURING OPERATIONS AND MAINTENANCE ACTIVITIES WITHIN THE MSUP APE

As appropriate, SDG&E will provide for archaeological (cultural) monitoring within the MSUP APE of SDG&E ground disturbing activities by a qualified archaeologist and Native American monitor within areas of known or possible archaeological sensitivity. Monitoring may not be recommended in areas where existing conditions preclude the potential to yield buried or obscured archaeological deposits, including currently improved areas, previously disturbed areas, land areas created by filling, utility trenches, areas subject to adequate previous archaeological survey with no discoveries, etc. Alternatively, areas of specific tribal concern where no archaeological component has been identified may require monitoring. SDG&E will document, record, and report on monitoring activities included in the Undertaking in reports submitted to CNF.

SDG&E will use the site forms and updates prepared by Hector et al. (2009) and Schaefer and Williams (2013) (including sites, buildings and structures) in the APE. This information will be used for future condition assessments to determine whether cultural resources are being adversely affected by otherwise lawful activities associated with the Undertaking.

SDG&E will avoid and minimize adverse effects to historic buildings, structures, and other historic era resources by ensuring that operation and maintenance personnel receive suitable training in the application of The Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR Part 68).

If previously unknown or inadequately documented cultural resources are encountered during monitoring of activities included in the Undertaking, SDG&E shall follow procedures defined in Unanticipated Discoveries (see Section 2.2.2 below). SDG&E will immediately notify the Forest upon the discovery that a cultural resource has been impacted during an otherwise lawful activity associated with this Undertaking.

2.2.1 Standard Resource Protection Measures

To the extent reasonably feasible for the management of historic properties, SDG&E has incorporated into the HPMP appropriate "Standard Resource Protection Measures" found in Attachment B of the Second Amended Regional Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region, California Historic Preservation Officer, and Advisory Council on Historic Preservation regarding The Process for Compliance with Section 106 of the National Historic Preservation Act for Undertakings on the National Forests of the Pacific Southwest Region.

The following protection measures shall be implemented as appropriate for all subject undertakings managed by SDG&E within the Forest. When these protection measures are effectively applied, the Forest will have taken into account the effect of SDG&E's undertakings on historic properties.

2.2.1.1 Avoidance of Historic Properties

Whenever feasible, historic properties shall be excluded from areas where activities associated with an undertaking will occur. Areas where exclusion may not be feasible may include but is not limited to facilities that could not be moved because of engineering standards, safety requirements, potential fire hazard, and/or land owner preference. All proposed activities, facilities, improvements, and disturbances shall avoid historic properties. Avoidance means that no activities associated with an undertaking that may affect historic properties shall occur within an historic property's boundaries, including any defined buffer zones. Portions of undertakings may need to be modified, redesigned, or eliminated to properly avoid historic properties.

For historic properties eligible for the NRHP under 36 CFR 60.4(d), or those that may be important only for the information they contain, the physical demarcation of historic properties, and their exclusion from an undertaking's proposed activity areas is a minimum requirement. Physical demarcation and avoidance during the implementation of an undertaking is also required for other historic properties eligible for the NRHP under other criteria. But minimum protection requirements shall also include the use of buffer zones to extend the protection area around historic properties where setting is an important attribute, and the proposed activity may have an effect on the setting's quality. Linear sites may be crossed or bounded in areas where their features or characteristics clearly lack historic integrity, that is, where those portions (taking into account any buffer zones related to setting) do not contribute to site eligibility or values.

All historic properties within the APE shall be clearly delineated prior to implementing any associated activities that have the potential to affect historic properties. Historic property boundaries shall be delineated with coded flagging and/or other effective marking (APM CUL-09). Activities within historic property boundaries will conform to avoidance measures in Section 3.0 with the exception of using developed Forest transportation systems when the Heritage Program Manager (HPM) recommends that such use is consistent with the terms and purposes of the HPMP. Historic property location and boundary marking information shall be conveyed to appropriate Forest Service administrators or employees responsible for implementation so pertinent information can be incorporated into planning and implementation documents, and contracts (e.g., clauses or stipulations in permits). Buffer zones may be established to ensure added protection where the HPM or other professional archaeologist determines that they are necessary. The use of buffer zones in conjunction with other avoidance measures is particularly applicable where setting contributes to the property's eligibility under 36 CFR 60.4, or where it may be an important attribute of some types of historic properties (e.g., historic buildings or structures; historic or cultural properties important to Native Americans). The size of buffer zones needs to be recommended by the Principal Investigator and determined through consultation with the Forest HPM and SDG&E on a case by case basis. Landscape architects may be consulted to determine appropriate viewsheds for historic resources. Knowledgeable Native Americans shall be consulted when the use or size of protective buffers for Native American traditional or cultural properties needs to be determined. During construction, the Principal Investigator will be responsible for implementing any avoidance measures determined through this process.

When any changes in proposed activities are necessary to avoid historic properties (e.g., project modifications, redesign, or elimination; removing old or confusing project markings or engineering stakes within site boundaries; or revising maps or changing specifications), these changes shall be completed prior to initiating any activities.

Monitoring may be used to enhance the effectiveness of protection measures in conjunction with other measures. The results of any monitoring inspections shall be included in the annual report (PA, MSUP, Stipulation 5.0, Annual Reporting).

2.2.1.2 Projects within the Boundaries of Historic Properties

The Forest HRM may provide written approval for the work specified below within the boundaries of historic properties, under carefully controlled conditions. A qualified, locally affiliated Native American monitor will be present within resource boundaries that have specific Tribal concerns. The following specified activity(ies) may be approved under the conditions detailed below:

1) Felling and removal of hazard, wind throw, and salvage trees within historic properties under the following conditions:
    a. Felled trees may be removed using only the following techniques:
        i. Hand bucking and carrying,

ii. Rubber tired loader,
iii. Crane/self-loader,
iv. Helicopter;

b. Equipment operators shall be briefed on the need to reduce ground disturbances (e.g., minimizing turns);
c. No skidding nor tracked equipment shall be allowed within historic property boundaries; and
d. All such activities must be monitored by qualified heritage specialists at the time of tree removal.

2) Placement of foreign, nonarchaeological material (e.g., padding or filter cloth) over an archaeological deposit to prevent surface and subsurface impacts. Such foreign material may be utilized on an archaeological deposit under the following conditions:

a. Engineering will design the foreign material depth to acceptable professional standards;
b. Engineering will design the foreign material use to assure that there will be no surface or subsurface impacts to the archaeological deposit;
c. The foreign material must be easily distinguished from and cannot mix with the underlying archaeological deposit;
d. The foreign material must be removable should research or other heritage need require access to the archaeological deposit at a later date; and
e. Native American or other public concerns about the use of the foreign material will be addressed prior to use.

2.2.1.3 Avoidance Measures for Operations and Maintenance with the SDG&E APE

Archaeological sites were identified within or adjacent to areas included in the MSUP. None of these are historic-era resources, and none are Traditional Cultural Properties. In most cases, the powerlines span the site, and no direct impacts to the site have occurred nor are likely to occur. In other cases, there is a pole directly in a site, or an access road to a pole that goes through a site. Implementation of the treatment recommendations presented below will stabilize the integrity of the resources. The objective of the treatment measures is to avoid any adverse effects to NRHP-eligible sites during operation and maintenance of the utility lines. The treatment measures presented herein reduce the potential for significant adverse effects to such resources. Although some of the sites identified during implementation of the MSUP project may be eligible for the NRHP, most have not been formally evaluated for eligibility. The Forest and SDG&E treat all sites as eligible unless determined otherwise. Hector et al. (2009) and Schaefer and Williams (2013) provided detailed information on the poles and facilities that affect these sites; this information has been omitted from this report to preserve confidentiality.

2.2.1.4 Pole Maintenance (PM)

These poles are maintained by weed abatement, or could be maintained in the future. The use of power equipment to control vegetation could result in erosion through the removal of the soil surface.

Treatment measure PM was developed to give SDG&E maintenance personnel a menu of acceptable options should weed or vegetation control be needed under any pole that is located within an archaeological site. Some of the poles located within sites are being actively managed, and others could be in the future depending on what kind of equipment is added to or removed from the poles. If equipment requiring vegetation control can be removed from the pole, and active maintenance of the ground around the pole is no longer necessary, the treatment measure is not needed.

2.2.1.5 Treatment Measure PM

Prior to application of any option, the area should be photodocumented by an archaeologist to establish a baseline for the condition of the site. Application of any material or implementation of any option listed below should be monitored by an archaeologist. The Principal Investigator shall recommend which option is appropriate to avoid adverse effects, informed by concerns of any consulting parties, and forward that recommendation to the Forest HPM for final approval. The Principal Investigator shall ensure the approved measures are properly implemented.

> **Option 1.** Apply 3-6" of decomposed granite to the managed area around the pole. Maintain vegetation control on top of this material. As the material erodes or decays until less than 3" to 6" remains, replace as needed.
>
> **Option 2.** Apply 3-6" of angular gravel to the managed area around the pole (this material may be desirable if the managed area is a slope). Maintain vegetation control on top of this material. As the material erodes or decays until less than 3" to 6" remains, replace as needed.
>
> **Option 3.** Install plastic erosion control material to the managed area (waffle or grid pattern), to hold the angular gravel or decomposed granite. Maintain vegetation control on top of this material. As the material erodes or decays, replace as needed.
>
> **Option 4.** With the approval of Cleveland National Forest staff, herbicide use may be approved under specific conditions. Apply pre-emergent, non-migrating herbicide to the managed area around the pole. This option may be preferred in specific circumstances when the above options are not viable. For example, this method may be acceptable if the managed area cannot be covered with other materials because bedrock milling features are present and could be damaged through the application of gravel or decomposed granite. Herbicide application must be pre-approved through the USFS, which has procedures for approval and use.

SDG&E has applied gravel at the base of poles at sites SDI-8492, SDI-8534, SDI-9392, and SDI-17878. An archaeologist monitored the placement of the gravel during April and May, 2007. Monitoring reports were prepared and submitted to the Forest.

2.2.1.6 Road Maintenance (RM)

Utility access roads run through known archaeological sites within the Forest. Maintenance of these roads by blading or grading will adversely affect the sites through the removal of cultural materials and the gradual destruction of the site. Treatment measure RM should be implemented to avoid adverse effects.

2.2.1.7 Treatment Measure RM

An archaeologist and Native American monitor should monitor initial road maintenance to develop a detailed impact avoidance plan for each road segment that goes through an archaeological site. Minimal maintenance is recommended on road segments that go across archaeological sites. Lift the blade within the site area unless active repair is needed. Hand tools can be used to level the roads and to fill gullies and washouts. All fill soils should be imported from outside the site areas. Placement of chips on the more erosive areas will assist in the maintenance of the road surface. If necessary, gravel may be used to cover an affected area. The installation and maintenance of gravel cover should be monitoring by a qualified archaeological and Native American monitor.

2.2.1.8 Corridor Maintenance (CM)

There is minimal potential for future adverse effects to sites within corridors (between poles), unless equipment is used to maintain the corridor.

2.2.1.9 Treatment Measure CM

Do not use equipment within the corridor segments where known archaeological sites are located. If pole replacement, vegetation removal, or other maintenance activities are needed that will result in the introduction of equipment into the site area, an archaeologist should develop an impact avoidance plan. This may include a requirement that equipment be hand carried into and out of the site areas.

2.2.1.10 Road Realignment

Roads may be realigned by other entities (i.e. private property owners, County of San Diego, United States Forest Service, and go through sites. SDG&E will use the existing access roads which avoid the site and will not construct new access roads unless formally approved. Construction of new access roads will trigger full environmental review.

2.2.1.11 Pole and Facility Replacement

Occasional replacement of utility poles has the potential to adversely affect cultural resources. Any proposed pole replacement should be reviewed and monitored by an archaeologist where sensitive resources are present. If the pole has the potential to impact a site, test excavation or archaeological excavation of the proposed pole location may be necessary. If the pole is replaced, the old pole stub should be left in place to avoid further impacts to the site. Pole and facility replacement will trigger environmental review.

2.2.2 Resolution of Inadvertent Effects and Unanticipated Discoveries

In the event that unrecorded or unanticipated cultural resources that may be eligible for inclusion in the NRHP are located during any SDG&E maintenance activity within the MSUP APE and subject to this HPMP, SDG&E qualified personnel will, as soon as reasonably feasible,

1) Stop all SDG&E activities within the APE having the potential to adversely affect the cultural resource, determine the geographic bounds of the cultural resource, and take all reasonable measures to avoid or minimize harm to the cultural resource. In an emergency situation, SDG&E activities will be stopped as soon as possible;
2) Consult with the Forest and SHPO regarding the NRHP eligibility of the cultural resource. The Forest will be responsible for consulting with affiliated tribes and individuals, as necessary.
3) If the cultural resource is determined to be a historic property, consult with the Forest and the SHPO to identify and resolve any adverse effect of the Undertaking consistent with 36 CFR §800.5 & 800.6.
4) Notify the Forest and the SHPO of any time constraints; SDG&E, the Forest, and the SHPO will mutually agree upon time frames for consultation. Where applicable, the time table provided in CFR §800.13(b) may be utilized.
5) Comply with all other appropriate Federal laws and regulations (e.g., Native American Graves Protection and Repatriation Act, Archaeological Resources Protection Act, CFR §800.13, etc.) that apply in discovery situations.

As discussed in Section 1.1, cultural resources work during the Project will be conducted in compliance of this HPMP and any work done on SDG&E facilities on USFS Property outside of the above listed lines will continue to be done under the Forest's Regional Programmatic

Agreement or 36 CFR 800, as appropriate. The Project PA is only applicable to construction of the Fire Hardening Project. Once that action is complete the Project PA will no longer apply and Operations and Maintenance review and treatment will reference the Regional PA with an option to adopt the procedures developed in this HPMP.

2.2.3 Emergency Situations

Emergencies are not exempt from the National Historic Preservation Act (NHPA). SDG&E would provide notification to CNF for any activity involving ground disturbance necessary for protection of life and property (pursuant to the Code of Federal Regulations [36 CFR 251.50(b)]. When the emergency is stabilized and staff may safely enter the area, the company will conduct environmental review in accordance with the MSUP. SDG&E will provide the results of the environmental review to the Forest and coordinate any remedial action if necessary.

3.0 POWERLINE REPLACEMENT PROJECT ACTIVITIES

3.1 HISTORIC PROPERTIES TREATMENT PLAN/HISTORIC PROPERTIES MANAGEMENT PLAN FOR ADVERSE EFFECTS WITHIN THE PROJECT APE

The Powerline Replacement Project maintenance and reconstruction, including structure replacements and reconductoring projects, as well as major vegetation management projects, major road maintenance or reconstruction and other ground disturbing activities are beyond the scope of routine maintenance activities. Table 3 summarizes the categories of major project maintenance and reconstruction.

Table 3. Major Project Maintenance or Reconstruction

Activity	Description	Equipment Used	Frequency
Metal or wood pole and tower installation replacement	Typically at same site as previous pole/tower	4WD truck, excavator, D8 CAT, boom truck, line truck, helicopter	20-year cycle (or more) or as necessary
Conductor replacement	Involves conductor pulling equipment located at distances of up to 1 mile apart	4WD truck, boom truck, line truck, D8 cat, helicopter	As needed
Road reconstruction or new construction	New roads, or realignment of existing roads, or other significant ground disturbance	4WD truck, D8 CAT, grader, excavator	As needed
Underground Conduit	Trenching and excavation for conduit, vaults and bore pits	Trencher, excavator	One time for ground disturbance
Temporary Work Space (Stringing Sites and Staging Yards)	Vegetation removal or crushing, possible minor grading to level	4WD truck, wire truck, skiploader, D8 Cat	Construction Phase for Staging Yards, life of conductor
Vegetation management	Major tree removals, TSS's, authorized area mowing	4WD truck, D8 CAT, logging equipment, hydro-ax, mulching equipment, etc.	As needed

3.1.1 Description of Project

The existing powerlines and distribution facilities proposed as part of the powerline replacement projects are located within the central portion of San Diego County approximately 4.5 miles north of the U.S.–Mexico Border, 14 miles east of the City of El Cajon, in the vicinity of the unincorporated communities of Pauma Valley, Warner Springs, Santa Ysabel, Descanso, Pine Valley, and Campo. The proposed powerline replacement projects not only traverse the Palomar and Descanso Ranger Districts of the CNF, but due to the patchwork of land ownership in the project study area, also traverse public lands managed by the Bureau of Land Management (BLM); tribal lands on the La Jolla and Campo Indian reservations; Cuyamaca Rancho State Park lands; and private holdings within unincorporated San Diego County.

3.1.2 Final Record of Decision

As described in the Final EIR/EIS Section E.6, the federal preferred alternative is a composite of three alternatives. The Federal Proposed Action is the basis of the preferred alternative; however, the TL626 relocation option has been replaced by the TL626 Removal from Service Alternative Option 1 (the upgrade to TL6931), combined with the off-grid solution for the Boulder Creek substation. The Federal Preferred Alternative also analyzed the conversion of TL626 to 12 kV to continue service to the Boulder Creek

substation if the off-grid solution was not feasible. The Federal Preferred Alternative would also convert a 6.8-mile section of TL626 that is co-located with C79 to a 12kV fire hardened line to serve local residences along Boulder Creek Road. The Federal Preferred Alternative adopts Option 2 for the C157 relocation out of the Hauser Wilderness. The Federal Preferred Alternative also incorporates the portions of the Partial Removal of Overland Access Roads applicable to TL626/C79, TL625, C442, and TL629. This alternative is described in the Final Record of Decision (March 11, 2016) for the Project. Appendix A will be updated to capture final engineering designs and agency decisions that may change this proposed alternative.

3.1.3 Avoidance Measures

Archaeological sites were identified during preliminary studies near proposed distribution lines, powerlines, underground conduits and related facilities. Avoidance measures were developed through field visits by ASM and SDG&E staff. The objective of these measures was to eliminate any adverse effects to sites during the removal of existing wood poles, the setting of new steel or wood poles and the excavation for an underground conduit. In some cases, an existing or proposed pole, work area or underground conduit is directly within or bisects a site boundary and additional measures should be employed to ensure avoidance of adverse effects. Implementation of the avoidance measures presented below provides constraints to work from during the engineering and design phase, as well as, will protect the integrity of the resources during construction of the Powerline Replacement Project. The avoidance measures presented herein reduce the potential for significant adverse effects to such resources to a less than significant level. Site specific measures for evaluations of resources that cannot be avoided are memorialized in Table 4, CRHR/NRHP Evaluations for Historic Properties. Facility and work area specific recommendations were provided in the tables referenced in MM CUL-3 of the Project MMCRP and were updated in the revised Class III study (Schaefer and Williams 2013). The recommendations and tables will need to be updated and supplemented during the Pole Replacement Project as alternatives are chosen and final engineering designs are provided.

3.1.3.1 Access Roads Across Sites

At any access road location identified as needing a monitor during maintenance an archaeologist will conduct a field check to ensure no resource changes are present (i.e. artifacts or features exposed in the roadbed) and make recommendations for detailed impact avoidance in the field for each road segment that goes through an archaeological site. Minimal maintenance during construction is recommended for these road segments to prevent further damage to the site. Where physical manifestations of the site are present within the access road, access should occur with rubber tired vehicles only. No tracked vehicles are allowed unless matting or other protective material is placed on the ground first. If the road is proposed for grading, lift the blade within the site area wherever safely feasible. Hand tools can be used to level the road bed and fill gullies and washouts with material not obtained within the site boundaries (documented clean fill). Water bars will be made from non-archaeological soils brought in from outside the site areas. Do not create water bars by excavating portions of the road and moving soil around within the site. The site area on either side of the roadbed will be flagged (APM CUL-09) or marked with temporary fencing by the archaeology monitor as an Environmentally Sensitive Area (ESA), described below. No access beyond the fencing or flagging is allowed. Do not store or stage equipment on sensitive bedrock. If a road is proposed for abandonment, do not rip the old road bed. Seeding on top of the existing road is acceptable, but digging to plant shrubs or trees is not allowed.

3.1.3.2 Work Pads on an Archaeological Site

Creation of a work pad by grading, cutting, and filling is a permanent impact to an archaeological site and will require mitigation through data recovery for impacts to any eligible resources (refer to MM CUL-1d), as well as potential offsite and noninvasive efforts to mitigate impacts if a tribal resource is present. The types of appropriate mitigation efforts required will be determined on a site-by-site basis and will be documented in the HPTP developed for that specific resource. Avoid the creation of a work pad by reducing

and reconfiguring the graded area needed to install the pole, or by installing a micropile pole. Other alternatives may include use of a helicopter to deliver the pole and installation equipment. Identification of the proposed work pad and grading plans will be reviewed by SDG&E cultural resources staff as part of the project.

3.1.3.3 Buried Site Deposit

Evidence for buried cultural deposits was opportunistically sought through inspection of natural or artificial erosional exposures and the spoils from rodent burrows. In the daily survey notes, the field director assessed the potential for buried sites on the basis of subregional geomorphology. For instance, the potential would be rated as high in large alluvial valleys and as low in areas with shallow bedrock. If pole replacements consist of a foundation pole or undergrounding in high potential areas (as defined in Schaefer and Williams 2013), a cultural monitor is recommended due to high sensitivity for buried cultural deposits.

3.1.3.4 Environmentally Sensitive Area (ESA)

Sites that can be protected from direct impacts, but are within close proximity of proposed construction activities will be identified and labled as ESAs. The ESAs will be designated by marking the boundaries of sites with appropriate buffer zones (generally a buffer of 5 meters beyond the outer limits of the site extent, as demonstrated by surface and/or subsurface indications) using temporary fencing or other easily recognizable boundary defining materials. Native American monitors will be present for establishment of any ESAs at tribal cultural site. These areas will be noted on plans, maps and/or drawings for the project as off-limits to construction activities. Once established, an ESA will define areas where construction cannot occur to prevent damage to archaeological resources within the marked ESA. ESAs will be established by a qualified archaeologist prior to initiation of ground disturbing activities in the vicinity of the resource and will be maintained for the duration of the work effort in the ESA vicinity, with archaeological and/or Native American monitoring of ground disturbing activities required near all ESA locations.

3.1.3.5 Vegetation Management – Trimming

All vegetation management activities within or near site boundaries between pole spans will be monitored by a qualified archaeologist and/or a Native American representative. The monitor will ensure that no branches are dropped or dragged across archaeological or cultural sites. Do not drop cut vegetation onto bedrock. In some cases, it may be necessary to hand carry out all trimmed materials. No vehicles will be allowed within the site boundaries; access will be on foot only. Existing ground duff and cover vegetation will not be disturbed within site areas wherever safely feasible. Do not remove or move any rocks or other non-fuel material from the ground surface.

3.1.3.6 Pole Brushing around the Pole in a Site

When feasible, the preferred avoidance measure is to place geotextile on the existing ground surface around the pole. Do not rake or clear the area before placing the geotextile. Photograph the ground surface before placing the geotextile to document its condition. Angular gravel will be placed with a shovel on top of the geotextile to a depth of 6 inches. Future vegetation management will be done on top of the gravel cover; if the gravel erodes or decays to less than 6 inches thick, more gravel will be added. If the pole is on a slope, install plastic erosion control material to the managed area (waffle or grid pattern) when feasible to hold the angular gravel. Maintain vegetation control on top of this material. As the material decays or erodes, replace as needed, keep a minimum protective layer on the site surface. If placement of gravel around the pole is not feasible or acceptable to the property owner, vegetation around the pole can be cleared using the following methods:

- Hand pull vegetation out of the clearance area; or
- Mechanically or manually cut vegetation to just above the ground surface, without disturbing the surface.

- Apply pre-emergent, non-migrating herbicide to the managed area around the pole.

3.1.3.7 Distribution Pole in Site

Replace the pole within the hole left after removal of the existing pole wherever safely feasible. If the existing pole cannot be removed without digging around the base, cut it off in place and leave it; do not attempt to remove the pole since this will cause disturbance to the site. The replacement pole can be placed adjacent to the existing pole if a same hole set is not feasible. The replacement pole should be placed within the previously disturbed areas (i.e. existing work pads) of the existing pole (APM CUL-05). If grounding wire trenches are required archaeological monitors will work with construction crews to align the trench away from any observable site components. Monitoring is required.

3.1.3.8 Power Pole in/near Site

Relocate the pole(s) out of the site if feasible. Span the site and restrict activity in the spanned area.
Direct embed steel pole. Replace the pole adjacent to or within 2-4' [direction] of the existing pole (APM CUL-05). Use a micropile pole to minimize disturbance if feasible. Excavate grounding wire trenches toward the existing pole to minimize disturbance. Monitoring is required for all ground disturbing work on or near the pole (APM CUL-04).
Foundation pole proposed in a site. Use a micropile pole to minimize disturbance if feasible. Place the pole within 2-4' [direction] of the existing pole. Excavate grounding wire trenches toward the existing pole. Monitoring is required for all ground disturbing work on or near the pole.

3.1.3.9 Poles Span a Site

No staging, stringing, or other construction activity is allowed within site boundaries between poles that span a site. Where necessary, footpaths to access the pole(s) will be flagged by the archaeology monitor (APM CUL-09). No tracked vehicle use is allowed within site boundaries. Rubber tired vehicle access will be on existing roads only. No expansion beyond the current edges of the road will be allowed.

3.1.3.10 Anchors or Guys in Sites

Do not remove existing anchors or guys below the surface of the ground. Cut or remove the portion of the anchor above the ground surface but do not disturb the ground.

3.1.3.11 Modification to Historical Structures

Per MM CUL-2 identified in the MMCRP of the FEIR/FEIS, in order to reduce adverse effects and significant impacts to historic resources along C79, C440, and C442 as identified in Table D.5-12 of the FEIR/FEIS, the original exterior materials on the cabins shall not be removed, modified, or covered. If equipment attached to the cabins must be replaced, the equipment shall retain its original appearance in terms of materials and size. If this cannot be met, then a cultural monitor is required to be present during the replacement of the lines to minimize modifications to the cabin exteriors.

3.1.4 CRHR/NRHP Evaluations for Historic Properties

Working from the recommendations provided above, engineers attempted to re-design and eliminate poles and proposed facilities from within recorded cultural resources and will continue to attempt avoidance wherever feasible as final designs are completed. Where redesign/avoidance and recommendations provided above are not feasible in final design, CRHR/NRHP evaluations are proposed. Evaluations will be conducted in accordance with the process outlined in Section 1.6 of this document. Based on preliminary design, approximately 39 resources are considered for this effort and may be adjusted as final designs are provided. Table 4 summarizes the resources, current eligibility status and property ownership.

Table 4. CRHR/NRHP Evaluations for Historic Properties

PNumber	Trinomial	Forest Service No,	TL Segment / Circuit	Description	Status	Land Ownership
37-000080	SDI-80	05025400055	TL629C	Multiple Component	Determined Eligible	Private, Cleveland National Forest
37-000521	SDI-521	None	TL682	Prehistoric Bedrock Milling	Not Evaluated	Private
37-004276	SDI-4276	05025400963	TL625C	Prehistoric Site	Not Evaluated	Private
37-004787	SDI-4787	05025400017	TL629C	Prehistoric Bedrock Milling	Not Evaluated	Private
37-005556	SDI-5556	05025400400	TL626A	Prehistoric Bedrock Milling	Not Evaluated	Private
37-008239	SDI-8239	05025400074	TL629C	Multiple Component Site	Not Evaluated	Private
37-008492	SDI-8492	05025400194	C440	Prehistoric Habitation	Recommended Eligible	Cleveland National Forest
37-008534	SDI-8534	05025400262	C440	Prehistoric Habitation	Listed on NRHP	Private, Cleveland National Forest
37-008855	SDI-8855	05025400825	TL629A	Multiple Component Site	Not Evaluated	Cuyamaca Rancho State Park
37-009075	SDI-9075	None	C79	Prehistoric Bedrock Milling	Not Evaluated	Cuyamaca Rancho State Park
37-009080	SDI-9080	None	C79	Prehistoric Bedrock Milling	Not Evaluated	Cuyamaca Rancho State Park
37-009713	SDI-9713	05025400504	C442	Prehistoric Bedrock Milling	Not Evaluated	Cleveland National Forest
37-010108	SDI-10108	05025400930	C440	Prehistoric Bedrock Milling	Not Evaluated	Cleveland National Forest, Private
37-010615	SDI-10615	05025400788	C157	Prehistoric Bedrock Milling	Not Evaluated	Cleveland National Forest, City of San Diego
37-012106	SDI-12106/12107	05025400958, 05025400959	TL625B	Multiple Component	Not Evaluated	Cleveland National Forest, Private
37-012108	SDI-12108	05025400977	TL625B	Prehistoric Artifact Scatter	Not Evaluated	Cleveland National Forest, Sweetwater Authority
37-012110	SDI-12110	05025400979	TL625B	Prehistoric Rock Alignment & Artifact Scatter	Not Evaluated	Cleveland National Forest, Sweetwater Authority
37-024261	SDI-16503	None	TL629A	Prehistoric Artifact Scatter	Not Evaluated	Private
37-024459	SDI-16227/16229	05025401406	C449	Multiple Component	Not Evaluated	Cleveland National Forest

PNumber	Trinomial	Forest Service No,	TL Segment / Circuit	Description	Status	Land Ownership
37-025430	SDI-16878	None	TL626B	Prehistoric Artifact Scatter	Not Evaluated	Private
37-025633	SDI-17041	None	C79	Prehistoric Bedrock Milling	Not Evaluated	Cuyamaca Rancho State Park
37-027355	SDI-17877	05025300646	TL626A	Prehistoric Bedrock Milling	Not Evaluated	Cleveland National Forest
37-027365	SDI-17887	05025300654	TL626A	Prehistoric Bedrock Milling	Not Evaluated	Cleveland National Forest, Private
37-030074	SDI-19169	05025300656	TL626A	Prehistoric Bedrock Milling	Not Evaluated	Cleveland National Forest
37-030283	SDI-19279	05025401665	TL6923	Prehistoric Bedrock Milling	Not Evaluated	Private
37-030452	SDI-19350	None	TL629A	Prehistoric Bedrock Milling	Not Evaluated	Private
37-030459	SDI-19355	None	TL625C	Prehistoric Site	Not Evaluated	Private
37-030460	SDI-19356	None	TL625C	Prehistoric Site	Not Evaluated	Private
37-030464	SDI-19359	None	TL626B	Prehistoric Bedrock Milling	Not Evaluated	Private
37-030467	SDI-19362	05025401668	TL625C	Prehistoric Site	Not Evaluated	Cleveland National Forest, Private
37-030484	SDI-19372	None	TL620A	Prehistoric Bedrock Milling	Not Evaluated	Private
37-031159	SDI-19738	05025300706	TL682	Prehistoric Bedrock Milling	Not Evaluated	Cleveland National Forest, Private
37-031160	SDI-19739	None	TL682	Prehistoric Bedrock Milling	Not Evaluated	Private
37-031163	SDI-19742	None	TL682	Prehistoric Bedrock Milling	Not Evaluated	Vista Irrigation District
37-031168	SDI-19747	None	TL682	Prehistoric Bedrock Milling; Prehistoric Pictographs	Not Evaluated	Private
37-031707	SDI-20140	05025401678	C442	Prehistoric Bedrock Milling	Not Evaluated	Cleveland National Forest
37-032777	SDI-20722	None	C79	Prehistoric Bedrock Milling	Not Evaluated	Cuyamaca Rancho State Park
37-032785	SDI-20725	None	C79	Prehistoric Bedrock Milling	Not Evaluated	Cuyamaca Rancho State Park
37-033441	SDI-21032	None	C79	Prehistoric Bedrock Milling	Not Evaluated	Cuyamaca Rancho State Park

SDI-80/FS-05025400055: The site was initially recorded in the 1940s by Treganza as a village site, with rock shelters, rock walls, bedrock mortars, and potsherds. An updated site record was prepared in 1973 by Adams, who noted numerous bedrock mortars and slicks (Features A to Z), two rock rings, a rock shelter, mano fragments, projectile points, hammer stones, potsherds, lithic debitage, shell and evidence of historic

activity. In 1991, Joyner and Beck incorporated the results of surface observations and excavations by May (1973-1975), Minor (1976), Laylander (1981) and Molnar (1984) into the site record. The site record notes the presence of hundreds of milling features, a cremation, manos and metates, projectile points, choppers, hammer stones, scrapers and scraper planes, drills, spoke shaves, reworked flakes, cores, thousands of potsherds, bone and shell ornaments, and bone and marine shell refuse. The resource was determined eligible for inclusion on the NRHP under Criterion D in 1991. In 1993, Ver Planck documented historical structures related to the Boulder Oaks Resort.

ASM visited the portions of the site that bisect TL 629 (immediately north of Old Highway 80) and C449 (the southwest portion of the 1993 site boundary). In the area surrounding TL 629, previous bedrock features C, D, and E (27 milling surfaces: 18 slicks, nine mortars) were identified as well as seven milling stations (34 milling surfaces: 29 slicks, five mortars) that could not be traced back to a previous study. Seven brown ware potsherds and a metavolcanic flake (felsite) were also noted in the site area. The Pacific Crest Trail has been delineated (north-south) through this region and it is probable many artifacts have been carried away by hikers. In the section of the site that C449 crosses, a milling station (three slicks), a brown ware potsherd, six metavolcanic flakes (predominately felsite), a bifacial mano fragment (granitic) and a historical component containing 13 cans (coffee and food with church-key openings) and a small, undistinguished cement and red brick foundation were observed. An unnatural dirt mound lies immediately to the west of the small foundation and the bedrock milling lines up with previously recorded Feature I.

SDI-521: This prehistoric bedrock milling site was originally recorded in 1959 by True as bedrock mortars and metates, as well as being the location of "Maria's Home". The site was not identified during pedestrian surveys at this location, however, the potential for a buried cultural deposits and affiliation with an historical personage is high.

SDI-4276/FS- 05025400963: This prehistoric site is located within the access road and 90 ft. radius for two poles. The site was previously documented in 1976 by Russ Kaldenberg, who noted that it was a portion of the village of Japatul. Kaldenberg reported the presence of bedrock milling areas, at least 1 foot of midden deposit, manos, metate fragments, scrapers, debitage, and Tizon brown ware, as well as historic ceramics and glass. In 2009, flakes and pottery were noted by ASM within the 90-foot radius for both poles.

SDI-4787/FS-05025400017: Three poles lie within this prehistoric site. The site was recorded initially at the San Diego Museum of Man, presumably by Malcolm J. Rogers in the 1930s. Gary Fink and Paul Ezell prepared a site record in 1970, noting the presence of bedrock mortars, rock walls, a rock shelter, a mano, a projectile point, a hammer stone, cores, potsherds, bone, and shell. Cari Ver Planck reviewed evidence concerning the site in 1996, noting two published articles on collections from the site (Hagstrum and Hildebrand 1990; Hildebrand and Hagstrum 1995). During ASM's 2009 survey, a hand stone fragment, pieces of debitage, a brown ware potsherd, and one buff ware potsherd were found at one pole; a brown ware rim sherd and volcanic debitage were also found at another pole; and three brown ware sherds were located near the third pole.

SDI-5556/FS-05025400400: One pole and its access road are located within this site. The site was recorded in 1977 by Scott Fulmer, who reported the presence of nine bedrock mortars, three basins, 21 slicks, and six cupules, as well as about 400 flaked lithic tools and pieces of debitage, manos, and more than 300 potsherds. A record prepared in 1978 by Gary Fink noted 10 mortars, 15 basins, five slicks, 10 pieces of debitage, and five potsherds, as well as midden soil. In 2009, the site was identified by ASM. Evidence of damage by construction activities was noted; some of the milling features were in vertical or inverted positions, and an apparent broken portion of one feature was present.

SDI-8239/FS-05025400074: Nine poles all fall within in the boundary of this prehistoric site. The site was recorded at the San Diego Museum of Man, presumably by Malcolm J. Rogers in the 1930s. The presence

of bedrock mortars, flaked lithic debitage, and potsherds was reported. Ken Hedges updated the record in 1980, noting the presence of cupules and historic buildings. Cari Ver Planck summarized information on the site in 1996, mentioning Forest Service records prepared by John Fleming in 1978. During survey for the CNF MSUP, a tin can scatter was found near one pole, and two brown ware sherds and a volcanic flake were observed at another pole. No cultural resources were found at the remaining poles which are located within the previous site boundary.

SDI-8492/15156/FS-05025400194: SDI-8492 was originally recorded in 1980 by Fenenga and Harley as consisting of two loci. Locus A has two rock-lined house pits and thirteen bedrock milling features (116 slicks, 15 basins, and ten mortars). The number of milling features in Locus B was not listed but milling surfaces included 67 slicks, 42 basins, and ten mortars. Artifacts in each area include brown and buff ware potsherds, pieces of debitage, fire-affected rock, metate fragments, hammer stones, manos, and pestles. In 1998, KEA Environmental, Inc. returned to the site and observed 28 milling features with 134 milling surfaces (58 slicks, 65 basins, 10 mortars and a cupule). Surficial artifacts consisted of brown and buff ware potsherds, a metavolcanic projectile point fragment (collected), pieces of debitage (quartz, quartzite, metavolcanic, basalt, chert, and obsidian), ground stone fragments and fire-affected rocks. Nineteen shovel tests and four 1 x 0.5 m units were also excavated at this time and the site was determined to be eligible for National Register listing. In 1998, KEA Environmental recorded SDI-15156 which corresponds with Locus A of SDI-8492. They noted two rock-lined pits, 16 bedrock milling features with 149 milling surfaces (10 mortars, 15 basins, and 124 slicks), brown and buff ware potsherds, two milling slab fragments, hammer stones, hand stones, pestles and fire-affected rocks. ASM visited the site and identified rock rings, an extensive midden deposit, and the associated milling complex.

SDI-8534/FS-05025400262: Fenenga originally recorded this site in 1980 as the ethnographic Lilac Village referred to by Spier (1923). The site consists of ten milling features with 120 milling surfaces (11 mortars, 12 basins, 50 slicks, and 47 cupules) and thousands of artifacts: brown and buff ware potsherds, ground stone, pieces of debitage, cores, hammer stones, and scrapers. Signs of pothunting were observed and cremations were reportedly removed from the site. ASM visited the site and noted bedrock milling features, cupule clusters and a well-developed midden deposit. Locally occurring Juncus grass, Chokecherry, Elderberry and other plants were important gathering materials and were included at this time within the sacred sites record. The site was determined eligible but is not listed on the National Register of Historic Places.

SDI-8855/FS-05025400825: This extensive prehistoric and historic site encompasses the areas around two poles. It was initially recorded in 1981 by Dan Foster, who reported the presence of at least 100 bedrock milling features (mortars, basins, slicks, and a cupule), manos, mano/hammer fragments, hammers, 50 pieces of debitage (volcanic, cryptocrystalline silica, granitic, obsidian), and at least 500 brown ware sherds. An update prepared by Michael Sampson in 1992 notes some recent disturbance. Another update in 1999 by Alexander D. Bevil documented the historic structures of the Merigan Ranch House at the site. Also in 1999, Rae Schwaderer reported the negative results of monitoring trenches for a leach field. Another site update was prepared in 2007 by M. Mealey, B. Bruce, and M. Sweet. They noted the presence at six loci of a total of 12 bedrock mortars, more than 85 basins and slicks, a mano, a mano/pestle, two drills, flaked lithic debitage (obsidian, quartz, and volcanic), potsherds, shell, and an historic dump with metal and glass. During survey for the CNF MSUP, a bedrock milling outcrop with a single basin was noted at one pole, and a bedrock outcrop with one mortar was noted across a driveway, and at the base of a tree, from another pole.

SDI-9075: This prehistoric bedrock milling site was originally recorded by Foster, Parkman, McAleer, and Hood in 1981 and Mealey in 2003. Recorded features consist of three grey granitic outcrops with a bedrock milling feature in the maintenance yard of the Paso Picacho Campground. One outcrop was identified as having three oval metates and two slicks while the other two outcrops were recorded as having one slick

each. During survey for the CNF MSUP, the recorded site area appeared heavily disturbed with evidence of extensive burning (likely due to the 2003 Cedar Fire) and logging was observed. A heavy layer of deposited ash obscured or buried several of the previously recorded features. A large, felled pine tree bisects a portion of the site. A number of milling features were re-located.

SDI-9080: This prehistoric bedrock milling site was originally recorded in 1981 by Parkman and Hood as a milling station with 12 oval metates, three round metates and three slicks with an associated lithic scatter (20 to 30 quartzite flakes) and three granitic hammer stones.

SDI-9713/P-37-014421/FS-05025400504: This prehistoric site is made up of both an historical and prehistoric component. The prehistoric site, SDI-9713, was originally recorded in 1983 by Phillips and Carrico as a single bedrock milling station with two mortars, more than 35 brown ware potsherds (one a rim with conically drilled hole), a unifacial mano fragment, a felsite chopping tool, a large unshaped metate and three flakes. The historical component, P-37-014421, is a cabin in Lot #23 of the Pine Creek Recreation Residence Tract; originally recorded and evaluated by Newland in 1995. Its unique construction, age and integrity led it to be recommended eligible for National Register listing. ASM identified the cabin and the milling station in the same location and condition as previously recorded. An additional milling station with five conical mortars and two milling slicks, 15 brown ware sherds, a looted milling slab with hand stone, a granitic hand stone fragment and a volcanic flake were also noted. Thirteen of the brown ware sherds were found together, eroding out of the cabin's dirt driveway.

SDI-10108/10115/10291/FS-05025400930: Polan and Whitten reported SDI-10108 in 1984 as more than 15 slicks, more than 10 mortars with an abundance of ceramics and lithics, three projectile point fragments, three metate fragments, one incised steatite shaft straightener, one drill and two scrapers (one obsidian, one jasper). The site was subdivided into two sections with the observation that there was a 60 m area in between both loci that lacked artifacts or features. SDI-10115 was originally recorded by Polan and Whitten in 1984 as ten slicks occurring on three boulders. SDI-10291 was originally recorded by Whitney-Desautels in 1985 as an historical homestead site. This site includes a barn, a hut, seven storage sheds, a workshop, a privy and two residences. Associated items include hand forged metal bars, glass, nails, and charcoal house debris. ASM identified each of these sites during the current survey and combined them due to their proximity to one another. At SDI-10108, ASM focused on Locus A as it is within the proposed project area. ASM found 17 slicks and four basins within the main outcrop area within vicinity of the existing powerlines. This area has been subject to disturbance and looting since its original recordation. The site itself was found to be within close proximity of modern and historical housing structures, and adjacent to the Sunrise Highway. A worn trail cuts through the center of the site and a collector's cache of lithic materials was found atop a granite boulder adjacent to one of the houses. At SDI-10115, ASM identified only one faint slick on a low-lying boulder. A dirt road lies adjacent to the site and the entire area appears disturbed by development, land clearance, and traffic. At SDI-10291, ASM noted that the previous record was fairly consistent with the present condition of the site, but the occurrence of more recent development within the area has moved or obscured the historical artifacts originally noted by Whitney-Desautels.

SDI-10615/FS-05025400788: This site was recorded by Noah as a prehistoric bedrock milling site with an associated lithic and ceramic scatter in 1986. It is located on the southern edge of the Barrett Honor Camp facility at the end of an unnamed road off of Lyons Valley Road. The site is separated from the main Barrett Honor Camp facilities by the northwestern pointing drainage of Barrett Lake. The site rests atop a ridge that directly borders this drainage. The original site report briefly describes the presence of some milling features on several boulders and an associated artifact scatter composed of Tizon Brown Ware and assorted lithic debitage. ASM noted the presence of two conical mortars, three oval mortars, and six slicks occurring on three boulders. The main feature is a triangular shaped boulder containing two conical mortars, two oval mortars, and three slicks. A second boulder adjacent to the main one contains one oval mortar and two slicks. A third boulder contains one slick and is located roughly 24 meters southeast of the other features.

All the boulders sit at the edge of a seasonal drainage. The previously described lithic and ceramic scatter was identified appeared to measure approximately 50 meters in diameter, with the main milling outcrop forming the northeast border. This concentration consists of approximately 38 potsherds, 41 pieces of debitage, 14 hand stones, one core, and a possible graver. The artifact scatter is bisected by a fence line and dirt road.

SDI-12106/12107/FS-05025400958/-05025400959: In 1991, Affinis recorded SDI-12106 as historic rock walls, a cistern, a paved road, and a concrete bridge foundation with refuse materials scattered over more than 200 m. SDI-12107 was recorded in the same general area but awarded a separate trinomial do its prehistoric make-up. At least two bedrock milling features, more than 100 fine-grained volcanic flakes and debitage, more than 20 quartz flakes, at least one mano and a scraper were observed. In 2010, ASM monitored the replacement of a power pole within the western portion of the site. During this time the prehistoric component was found to consist of 10 bedrock milling outcrops with 16 milling surfaces (12 milling slicks, three basins and one saucer mortar). Twenty-three volcanic flakes, more than 50 quartz flakes, and a granitic unifacial hand stone fragment were also recorded on the surface of the site. Previously undocumented milling features were observed approximately 60 meters to the east of structure near the historic component of the site. The subsurface excavations conducted by SDG&E, a 30-in diameter x 10-ft. hole and 6-ft. x 1-ft. x 18-in trench, revealed no archaeological deposit present within the existing work pad. During survey for the CNF MSUP, the site was revisited and exists as recorded during the previous monitoring effort.

SDI-12108/FS-05025400977: In 1991, Affinis recorded this prehistoric artifact scatter as more than 100 fine-grained metavolcanic flakes, 20 quartz flakes, a mano fragment, a scraper and a pottery sherd. In 2010, ASM monitored the replacement of overhead facilities on a power pole within the site. A portion of the previously recorded lithic scatter, fine-grained metavolcanic and felsite flaked material, was identified at this time. However, the locations of the mano fragment and pottery sherd were not revisited, as they were located on another property. ASM revisited the entirety of the site and eleven granite and quartzite hand stone fragments, five volcanic flakes, a reworked quartzite flake and a volcanic depleted core were observed. The potsherds and scraper in the northern portion of the site could not be identified.

SDI-12110/FS-05025400979: In 1991, Affinis recorded this prehistoric artifact scatter as more than 50 metavolcanic flakes and debitage, 30 quartz flakes, more than three mano fragments and a complete mano. ASM documented 12 volcanic flakes and debitage (one possibly fire-tempered), a chalcedony flake, a quartz crystal, two quartz flakes, a quartz core, a hammer stone, four granitic hand stone fragments and a possible rock ring feature. The rock ring consists of 11 rocks, an additional three apparently displaced nearby, in a 2-x-2 meter area. The potential fire-tempered volcanic flake and the quartz crystal were found in the center of the alignment and some of the rocks appeared fire-affected.

SDI-16503: This prehistoric site includes the areas around two poles. It was initially recorded as an isolate in 2001 by Carolyn Kyle, who noted the presence of two pieces of volcanic debitage. In 2003, Kyle updated the site record, recording a quartz projectile point tip, a chert biface fragment, a volcanic scraper, 128 pieces of lithic debitage, and three pieces of animal bone, as well as five historic glass fragments. During survey for the CNF MSUP, the surface of the site around the exiting poles was clear of cultural constituents.

SDI-16227/16229/FS-05025401406: This multiple component site consists of prehistoric bedrock milling and historic rock wall features. SDI-16227 was originally recorded in 1995 by Culbert and VerPlanck as four bedrock milling stations and fragments of a possible rock wall. Culbert, VerPlanck and Decker also recorded SDI-16229 in 1995 as five segments of a historic rock wall. The rock wall is intersected by large natural boulders. In 2007, Connell, Burkard, Linder, Lown and Covert identified and combined the two sites due to their proximity to one another. Six bedrock milling stations, one cottonwood projectile point, five potsherds, a ground stone fragment, midden deposits and 11 north to south trending rock wall segments

(approximately 700 feet total) were recorded at that time. During survey for the CNF MSUP, ASM recorded ten bedrock milling stations, five volcanic flakes, a piece of obsidian debitage, a quartzite flake, two brown ware sherds, four segments of the rock wall and a possible rock enclosure. The length of the rock wall segments encountered measure approximately 20 m, 40 m, 35 m and 10 m, respectively. The possible rock enclosure is made up of more than 30 stacked granite rocks and boulders in a circular alignment.

SDI-16878: Portions of this site are located within the direct impact area for one pole and are crossed by the dirt access road. The site was recorded in 2003 by Philip de Barros, who noted the presence of a projectile point, flaked lithic debitage, and ceramics, including an incised fired clay effigy resembling a whale. ASM identified additional debitage and ceramics that extended the site boundary to the proximity of SDI-7110, an isolated prehistoric scraper recorded by Thomas Banks in 1979.

SDI-17041: This site was recorded by Mealey in 2004 and consists of a single milling slick on a pink granitic bedrock outcrop. ASM re-identified the site and the milling slick appeared to be in the same condition.

SDI-17877/FS-05025300646: One pole and its access road are located near this site. The site was recorded in 2006 by Drew Pallette and Michael Garnsey, who observed midden soil, about 30 pieces of debitage (quartz, volcanic, and obsidian), and about 20 potsherds. ASM identified the site and enlarged the previously recorded boundary to include bedrock milling with a bedrock mortar, a basin, and a slick along with a scatter of flaked lithic debitage and brown ware sherds.

SDI-17887/FS-05025300654: One pole is located within this site. The site was initially recorded in 2005 by Del James, with a formal record prepared in 2006 by Drew Pallette. At least nine boulders with five milling basins and 12 slicks were noted, as well as a few pieces of quartz and volcanic debitage, and a few brown ware sherds. ASM observed three outcrops with a total of three mortars, four basins, and one slick along with two hand stones and three brown ware sherds. Also noted at the site were fragments of brown bottle glass and ceramic plates, together with shotgun and bullet shell casings, apparently the remains of target shooting.

SDI-19169/FS-05025300656: The boundary of this large site includes the location of one pole and its access road. The site was initially recorded by Susan Hector and Thomas Hector-Rosen in 2008. They observed two flakes and two potsherds in the existing access road. ASM re-identified the site and its boundary was enlarged to encompass a milling feature with two mortars and five slicks. An additional volcanic scraper was also noted.

SDI-19279/FS-05025401665: Gallegos & Associates originally recorded SDI-19279 as a lithic scatter encompassing a 108-x-18 meter area. ASM expanded the site considerably to include bedrock milling features, ground stone implements, flaked stone artifacts, and fire-affected rock in an area measuring roughly 450-x-120 meters. Bedrock milling features include a large, flat granite slab containing numerous mortars, basins, and slicks in addition to a boulder containing a basin and a mortar. A large fissure on the surface of one feature may represent intentional burning of and/or chipping/pecking away of the slab surface. Additionally, an almost completely buried ground-level granite outcrop in the western end of the site may contain buried milling elements. Ground stone implements noted at the site consist of hand stones, while identified flaked stone includes cores, bifaces, and a pestle or hammer stone, in addition to abundant pieces of debitage linking the features and outlying materials.

SDI-19350: Two poles are located within this prehistoric site. It was initially identified during the CNF MSUP surveys and consists of two basins on a single outcrop, midden soils, and several potsherds.

SDI-19355: This prehistoric site is located within the access road for four poles, on the east and west side of the road. The site was initially identified for the CNF MSUP by ASM and consists of three bedrock milling features with several milling surfaces on each outcrop, as well as quartz and volcanic flakes.

SDI-19356: This prehistoric site is located five meters east of one pole. The site was initially identified during the CNF MUSP and consists of a single bedrock milling feature with no associated artifacts on the surface.

SDI-19359. One pole lies within this site, and the proposed work area for a second pole is adjacent to it. The site was identified as a large habitation site for the CNF MSUP and contains twenty-one milling features, including mortars, Cuyamaca ovals, basins, and slicks. Surface artifacts included numerous flaked lithic debitage and brown ware potsherds.

SDI-19362/FS-05025401668: This prehistoric site is located at four poles. It was recorded by the San Diego Museum of Man, probably by Malcolm J. Rogers in the 1930s. The site contained steatite "curing slabs," identified and collected by Donal Hord, as well as cremated human bone. In 2009, ASM identified no cultural material was observed on the surface in the immediate area of the poles, although bedrock milling features, a hand stone, and flaked lithic debitage were noted elsewhere in the site.

SDI-19372: One pole lies within this prehistoric site, and another pole is adjacent to it. The site was recorded for the CNF MSUP and contains bedrock milling with an associated lithic scatter. Two milling features were observed, including five slicks and a basin. Surface artifacts include eight debitage.

SDI-19738/FS-05025300706: This prehistoric site is located at one pole. Two bedrock milling features (saucer mortars), a volcanic projectile point, a quartz projectile point, a quartz core, and 16 quartz flakes were observed by ASM. Possible midden soils were noted in small animal burrows across the site boundary.

SDI-19739: This prehistoric site encompasses one pole. In 2010, a bedrock milling feature with a conical mortar and slick remnant, three quartz flakes, 19 brown ware sherds, and a buff ware sherd, and were recorded by ASM. The site is probably related to the habitation site at SDI-789, which is along the same landform a short distance to the east.

SDI-19742: This prehistoric site is located east of one pole. In 2010, a bedrock milling feature with two saucer mortars was recorded by ASM in the foothills surrounding Lake Henshaw to the west. Some possible midden soils were observed around the milling outcrop.

SDI-19747: This prehistoric site encompasses two pole locations. ASM identified the site for the CNF MSUP and recorded 12 bedrock outcrops with 30 milling surfaces (conical mortars, saucer mortars, basins, and slicks), two pictograph panels on one outcrop, a volcanic projectile point fragment, a quartz projectile point fragment, two reworked quartz flakes, two quartz cores, 109 quartz flakes and pieces of debitage, four volcanic flakes, a chert flake, a whole granitic hand stone, 25 brown ware sherds, and midden soil. Burnt and butchered animal bones were found in the eastern portion of the site. East of the site is a burnt house and possible historic structure.

SDI-20140/FS-05025401678: ASM identified the site during survey for the CNF MSUP and recorded two milling stations containing five shallow mortars (possibly acorn huskers or cupules) and one shallow mortar, respectively. No artifacts were identified near the milling site, possibly due to a layer of wood chipping around the site.

SDI-20722: California State Parks originally recorded this site in 2005 after the Cedar Fire then updated it twice in 2009 for the Conifer Tree Planting Project. A bedrock milling station with a single slick, 15

volcanic pieces of debitage, a volcanic flaked stone tool, and three potsherds were recorded during the three visits to the site.

SDI-20725: California State Parks originally recorded this site in 2005 after the Cedar Fire then updated it in 2009 for the Conifer Tree Planting Project. The site consists of two bedrock milling stations with one milling slick each and a single volcanic piece of debitage.

SDI-21032: California State Parks originally recorded this site in 2009 as a milling outcrop with a single slick remnant.

3.1.5 During Construction Activities

Per MM CUL-3, during construction of the proposed power line replacement projects, all measures as identified in Williams and Schaefer 2011 and 2013 as well as Shaver and Baksh 2012 shall be implemented by a qualified archaeologist who is approved by the CPUC and USFS. Further, when on City-owned land (portions of C157, T625, and C449), the City's Land Development Manual – Historical Resource Guidelines per the San Diego Municipal Code, Chapter 14, Article 3, Division 2, Section 14.0201, shall be followed (http://docs.sandiego.gov/municode/MuniCodeChapter14/Ch14Art03Division02.pdf). Specific measures in Williams and Schaefer 2011 and 2013 are found in:

- Tables 3 and 6 for TL625;
- Tables 9 and 11 for TL626;
- Tables 14 and 17 for TL629;
- Table 20 for TL682;
- Table 23 for TL6923;
- Table 26 for C78;
- Table 29 for C79;
- Table 31 for C157;
- Table 34 for C440;
- Table 37 for C442; and
- Table 40 for C449.

These measures will be updated as final engineering designs are provided and will be captured in Appendix A of this HPMP.

3.1.6 Inadvertent Effects and Unanticipated Discoveries (During Construction)

Should any previously unidentified prehistoric or historic artifacts; indicators or examples of cultural, archaeological, or paleontological resources; or potential human remains or funerary items be discovered during the course of site preparation, grading, excavation, construction, or other activities, all operations within 50 feet of an inadvertent discovery during such activities shall cease and the PI will contact the USFS Heritage Program Manager (HPM) and SDG&E's Cultural Resource Specialist. If the find is suspected to be human remains a San Diego County Coroner's representative will be requested to make any assessment before any further work may commence.

In the event that unrecorded or unanticipated cultural resources that may be eligible for inclusion in the NRHP are located during any SDG&E construction activity within the powerline replacement projects APE, SDG&E qualified personnel will, as soon as reasonably feasible, ensure the following.

All ground-disturbing work at the work area will be temporarily suspended. The archaeological monitor will carefully inspect the ground surface around the discovery and the displaced dirt in order to determine whether the discovery constitutes an isolated find (fewer than three items) or a site (three or more items, or a feature). Inspection of the ground surface will consist of an intensive survey of the ground surface at one meter intervals radiating out from the identified artifacts to a minimum distance of 20 meters, or as limited by topographic features, and will include inspection of all trench sidewalls and spoils piles up to a distance of 20 m. The purpose of surveying around the newly discovered artifact(s) is to determine if other artifacts or features are associated, thereby constituting an archaeological site. If no other artifacts or features are identified within 20-m of the find it will be determined to be an isolate (with the exception of human remains). All isolated artifacts will be documented, reported, and described in the final monitoring report, but no additional agency notifications shall be required and work may resume in those areas.

If the discovery is determined to be a site, after securing the work area from additional disturbance, in concert with the Construction Foreman or Field Supervisor, the archaeological monitor will notify the Principal Investigator (PI), who will notify the appropriate HPM, federal agency overseer or CPUC representative, depending on the location of the discovery (MM CUL-1e). To the degree possible, the construction and engineering teams will be included in discussions to avoid or minimize potential damage to the discovered resource. Notification/coordination with other jurisdictional land management agencies will be conducted by the USFS and/or CPUC as appropriate.

If a newly discovered site can be avoided, it will be designated as an avoidable new discovery (AND), explained in depth below. When unanticipated discoveries cannot be avoided, the site will be designated as an unavoidable new discovery (UND) and evaluated. Consultation between the PI, SDG&E, and the USFS will determine what additional fieldwork, such as limited test excavation, is necessary to recommend the site's potential eligibility for the NRHP, CRHR or Local Listing. Pursuant to 36 CFR 800.13(c), the Forest may assume any discovery to be a historic property and continue consultation to resolve adverse effects. The Forest/CPUC will be responsible for contacting the consulting parties and interested Tribal groups, if necessary. It may be determined that a site visit by the USFS, CPUC and/or relevant jurisdictional agency is necessary to make that determination. Avoidance and protection of the site is the first strategy; if avoidance is not possible, evaluation will be necessary.

In accordance the schedule in CFR 800.13(b)(3), the Forest will be responsible for contacting the consulting parties within 48 hours, as appropriate. The consulting parties will have 48 hours to respond to the notification. The agency official shall take into account their recommendations regarding National Register eligibility and proposed actions, and then carry out appropriate actions.

If test excavation is required to evaluate a discovery, the PI in coordination with SDG&E and the USFS, will formulate and implement a testing program. In general, any evaluation effort will be focused on the area of discovery within the area of impact including a reasonable buffer (not more than 10 m from the maximum extent of the find). The focus will be to determine the nature of the archaeological resource and to assess the quantity, quality, and variety of preserved archaeological items that are or may be present. Evaluation will include Shovel Test Pits (STPs) of a sufficient number to characterize the extent of subsurface archaeological deposits and, if necessary, a Control Unit (CU) to evaluate the condition of the discovery and acquire a controlled sample of any preserved cultural materials. The testing program will be conducted in accordance with Section 1.6 of this HPMP.

After the site evaluation, the PI will have five business days in which to prepare a summary letter report assessing the site's eligibility and recommending appropriate treatment measures, such as the need for archaeological data recovery, if the site is recommended eligible. The letter report will be submitted to the USFS and/or CPUC, as appropriate, who will have 10 business days to review the report and evaluate the proposed treatment measures, if deemed necessary. If site areas within the area of direct impact (ADI) meet

the following conditions, they may be determined not contributory to the NRHP/CRHR/Local Listing of the larger site as a whole, by the USFS if:

1. The Area of Direct Impact (ADI) lacks intact subsurface archaeological deposits;
2. The ADI lacks chronological data;
3. No human remains are present within the ADI or known on the site as a whole;
4. No intact features are present within the ADI other than bedrock milling stations, lithic chipping stations or historical refuse scatters, determined to be single incident refuse dumps. In addition, surface artifact densities within the ADI shall not exceed 0.5 archaeological specimens per meter square or contain more than three artifact types indicating a diverse assemblage.

No further SHPO consultation will be required for eligibility determinations for site areas that meet the above conditions. Findings that exceed these criteria will be submitted to the SHPO for concurrence for a 10-day review period. If the determination is that the discovered resource does not qualify for nomination to the NRHP/CRHR/Local Listing, the USFS will issue written notice-to-proceed for all USFS land, and in consultation with the CPUC and other land management agencies on non-USFS land as appropriate.

If a discovered site is recommended to be eligible for the NRHP, CRHR or Local Listing and cannot be avoided or protected, further treatment measures will be required. In consultation with the USFS, SHPO, and SDG&E, the PI will prepare an HPTP within five days of recommendation of eligibility for review and approval by the USFS, and for review by the CPUC on non-federal land. The USFS will ensure consulting parties that respond during the 48-hour notification period are invited to contribute during the development of the HPTP. The USFS and/or CPUC will have 48 hours to review the HPTP and provide comment. The PI will then have 24 hours to address comments and submit a final draft to the USFS. The USFS will provide the final draft to the consulting parties for a review period of 30 days. The USFS will determine if a shorter review period is appropriate and necessary, whereupon consulting parties will be notified. Based on the nature of the comments, the USFS and/or CPUC, SDG&E and PI will have 48 hours to address any comments received during that period. Review by other jurisdictional land management agencies may be required and will be coordinated within the timeframe above by the USFS and/or CPUC as appropriate. After review and concurrence, the USFS will notify SDG&E that the proposed mitigation can proceed. Any mitigation in the form of data recovery efforts will be focused only on that portion of the site within the area of direct impact with a reasonable buffer.

The level of effort required for mitigation will be dictated by the nature and extent of the discovery and on the results of the initial evaluation effort and the specific activities being implemented in the UND. The focus will be on recovering a sufficiently large sample to characterize the discovery and to address regional research questions, as appropriate. Upon completion of any required fieldwork, the PI will prepare a brief interim letter report summarizing the excavation results and prior to completion of any special studies or laboratory analyses. Within 24 hours of submittal, the USFS will distribute the letter report to the consulting parties. The USFS and consulting parties will have five business days to review the report and determine whether or not construction work at the discovery can resume or if additional sampling is required. If any comments are received during the review period, the USFS, SDG&E and PI will have 48 hours to address any comments from the consulting parties. The USFS will notify SDG&E when work can resume. A final data recovery report will be prepared after laboratory studies and analyses. This report will not be automatically distributed to consulting parties but will be retained at the CNF Supervisor's office and will be provided upon request. The Forest will provide the final data recovery report to those consulting parties who requested to be involved in the resolution of adverse effects to the discovery.

The category of AND applies to sites that are identified by the cultural resources monitors during monitoring, that are in proposed work areas but can be avoided by potential direct impact. These avoidable

new sites may be an expansion of a previously recorded site or may be a wholly new resource. If the AND is part of a previously recorded site, it will be mapped and described and the boundary of the site will be modified using a DPR Site Record Update. If the increased site size results in the new site boundary encroaching into a Project work area or into a portion of the Project with the potential for direct impacts, the first alternative will be to explore establishing or modifying the existing ESA to protect the enlarged site area from damage. Indirect impacts to these resources will also be explored to ensure other contributing elements to the site's eligibility are accounted for. The Forest will notify the consulting parties within 24 hours of a determination of avoidance, including consideration of indirect impacts, and the consulting parties will have 48 hours to make comment on those findings. Absent any comments work will resume at the location. If impacts to the newly described resource cannot be avoided, it will be treated as an UND and the processes described above will be implemented, as appropriate.

Alternatively, if the AND is not within a Project work area or an area that is vulnerable to direct ground or indirect Project impacts, the data pertaining to the AND will be acquired by the cultural resources monitor and a DPR Site Record or Site Record Update, as appropriate, will be prepared and submitted to the South Coastal Information Center and the appropriate agency for inclusion in their respective database. It will also be described and presented in the final Monitoring Report. If the AND is within 100 feet of the Project, an ESA will be established to ensure protection during construction. ANDs would not require immediate reporting or consultation with the SHPO or other agencies or consulting parties, but will be memorialized as part of the Project data record.

If a previously recorded or newly discovered site is inadvertently damaged, or unanticipated effects to a site due to a project change may occur, the site will be evaluated following the procedure described above for UNDs.

3.1.7 Treatment of Human Remains

Human remains encountered on federal property will be treated in accordance with all appropriate Federal laws and regulations (e.g., NAGPRA, ARPA, etc.) that apply in discovery situations. If human remains are encountered on property not owned by the federal government, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to State Public Resources Code Section 5097.98. Following the provisions and guidelines of State Public Resources Code Section 5097.98, the County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric (either inhumation or cremation and in any state of decomposition or skeletal completeness), the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the descendant may inspect the site of the discovery. The descendant shall complete the inspection within 48 hours of being granted access to the site. The MLD may recommend several approaches including but not limited to scientific removal and nondestructive analysis of human remains and items associated with Native American burials or reburial of human remains in a location on or adjacent to the property they were identified at and in a location that will not be subject to future disturbances. It is the policy of the state of California that Native American remains and associated grave artifacts shall be repatriated (State Public Resources Code Section 5097.991). If cultural materials are discovered during any excavation, a qualified archaeologist should be notified to assess the significance of such material.

4.0 BIBLIOGRAPHY

Allen, Rebecca, Scott Baxter, Jerry Schaefer, Sinéad Ní Ghabhláin, and Drew Pallette
2005 *Archaeological Investigations on Block 138 (CA-SDI-16,822): Location of the Heernander Planing Mill and Residence, The Eureka Hotel/Ocean House Hotel, and a Lodgings House, Downtown San Diego*. Report prepared for Centre City Development Corporation.

ASM Affiliates (Schaefer, Jerry, and Brian Williams)
2011 *Inventory, Evaluation, and Treatment of Cultural Resources in the Cleveland National Forest Transmission and Distribution Line Increased Fire Safety Project.*
2013 *Revised-Inventory, Evaluation, and Treatment of Cultural Resources in the Cleveland National Forest Transmission and Distribution Line Increased Fire Safety Project.*

Bada, Jeffrey, Roy Schroeder, and George Carter
1974 New Evidence for the Antiquity of Man in North America Deduced from Aspartic Acid Racemization. *Science* 184:791-793.

Bada, Jeffrey L.
1985 Aspartic Acid Racemization Ages of California PaleoIndian Skeletons. *American Antiquity* 50(3):645-647.

Bayham, Frank, and Donald Morris
1986 Episodic Use of a Marginal Environment: A Synthesis. In *Prehistoric Hunter-Gatherers of South Central Arizona: The Picacho Reservoir Archaic Project*, edited by F. Bayham, D. Morris, and M. Shackley, pp. 359-382. Anthropological Field Studies No. 13, Arizona State University, Tempe.

Bean, Lowell J., and Florence C. Shipek
1978 Luiseño. In *California*, edited by Robert F. Heizer, pp 550-563. *Handbook of North American Indians, Vol. 8*, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Beauchamp, R. Mitchel
1986 *A Flora of San Diego County, California.* Sweetwater River Press, National City, California.

Bettinger, Robert L.
1982 Explanatory/Predictive Models of Hunter-Gatherer Adaptation. In *Advances in Archaeological Method and Theory 3*, edited by Michael B. Schiffer, 189-255. Academic Press, New York.

Byrd, Brian F., and L. Mark Raab
2007 *Prehistory of the Southern Bight: Models for a New Millenium*, edited by Terry L. Jones and Kathryn A. Klar, pp. 215-227. Altamira Press, Walnut Creek, California.

Bull, Charles S.
1983 Shaking the Foundations: The Evidence for San Diego Prehistory. *San Diego State University Cultural Resource Management Casual Papers* 1(3):15-64.
1987 A New Proposal: Some Suggestions for San Diego Prehistory. In *San Dieguito-La Jolla: Chronology and Controversy*, edited by Dennis Gallegos, pp. 35-42. San Diego County Archaeological Society Research Paper No. 1.

Cardenas, D. Sean, and Stephen Van Wormer
1984 Archaeological Investigations of SDI-4648 and SDM-W-348. RBR and Associates, San Diego.

Carter, George
1980 *Earlier Than You Think: A Personal View of Man in the Americas*. Texas A&M University, College Station.

Carrico, Richard L., Theodore Cooley, Laura Barrie, Andrea Craft, and Stacey Jordan
1983 A Brief Glimpse of the Kumeyaay Past: An Interview with Tom Lucas, Kwaaymii, of Laguna Ranch. *The Journal of San Diego History 29(2)*. Available online at https://www.sandiegohistory.org/journal/83spring/kumeyaay.htm
2003 *Final Archaeological Overview for the Cleveland National Forest.* Prepared by Mooney and Associates for the United States Department of Agriculture.

Carrico, Richard L., Allan Schilz, Frank Norris, and Richard Minnich
1982 *Cultural Resource Overview of San Bernardino National Forest, California*. *Volume 1*. Prepared by Westec Services for the United States Forest Service.

Christenson, Lynne E.
1990 *The Late Prehistoric Yuman People of San Diego County, California: Their Settlement and Subsistence System*. Ph.D. dissertation, Arizona State University.
1991 Subsistence Studies in Early 20th Century San Diego. In *Even the Kitchen Sink: Archaeological Investigations of SDi-10,258, the 1908 to 1913 San Diego City Dump,* by Stephen R. Van Wormer, Appendix A. Regional Environmental Consultants (RECON), San Diego. Prepared for City of San Diego Development and Environmental Planning Division.
1992 The Late Prehistoric Yuman Settlement and Subsistence System: Coastal Adaptation. In *Essays on the Prehistory of Maritime California*, edited by T. Jones, pp. 217-230. Center for Archaeological Research at Davis Publications No. 1.
1996 Economic Analysis of Bone from Selected Historic Sites. *Proceedings of the Society for California Archaeology* 9:324-329.

Cline, Lora L.
1979 *The Kwaaymii: Reflections on a Lost Culture*. IVC Museum Society, El Centro California.
1984 *Just Before Sunset*. J and L Enterprises. Jacumba, California.

Cuero, Delfina
1970 *The Autobiography of Delfina Cuero, A Diegueño Indian, As Told to Florence C. Shipek*. Malki Museum Press, Morongo Indian Reservation, Banning, California.

Dudek
2013 Final EIR/EIS for the Master Special Use permit and Permit to Construct Powerline Replacement Projects.

Derry, Anne, H. Ward Jandl, Carol D. Shull, and Jan Thorman
1985 Guidelines for Surveys: A Basis for Preservation Planning. *National Register Bulletin 24*. Revised by Patricia L. Parker. U.S. Department of the Interior.

Engelhardt, Zephyrin
1921 *San Luis Rey Mission*. The James H. Barry Company.

Erlandson, Jon M., and Roger H. Colten
1991 An Archaeological Context for Early Holocene Studies on the California Coast. In *Hunter-Gatherers of Early Holocene Coastal California*, edited by J. M. Erlandson and R. H. Colten, pp. 1-10. Perspectives in California Archaeology, Vol. 1, Jeanne E. Arnold, series editor. Institute of Archaeology, University of California, Los Angeles.

Ezell, Paul H.
1983 A New Look at the San Dieguito Culture. *San Diego State University Department of Anthropology Cultural Resource Management Casual Papers* 1(3):103-109.
1987 The Harris Site – An Atypical San Dieguito Site or Am I Beating a Dead Horse? In *San Dieguito – La Jolla: Chronology and Controversy*, edited by D. Gallegos, pp. 15-22. San Diego County Archaeological Society Research Paper Number 1.

Fulmer, Scott, Ruth F. Almstead, Ann Noah, and Albert C. Oetting
1979 *Archaeological Reconnaissance Laguna Mountain Recreation Area*. San Diego State University Foundation.

Gallegos, Dennis R.
1987 A Review and Synthesis of Environmental and Cultural Material for the Batiquitos Lagoon Region. In *San Dieguito – La Jolla: Chronology and Controversy*, edited by D. Gallegos, pp. 23-34. San Diego County Archaeological Society Research Paper Number 1.

Gallegos, Dennis R., Susan M. Hector, and Stephen R. van Wormer
1987 San Dieguito-La Jolla: Chronology and Controversy, *San Diego County Archaeological Society Research Paper No. 1.*

Gallucci, Karen L.
2001 From the Desert to the Mountains: Salton Brownware Pottery in the Mountains of San Diego. Unpublished Master's thesis, Department of Anthropology, San Diego State University.
2004 Ceramic Analysis at Wikalokal, San Diego County (CA-SDI-4787). *Proceedings of the Society for California Archaeology* 14:119-123.

Garcia, Mario T.
1975 Merchants and Dons: San Diego's Attempt at Modernization, 1850-1860. In *The Journal of San Diego History 21(1):52-80.*

Gifford, Edward W.
1931 The Kamia of Imperial Valley. *Smithsonian Institution Bureau of American Ethnology Bulletin No. 97.* U.S. Government Printing Office, Washington, D.C.

Gorman, Jennifer, Shelby Castells, and Sinéad Ní Ghabhláin
2015 *Historic Evaluation of Electrical Transmission and Distribution Lines in the Cleveland National Forest (CNF) for San Diego Gas and Electric's (SDG&E) Master Special Use Permit (MSUP).*

Graham, William R. (Principal author)
1981 *Final Report - Cultural Resource Survey of the Laguna Mountain Recreation Area, San Diego County, California*. Archaeological Systems Management, Inc.

Gross, G. Timothy
2004 Obituary: Dr. George Francis Carter. *SDCAS Newsletter* 32(3):14-15. San Diego County Archaeological Society.

Gross, G. Timothy, M. Steven Shackley, and Constance Cameron
1989 *Archaeological Investigations at CA-ORA-910A: A Late Prehistoric Hunting Field Camp in Southern Orange County, California.* Brian F. Mooney Associates, San Diego.

Hagstrum, Melissa B. and John A. Hildebrand
1990 The Two Curvature Method for Reconstructing Ceramic Morphology. *American Antiquity* 55 (2):388-403.

Haynes, C. Vance
1969 The Earliest Americans. *Science* 166:709-715.

Hector, Susan M.
1984 *Late Prehistoric Hunter-Gatherer Activities in Southern San Diego County*. Ph.D. dissertation, University of California, Los Angeles.

Hector, Susan M., Sinéad Ní Ghabhláin, Mark S. Becker, and Ken Moslak
2004 *Archaeological Evaluation of 19 Sites on Marine Corps Air Station Miramar, San Diego County, California.* ASM Affiliates, Inc. Prepared for U.S. Marine Corps, Miramar, California.

Hector, Susan M, Carolyn Kyle, Drew Pallette, Delman James, and Steven Briggs
2009 *Cultural Resource Support Phase II Project for Cleveland National Forest, San Diego County, California.* ASM Affiliates.

Hedges, Ken
1975 Notes on the Kumeyaay: A Problem of Identification. *Journal of California Anthropology* 2:71-83.

Hildebrand, John A. and Melissa B. Hagstrum
1995 Observing Subsistence Change in Native Southern California: The Late Prehistoric Kumeyaay. *Economic Anthropology* 16:85-127.

Hines, Philip, and Betty Rivers
1991 A Re-evaluation of the Prehistoric Archaeological Sites within the Pendleton Coast District. In *The Cultural Resources of the Pendleton Coast District*. On file at the South Coastal Information Center, San Diego State University (MS# 1122426).

Hildebrand, John A., G. Timothy Gross, Jerry Schaefer, and Hector Neff
2002 Patayan Ceramic Variability: Using Trace Elements and Petrographic Analysis to Study Brown and Buff Wares in Southern California. In *Ceramic Production and Circulation in the Greater Southwest: Source Determination by INAA and Complementary Mineralogical Investigations*, edited by Donna M. Glowacki and Hector Neff, pp. 121-139. Monograph No. 44, Cotsen Institute of Archaeology, University of California, Los Angeles

Hohenthal, William D.
2001 *Tipai Ethnographic Notes*. Ballena Press.

Iversen, Dave, Arleen Garcia-Herbst, Don Laylander and Brian Williams
2010 *Class III Inventory of the Cultural Resources along the Approved San Diego Gas & Electric Sunrise Powerlink Final Environmentally Superior Southern Route, San Diego and Imperial Counties, California.* ASM Affiliates, Inc. Submitted to SDG&E and BLM-El Centro.

Jelinek, Arthur J.
1992 Perspectives from the Old World on the Habitation of the New. *American Antiquity* 57(2):345-347.

Johnson, J. R., T. W. Stafford, Jr., H. O. Ajie, and D. P. Morris
2002 Arlington Springs Revisited. In *Proceedings of the Fifth California Islands Symposium*, edited by D. R. Brown, K. C. Mitchell and H. W. Haney, pp. 541-545. Santa Barbara Museum of Natural History, Santa Barbara.

Johnston, Mary Elizabeth
1914 *Indian Legends of the Cuyamaca Mountains*.

Jones, Terry L.
1991 Marine-Resource Value and the Priority of Coastal Settlement: A California Perspective. *American Antiquity* 56(3):419-443.
1992 Settlement Trends Along the California Coast. In *Essays on the Prehistory of Maritime California*, edited by T. Jones, pp. 1-38. Center for Archaeological Research at Davis Publications No. 10.

King, Thomas F.
2003 *Places that Count: Traditional Cultural Properties in Cultural Resource Management.* Walnut Creek, CA: Altamira, 335 pp.

Kroeber, A. L.
1925 The Diegueño and Kamia. *Handbook of the Indians of California. Smithsonian Institution*, Washington, D.C: 709-725.
1970 *Handbook of the Indians of California*. California Book Company, Ltd., Berkeley, California. Third printing. Reprint of Bulletin No. 78, Bureau of American Ethnology, Smithsonian Institution (1925).

Laylander, Don
2010 Linguistic Prehistory and the Archaic-Late Transition in the Colorado Desert. *Journal of California and Great Basin Anthropology* 30:141-155.

LeMenager, Charles R.
2001 *Julian City and Cuyamaca Country*. Third printing. Eagle Peak Publishing Company, Ramona.

Lucas, Carmen and Susan Hector
2015 *Kwaaymii Homeland National Register Nomination Form.* Submitted to the State Historic Preservation Office and National Register of Historic Places Keeper.

Luomala, Katherine
1978 Tipai and Ipai. In *California*, edited by Robert F. Heizer, pp. 592-609. Handbook of the North American Indians, Vol. 8, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

McFarland, Sharon L.
2000 Changes in Obsidian Exchange in Southern California. Unpublished Master's thesis, Department of Anthropology, San Diego State University.

Meighan, Clement W.
1954 A Late Complex in Southern California Prehistory. *Southwestern Journal of Anthropology* 10:215-227.

Meltzer, D. J.
1993 Pleistocene Peopling of the Americas. *Evolutionary Anthropology* 1(5):157-168.

Moratto, Michael J.
1984 *California Archaeology*. Academic Press. New York.

Moriarty, James R. III
1966 Cultural Phase Divisions Suggested by Typological Change Coordinated with Stratigraphically Controlled Radiocarbon Dating at San Diego. *Anthropological Journal of Canada* 4:20-30.
1969 The San Dieguito Complex: Suggested Environmental and Cultural Relationships. *Anthropological Journal of Canada* 7(3):2-18.

Munz, Philip A.
1974 *A Flora of Southern California*. University of California Press, Berkeley.

National Park Service
1991 *How to Apply the National Register Criteria for Evaluation*, National Register Bulletin 15.

Newland, James D.
1995a *Historic Resources Evaluation Report: Administrative Buildings.*
1995b *Historic Resources Survey and Evaluation Report: Special Use Permit Resorts and Camps: Laguna Mountains Recreation Area.*
2008 *Cleveland National Forest.*

Office of Historic Preservation
1990 *Archaeological* Resource Management Reports (ARMR): Recommended Contents and Format. California Office of Historic Preservation.

Owen, E. A.
1984 The Americas: The Case Against an Ice-Age Human Population. In *The Origins of Modern Humans: A World Survey of the Fossil Evidence*, edited by F. H. Smith and F. Spencer, pp. 517-563. Alan R. Liss, New York.

Oxendine, Joan
1983 *The Luiseño Village During the Late Prehistoric Era*. Ph.D. dissertation, Department of Anthropology, University of California, Riverside.

Parker, Patricia L., and Thomas L. King
1998 Guidelines for Evaluating and Documenting Traditional Cultural Properties. *National Register Bulletin 38*. U.S. Department of the Interior, National Park Service, Washington, D.C.

Pigniolo, Andrew R.
1995 The Rainbow Rock Wonderstone Source and its Place in Regional Material Distribution Studies. *Proceedings of the Society for California Archaeology* 8:123-131.
2005 A Different Context: San Dieguito in the Mountains of Southern California. *Proceedings of the 38th Annual Society for California Archaeology Meeting, 19:247-25.* Riverside.

Pryde, Philip R.
2004 *San Diego: An Introduction to the Region*. 4th ed. Sunbelt Publications, San Diego.

Rensch, Hero Eugine
1950 Indian Place Names of Rancho Cuyamaca. Manuscript, Bancroft Library.

Rivers, Betty
1993 The Pendleton Coast District: An Ethnographic and Historical Background. In *The Cultural Resources of the Pendleton Coast District.* On file at Cultural Heritage Section, California Department of Parks and Recreation, Sacramento.

Robinson, W. W.
1948 *Land in California*. University of California Press, Berkeley.

Rogers, Malcolm J.
1929 The Stone Art of the San Dieguito Plateau. *American Anthropologist* 31(3):454-467.
1939 *Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas*. San Diego Museum Papers No. 3.
1945 An Outline of Yuman Prehistory. *Southwestern Journal of Anthropology* 1(1):167-198.
1966 *Ancient Hunters of the Far West*. Union-Tribune Publishing, San Diego.

Rogers, Spencer L.
1974 An Ancient Human Skeleton Found at Del Mar, California. *San Diego Museum Papers* No. 7.

Sayles, Edwin B.
1983 The Cochise Cultural Sequence in Southeastern Arizona. *Anthropological Papers of the University of Arizona* No. 42. Tucson.

Sayles, Edwin B., and Ernst Antevs
1941 The Cochise Culture. *Medallion Papers* No. 29. Gila Pueblo, Arizona.

Schaefer, Jerry and Brian Williams
2011 Inventory, Evaluation and Treatment of Cultural Resources in the Cleveland National Forest Transmission and Distribution Line Increased Fire Safety Project in Support of the Proponent's Environmental Assessment (Revised 2013).

Shackley, M. Steven
1981 *Late Prehistoric Exchange Network Analysis in Carrizo Gorge and the Far Southwest*. Unpublished Master's thesis, Department of Anthropology, San Diego State University.

Shaver, Christopher and Michael G. Baksh
2012 Archaeological Survey Report for the San Diego Gas & Electric Wind Interconnection Project, San Diego County, California, April, 2012.

Shipek, Florence
1984 Response. Pp. 109-122 in *Final Environmental Assessment for the Table Mountain Study Area: Wind Energy Development*. El Centro: Bureau of Land Management.
1985 *Kuuchamaa: The Kumeyaay Sacred Mountain. Journal of California and Great Basin Anthropology 7:67-74*.
1987 *Pushed into the Rocks: Southern California Indian Land Tenure, 1769-1986*. University of Nebraska Press, Lincoln.
1991 *Delfina Cuero: Her Autobiography*. Ballena Press, Menlo Park, California.

Sparkman, Philip Stedman
1908 The Culture of the Luiseño Indians. *University of California Publications in American Archaeology and Ethnology* 8(4):187-234.

Spier, Leslie
1923 Southern Diegueño Customs. *University of California Publications in American Archaeology and Ethnology* 20:295-358.

Stein, Lou
1978 *San Diego County Place-Names*. Second Edition. Tofua Press, San Diego.

Stewart, Richard M.
1958 *Mines and Mineral Resources of Santa Ysabel Quadrangle, San Diego County, California. Geology and Mineral Resources of Santa Ysabel Quadrangle, San Diego County, California*. California Division of Mines Bulletin No. 177. San Francisco.

Taylor, R. E.
1991 Frameworks for Dating the Late Pleistocene Peopling of the Americas. In *The First Americans: Search and Research*, edited by Tom D. Dillehay and David J. Meltzer. ORC Press, Boca Raton.

Taylor, R. Ervin, Louis A. Payen, Christina A. Prior, Peter J. Slota, Richard Gillespie, John A. J. Gowlett, Robert E. M. Hedges, A. J. Timothy Jull, Theodore H. Zabel, Douglas J. Donahue, and Rainer Berger
1985 Major Revisions in the Pleistocene Age Assignments for North American Human Skeletons by C14 Accelerator Mass Spectrometry: None Older Than 11,000 C14 Years B.P. *American Antiquity* 50:136-140.

True, Delbert L.
1958 An Early Complex in San Diego County, California. *American Antiquity* 23:255-263.
1966 *Archaeological Differentiation of Shoshonean and Yuman Speaking Groups in Southern California*. Ph.D. dissertation, Department of Anthropology, University of California, Los Angeles.
1970 *Investigation of a Late Prehistoric Complex in Cuyamaca Rancho State Park, San Diego County, California*. University of California Archaeological Survey, Los Angeles.
1980 The Pauma Complex in Northern San Diego County: 1978. *Journal of New World Archaeology* 2:1-39.

True, D. L., and Eleanor Beemer
1982 Two Milling Stone Inventories from Northern San Diego County, California. *Journal of California and Great Basin Anthropology* 4:233-261.

True, D. L., C. W. Meighan, and Harvey Crew
1974 *Archaeological Investigations at Molpa, San Diego County, California*. University of California Press.

True, D. L., and R. Pankey
1985 Radiocarbon Dates for the Pauma Complex Component at the Pankey Site, Northern San Diego County, California. *Journal of California and Great Basin Anthropology* 7:240-244.

True, Delbert L., and Georgie Waugh
1982 Proposed Settlement Shifts during San Luis Rey Times, Northern San Diego County. *Journal of California and Great Basin Anthropology* 4(1):34-54.

Van Wormer, Stephen
1991 *Even the Kitchen Sink: Archaeological Investigations of SDi-10258: The 1908 to 1913 San Diego City Dump.* Regional Environmental Consultants (RECON), San Diego. Prepared for City of San Diego Development and Environmental Planning Division.
1995 *Cultural Resource Mitigation for the Home Avenue Trunk Sewer: Archaeological Data Recovery of a Portion of SDI-10,528H, the 1908-1913 City of San Diego Dump.* Regional Environmental Consultants (RECON), San Diego. Prepared for City of San Diego Water Utilities/Engineering Departments.

Van Wormer, Stephen R., and William R. Manley
1997 *Archaeological Investigations at the San Diego County Justice Center*. William Manley Consulting, San Diego.

Wade, Sue A.
1986 Archaeological Testing Program at SDi-10185, Loci A-C, and SDi-10186. Otay Mesa, City of San Diego, California. RECON, San Diego.

Walawender, Michael J.
2000 *The Peninsular Ranges: A Geological Guide to San Diego's Back Country.* Kendall/Hunt Publishing Company, Dubuque, Iowa.

Wallace, William J.
1955 A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology* 11:214-23.

Warren, Claude N.
1964 *Cultural Change and Continuity on the San Diego Coast*. Ph.D. dissertation, Department of Anthropology, University of California, Los Angeles.
1966 *The San Dieguito Type Site*. San Diego Museum of Man Papers No. 5.
1967 The San Dieguito Complex: Review and Hypothesis. *American Antiquity* 32(2):168-185.
1968 Cultural Tradition and Ecological Adaptation on the Southern California Coast. In *Archaic Prehistory in the Western United States*, edited by Cynthia Irwin-Williams, pp. 1-14. Eastern New Mexico University Contributions in Anthropology No. 1. Portales.
1985 Garbage About the Foundations: A Comment on Bull's Assertion. *San Diego State University Cultural Resource Management Casual Papers* 2(1):82-90.
1987 The San Dieguito and La Jolla: Some Comments. In *San Dieguito-La Jolla: Chronology and Controversy*, edited by Dennis Gallegos, pp. 73-85. San Diego County Archaeological Society Research Paper No. 1.

Warren, Claude N., Gretchen Siegler, and Frank Dittner

1993 Paleoindian and Early Archaic Periods. In *Historic Properties Background Study for the City of San Diego Clean Water Program*. Brian F. Mooney Associates. Prepared for Clean Water Program for Greater San Diego.

2008 Revised-Paleo-Indian and Early Archaic Periods. In *Historic Properties Background Study for the City of San Diego Clean Water Program.* Brian F. Mooney Associates. Prepared for Clean Water Program for Greater San Diego.

Waterman, T. T.

1910 The Religious Practices of the Diegueño Indians. *University of California Publications in American Archaeology and Ethnology* 8(6).

Waters, Michael R.

1983 Late Holocene Lacustrine Chronology and Archaeology of Ancient Lake Cahuilla, California. *Quaternary Research* 19:373-387.

Welch, Patrick H. A.

1984 *Draft Environmental Assessment for the Table Mountain Study Area: Wind Energy Development.* El Centro: Bureau of Land Management.

West, G. James, Wallace Woolfenden, James A. Wanket, and R. Scott Anderson

2007 Late Pleistocene and Holocene Environments. In *California Prehistory: Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 11-34. AltaMira Press, Lanham, Maryland.

Williams, Brian

2014 *Final Cultural Resources Monitoring Report for the East County Substation Project*. Report in progress.

Wirth Associates

1981 *Jacumba Archaeological District*. Wirth Associates.

Wood, Catherine M.

1937 *Palomar from Tepee to Telescope*. Frye and Smith, Ltd., San Diego.

Woods, Clyde M.

1982 *APS/SDG&E Interconnection Project Native American Cultural Resources: Miguel to the Colorado River and Miguel to Mission Tap*. (Identification and Evaluation of Native American Cultural Resources Situated within One Mile of the Proposed and Existing Rights-of-Way in California). Submitted to San Diego Gas and Electric.

APPENDICES

APPENDIX A

Recommended Avoidance Measures for Powerline Replacement Project

RECOMMENDED AVOIDANCE MEASURES FOR POWERLINE REPLACEMENT PROJECT

Note: Avoidance and recommended mitigation noted in this table will be updated and/or revised as final engineering design for each powerline and distribution line segment is completed. The revisions will reflect recommended avoidance measures and mitigation based on final designs and construction methodologies specific to each project component and associated resource. The Cultural Resources Technical Report (Schaefer and Williams 2011) referred to in MM CUL-3 of the FEIR/EIS will be used to show any updates and/or revisions to recommendations included herein to avoid and mitigate for potential impacts to cultural resources. Previous studies and recommendations made for TL6931 (Shaver and Baksh 2012) will also be incorporated and updated as necessary. Prior to issuance of a Notice to Proceed (NTP) for any segment, Appendix A will be redistributed for thirty days to the consulting parties and any updates to the Schaefer and Williams 2011 or Shaver and Baksh 2012 recommendations resulting from final design will be noted. Sketch maps of all resources within the APE of each NTP will be submitted to the Forest with the Appendix A table and show the current sites' conditions. These maps shall be on file with the Forest and will be made available to consulting parties upon request. Site information is protected by California Government Code 6254.10, NHPA Section 304, ARPA Section 7.18 and other applicable federal state and local laws and regulations prohibiting public and unauthorized disclosure of records related to cultural resources, individuals requesting information may be required to complete a confidentiality agreement prior to the Forest releasing the requested information. The Forest shall coordinate for the transfer of site sketch maps with the requesting consulting party within seven days of receipt of the request.

Line/ Segment	Facility/ Work Space	Project Component	Recommended Avoidance/ Mitigation Measure
C78	SS X0	Stringing Site	None
C78	SS X1	Stringing Site	None
C78	SS X2	Stringing Site	None
C78	SS X81	Stringing Site	None
C78	P172691	Removal	None
C78	P172692	Removal	None
C78	P172693	Removal	None
C78	P172694	Removal	None
C78	P172695	Removal	None
C78	P172696	Removal	None
C78	P172697	Removal	None
C78	P166376	Removal	None
C78	P172698	Removal	None
C78	P166377	Removal	None
C78	P172699	Removal	None
C78	P172700	Removal	None
C78	P172701	Removal	None
C78	P172702	Removal	None
C78	P172703	Removal	None

Line/ Segment	Facility/ Work Space	Project Component	Recommended Avoidance/ Mitigation Measure
C78	P172704	Removal	A cultural monitor is recommended if pole replacement consists of a foundation pole or undergrounding
C78	P172705	Removal	Project Redesign: Use sawed down pole to the west of P172705 for replacement pole. A cultural monitor is recommended for this work and when the pole is removed from service and if road improvements occur along the access road to this pole.
C78	P172706	Removal	None
C78	P172707	Removal	None
C78	P172708	Removal	A cultural monitor is recommended if pole replacement consists of a foundation pole or undergrounding
C78	P172709	Removal	None
C78	P172710	Direct Bury	None
C78	P-32	Direct Bury	None
C78	P-31	Direct Bury	None
C78	P-30	Direct Bury	None
C78	P-33	Direct Bury	None
C78	P-34	Direct Bury	None
C78	P-29	Direct Bury	None
C78	P107769	Direct Bury	None
C78	P-28	Direct Bury	None
C78	P-35	Direct Bury	None
C78	P-27	Direct Bury	None
C78	P172686	Direct Bury	None
C78	P172687	Direct Bury	None
C78	P-20877	Direct Bury	None
C78	P172688	Direct Bury	None
C78	P-38	Direct Bury	None
C78	P172689	Direct Bury	None
C78	P-37	Direct Bury	None
C78	P172690	Direct Bury	None
C78	P-26	Direct Bury	None
C78	P-20	Direct Bury	None
C78	P-25	Direct Bury	None
C78	P-19	Direct Bury	None
C78	P-24	Direct Bury	None
C78	P-18	Direct Bury	None

Line/ Segment	Facility/ Work Space	Project Component	Recommended Avoidance/ Mitigation Measure
C78	P-21	Direct Bury	None
C78	P-22	Direct Bury	None
C78	P-17	Direct Bury	None
C78	P-16	Direct Bury	None
C78	P-15	Direct Bury	None
C78	P-13	Direct Bury	None
C78	P-14	Direct Bury	None
C78	P-9	Direct Bury	None
C78	P-8	Direct Bury	None
C78	P-10	Direct Bury	None
C78	P-11	Direct Bury	None
C78	P-7	Direct Bury	None
C78	P-12	Direct Bury	None
C78	P-1	Direct Bury	None
C78	P-5	Direct Bury	None
C78	P-4	Direct Bury	None
C78	P-2	Direct Bury	None
C78	P-3	Direct Bury	None
C78	P-6	Direct Bury	None
TL625B	P198896	None	None
TL625B	P272849	Micropile	None
TL625B	P273066	Micropile	None
TL625B	P30605	None	None
TL625B	P675321	Direct Bury	None
TL625B	Z135625	None	None
TL625B	Z135626	Micropile	None
TL625B	Z272839	Micropile	None
TL625B	Z272840	Micropile	None
TL625B	Z272841	Micropile	None
TL625B	Z272842	None	None
TL625B	Z272843	Micropile	None
TL625B	Z272844	Micropile	None
TL625B	Z272845	Micropile	None
TL625B	Z272846	Micropile	None
TL625B	Z272847	Micropile	None
TL625B	Z272848	None	None
TL625B	Z272850	Micropile	None
TL625B	Z272851	None	None
TL625B	Z272852	Micropile	None

Line/ Segment	Facility/ Work Space	Project Component	Recommended Avoidance/ Mitigation Measure
TL625B	Z272853	Micropile	None
TL625B	Z272854	Micropile	Do not conduct blading or other improvements of access road without an archaeological monitor. Archaeological monitor is recommended if pole will become a foundation or underground facility.
TL625B	Z272855	Micropile	~~Project Redesign: Using existing sawed-down pole or place new pole within 2-4' of existing pole and do not conduct blading or other improvements of access road without an archaeological monitor. Archaeological monitor is recommended if pole will become a foundation or underground facility.~~ REVISION: If pole construction is micropile, an archaeological monitor is recommended to establish an ESA around the workspace. Crews should utilize existing pads at this location. No further cultural resources work recommended.
TL625B	Z272856	Micropile	~~Project Redesign: Pole already steel, stay in existing access during overhead switch-out or if steel pole needs to be replaced, place new pole within 2-4' of existing pole and do not conduct blading or other improvements of access road without an archaeological monitor. Archaeological monitor is recommended if pole will become a foundation or underground facility.~~ REVISION: If pole construction is micropile, an archaeological monitor is recommended to establish an ESA around the workspace. Crews should utilize existing pads at this location. No further cultural resources work recommended.
TL625B	Z272857	Micropile	None
TL625B	Z272858	Micropile	None
TL625B	Z272859	Micropile	None
TL625B	Z272860	Micropile	None

Line/ Segment	Facility/ Work Space	Project Component	Recommended Avoidance/ Mitigation Measure
TL625B	Z272862	Micropile	Project Redesign: Pole already steel, stay in existing access during overhead switch-out or if steel pole needs to be replaced, place new pole within 2-4 ft of existing pole and do not conduct blading or other improvements of access road without an archaeological monitor present
TL625B	Z272864	None	Project Redesign: Place new pole within 2-4' of existing pole and do not conduct blading or other improvements of access road without an archaeological monitor. Archaeological monitor is recommended if pole will become a foundation or underground facility.
TL625B	Z272865	Micropile	~~Project Redesign: Place new pole within 2-4' of existing pole and do not conduct blading or other improvements of access road without an archaeological monitor. Archaeological monitor is recommended if pole will become a foundation or underground facility.~~ REVISION: If pole construction is micropile, an archaeological monitor is recommended to establish an ESA around the workspace and any vegetation removal. Crews should utilize existing pads at this location. No further cultural resources work recommended.
TL625B	Z272866	Micropile	None
TL625B	Z272867	Micropile	None
TL625B	Z272868	None	None
TL625B	Z272869	Micropile	None
TL625B	Z272870	Micropile	None
TL625B	Z272871	Micropile	None
TL625B	Z272872	Micropile	None
TL625B	Z272873	None	None
TL625B	Z272874	Micropile	None
TL625B	Z272874	Micropile	None
TL625B	Z272875	Micropile	None
TL625B	Z272876	Micropile	None
TL625B	Z272877	Micropile	None
TL625B	Z272878	Micropile	None
TL625B	Z272879	Micropile	None
TL625B	Z272880	Micropile	None

Line/ Segment	Facility/ Work Space	Project Component	Recommended Avoidance/ Mitigation Measure
TL625B	Z272881	None	None
TL625B	Z272882	Micropile	None
TL625B	Z272883	Micropile	None
TL625B	Z272884	None	None
TL625B	Z272885	Micropile	None
TL625B	Z272886	Micropile	None
TL625B	Z272887	None	None
TL625B	Z272888	None	None
TL625B	Z272889	None	None
TL625B	Z272890	Micropile	None
TL625B	Z272891	Micropile	None
TL625B	Z272892	Micropile	None
TL625B	Z272893	Micropile	None
TL625B	Z272894	Micropile	None
TL625B	Z272895	Micropile	None
TL625B	Z272897	Micropile	None
TL625B	Z272898	Micropile	None
TL625B	Z272899	Micropile	None
TL625B	Z272900	Micropile	None
TL625B	Z272901	Micropile	None
TL625B	Z272902	Direct Bury	None
TL625B	Z30607	Micropile	None
TL625B	Z571417	Direct Bury	None
TL625B	Z571418	Direct Bury	Stay within access road and no blading of access road without an archaeological monitor present. Avoid bedrock outcrops. If pole replacement consists of a foundation pole or undergrounding, a cultural monitor is recommended due to high sensitivity for buried cultural deposits.
TL625B	SS C	Stringing Site	Do not conduct blading or other improvements of access road without an archaeological monitor. An ESA should be constructed along the sides of the existing disturbance during stringing activities.
TL625B	GS C	Guard Structure	None
TL625B	GS D	Guard Structure	None

Line/ Segment	Facility/ Work Space	Project Component	Recommended Avoidance/ Mitigation Measure
TL625B	GS E	Guard Structure	None
TL625B	GS F	Guard Structure	None
TL625B	GS C	Guard Structure	None
TL625B	GS D	Guard Structure	None
TL625B	GS E	Guard Structure	None
TL625B	GS F	Guard Structure	None
TL625B	Japatul SY and Helo LZ	Staging Area	None
TL625B	Peterson Staging Yard A	Staging Area	None
TL625B	Peterson Staging Yard B	Staging Area	None
TL625B	Snyder Staging Yard	Staging Area	None
TL625B	SS X390	Stringing Site	None
TL625B	SS X447	Stringing Site	None
TL625B	SS X455	Stringing Site	None
TL625B	SS G	Stringing Site	None
TL625B	SS F	Stringing Site	None
TL625B	SS E	Stringing Site	None
TL625B	SS D	Stringing Site	None
TL625B	SS B	Stringing Site	None
TL625B	SS A	Stringing Site	None
TL625B	GS B	Guard Structure	None
TL625B	GS G	Guard Structure	None
TL625B	GS H	Guard Structure	None
TL625B	GS I	Guard Structure	None
TL625B	GS J	Guard Structure	None
TL625B	GS B	Guard Structure	None
TL625B	GS G	Guard Structure	None

Line/ Segment	Facility/ Work Space	Project Component	Recommended Avoidance/ Mitigation Measure
TL625B	GS H	Guard Structure	None
TL625B	GS I	Guard Structure	None
TL625B	GS J	Guard Structure	None
TL625B	SS 15B	Stringing Site	None
TL625B	SS 14B	Stringing Site	None
TL625B	GS 9B	Guard Structure	None
TL625B	GS 9B	Guard Structure	None
TL625B	GS 10B	Guard Structure	None
TL625B	GS 9B	Guard Structure	None
TL625B	GS 9B	Guard Structure	None
TL625B	GS 10B	Guard Structure	None
TL625B	GS 10B	Guard Structure	None
TL625B	GS 10B	Guard Structure	None
TL625B	GS A	Guard Structure	None
TL625B	GS A	Guard Structure	None
TL629E	SS A	Stringing Site	None
TL629E	SS O	Stringing Site	None
TL629E	Border Patrol SY	Staging Area	None
TL629E	Border Patrol Helo Site	Staging Area	None
TL629E	Kitchen Creek Staging Yard	Staging Area	An ESA should be constructed along the sides of the existing access road disturbance prior to establishment of the yard.
TL629E	Kitchen Creek Helo Site	Staging Area	None
TL629E	SS X441	Stringing Site	None
TL629E	SS X442	Stringing Site	An ESA should be constructed along the sides of the existing disturbance during stringing activities.

Line/ Segment	Facility/ Work Space	Project Component	Recommended Avoidance/ Mitigation Measure
TL629E	SS X443	Stringing Site	An ESA should be constructed along the sides of the existing disturbance during stringing activities.
TL629E	SS 38	Stringing Site	None
TL629E	SS 39	Stringing Site	None
TL629E	SS 40	Stringing Site	None
TL629E	SS B	Stringing Site	None
TL629E	SS C	Stringing Site	None
TL629E	SS D	Stringing Site	None
TL629E	SS X524	Stringing Site	None
TL629E	SS F	Stringing Site	None
TL629E	SS H	Stringing Site	None
TL629E	SS H	Stringing Site	None
TL629E	SS I	Stringing Site	None
TL629E	SS X532	Stringing Site	None
TL629E	SS J	Stringing Site	An ESA should be constructed along the sides of the existing disturbance during stringing activities.
TL629E	SS K	Stringing Site	An ESA should be constructed along the sides of the existing disturbance during stringing activities.
TL629E	SS L	Stringing Site	None
TL629E	SS M	Stringing Site	None
TL629E	SS X540	Stringing Site	None
TL629E	SS X543	Stringing Site	None
TL629E	GS A	Guard Structure	None
TL629E	GS B	Guard Structure	None
TL629E	GS C	Guard Structure	None
TL629E	GS D	Guard Structure	None
TL629E	GS A	Guard Structure	None
TL629E	GS B	Guard Structure	None
TL629E	GS C	Guard Structure	None
TL629E	GS D	Guard Structure	None
TL629E	Z44221-22	Micropile	None

Line/ Segment	Facility/ Work Space	Project Component	Recommended Avoidance/ Mitigation Measure
TL629E	Z44220	Direct Bury	None
TL629E	Z44219	Direct Bury	None
TL629E	P250026 P-4 NEW	Micropile	An ESA should be constructed along the sides of the existing disturbance and a cultural monitor is recommended due to high sensitivity for buried cultural deposits.
TL629E	44217-18	Micropile	None
TL629E	44215-16	Micropile	None
TL629E	Z44214	Direct Bury	None
TL629E	Z44213	Direct Bury	None
TL629E	Z44212	Micropile	None
TL629E	Z44210-11	Micropile	None
TL629E	Z44209	Micropile	None
TL629E	Z44208	Direct Bury	None
TL629E	Z44207	Micropile	~~Project Redesign: Stay within 4 ft. of existing pole. Monitor recommended.~~ REVISION: If micropile, an archaeological monitor is recommended to establish an ESA. Crews should utilize existing disturbances at pole and no further cultural resources work is recommended.
TL629E	P45854	Micropile	None
TL629E	Z44206	Direct Bury	None
TL629E	Z44205	Micropile	None
TL629E	Z44204	Micropile	None
TL629E	Z44203	Direct Bury	None
TL629E	Z44202	Direct Bury	None
TL629E	Z44201	Micropile	None
TL629E	Z44200	Direct Bury	None
TL629E	Z44199	Direct Bury	None
TL629E	Z44198	Direct Bury	None
TL629E	Z44197	Micropile	None
TL629E	Z44196	Direct Bury	None
TL629E	Z44195	Direct Bury	None
TL629E	Z44194	Micropile	None
TL629E	Z44193	Direct Bury	None
TL629E	Z44192	Direct Bury	None
TL629E	Z44191	Direct Bury	None
TL629E	Z44190	Direct Bury	None

Line/ Segment	Facility/ Work Space	Project Component	Recommended Avoidance/ Mitigation Measure
TL629E	Z44189	Direct Bury	None
TL629E	Z44188	Micropile	None
TL629E	Z44187	Micropile	None
TL629E	P192944	Direct Bury	If pole replacement consists of a foundation pole or undergrounding, a cultural monitor is recommended due to high sensitivity for buried cultural deposits.
TL629E	Z40575-76	Direct Bury	None
TL629E	Z44178-79	Micropile	None
TL629E	Z44180-81	Micropile	None
TL629E	Z44182-83	Micropile	None
TL629E	Z44184	Direct Bury	None
TL629E	Z40577	Direct Bury	None
TL629E	Z44185	Direct Bury	None
TL629E	Z44186	Micropile	None
TL629E	Z44177	Direct Bury	None
TL629E	Z40578	Micropile	None
TL629E	Z44176	Micropile	None
TL629E	Z40579	Micropile	None
TL629E	Z44175	Micropile	None
TL629E	Z40580	Micropile	None
TL629E	Z40581	Direct Bury	None
TL629E	Z44173-74	Micropile	None
TL629E	Z40582	Micropile	None
TL629E	Z40583	Direct Bury	None
TL629E	Z40584	Micropile	None
TL629E	Z44171-72	Micropile	None
TL629E	Z40585	Micropile	~~Project Redesign: The existing access road to this pole will be eliminated and the pole will be helicopter set. A footpath from Z40587 should be delineated by an archaeological monitor prior to replacement activities.~~ REVISION: If proposed access road is kept, an archaeological monitor is recommended due to the high sensitivity for buried cultural deposits.

Line/ Segment	Facility/ Work Space	Project Component	Recommended Avoidance/ Mitigation Measure
TL629E	Z40586	Micropile	~~Project Redesign: The existing access road to this pole will be eliminated and the pole will be helicopter set. A footpath from Z40587 should be delineated by an archaeological monitor prior to replacement activities.~~ REVISION: If proposed access road is kept, an archaeological monitor is recommended due to the high sensitivity for buried cultural deposits.
TL629E	Z44170	Micropile	None
TL629E	Z40587	Micropile	None
TL629E	Z44160	Micropile	None
TL629E	Z44159	Direct Bury	None
TL629E	Z40588	Micropile	None
TL629E	Z44161	Micropile	None
TL629E	Z44158	Direct Bury	None
TL629E	Z40590	Direct Bury	None
TL629E	Z44169	Micropile	None
TL629E	Z40589	Micropile	None
TL629E	Z44162	Micropile	None
TL629E	Z44163	Direct Bury	None
TL629E	Z44164	Direct Bury	None
TL629E	Z44165	Direct Bury	None
TL629E	Z44168	Micropile	None
TL629E	Z44166	Micropile	None
TL629E	Z44167	Micropile	None
TL629E	Z44234	Micropile	None
TL629E	P41033	Micropile	None
TL629E	P174081	Direct Bury	None
TL629E	Z100035	Direct Bury	None
TL629E	Z100145	Direct Bury	None
TL629E	Z44232	Direct Bury	None
TL629E	Z44230-31	Micropile	None
TL629E	Z44229	Micropile	None
TL629E	Z44228	Direct Bury	None

Line/ Segment	Facility/ Work Space	Project Component	Recommended Avoidance/ Mitigation Measure
TL629E	Z44227	Micropile	None
TL629E	P250025 P-3 NEW	Direct Bury	None
TL629E	Z44226	Micropile	None
TL629E	P250024 P-2 NEW	Micropile	None
TL629E	Z44225	Direct Bury	None
TL629E	Z44223-24	Micropile	None
TL629E	[P40858]	Micropile	None
TL629E	[P40857]	Micropile	None
TL629E	[P40856]	Micropile	None
TL629E	[P40855]	Micropile	None
TL629E	[P40854]	Direct Bury	None
TL629E	[P40853]	Direct Bury	None
TL629E	P40852	Direct Bury	None
TL629E	[P40851]	Micropile	An ESA should be constructed along the sides of the existing disturbance and a cultural monitor is recommended due to high sensitivity for buried cultural deposits.
TL629E	P40850	Micropile	None
TL629E	Z40572-73-74	Micropile	If pole replacement consists of a foundation pole or undergrounding, a cultural monitor is recommended due to high sensitivity for buried cultural deposits.
TL629E	SS E	Stringing Site	None

APPENDIX B

Consultation and Cooperation with Tribes, Native American Organizations, and Individuals during O&M under the MSUP

Cooperation with Tribes, Native American Organizations, and Individuals during O&M under the MSUP

It is recognized that the lands encompassing the APE for the MSUP are part of the ancestral lands lived in, occupied by, used by, traveled through, and worshipped in by Native Americans.

Historic properties contained in the APE for this MSUP and covered by this HPMP include, but are not limited to, spiritual sites, archaeological sites (historic and ancient), cabins and other structures, landscapes associated with the history, culture, and historical activities of California Indians and their ancestors, Euroamericans, and other groups in Southern California.

Native American cultural values associated with their ancestral lands remain undiminished as a result of this Undertaking. The Forest will cooperate with Native Americans to maintain their cultural identity in association with these ancestral lands. The Forest will cooperate with tribes to facilitate policies regarding Native American access to and use of lands within the APE for this Undertaking that are under the legal control of the Forest.

Comments or other communications received from federally recognized tribes regarding the HPMP or any matter associated with the HPMP will be treated in the same manner as communications with any federal, state, or local government agency. Tribal comments or other communications pertaining to written documents, reports, or other materials developed in accordance with the HPMP will be acknowledged as having come from the tribes and will be placed in a separate "Tribal Communications and Comments" section of any report, or other document commented upon by the tribes, in an effort to maintain the government-to-government nature of correspondence and consultation.

The Forest will cooperate with tribes to identify a suitable curation facility for artifacts and other materials recovered during otherwise lawful activities authorized in the MSUP and culturally associated with the tribes, as well as associated records and other materials as defined at 36 CFR Part 79.

Tribes or individual Native Americans may provide information about historic properties contained within the APE for the MSUP to the Forest or SDG&E, consistent with their cultural beliefs, in order to assist the Forest and SDG&E in managing historic properties in the APE for the Undertaking that are of concern to the tribes and others. The Forest and SDG&E will respect the confidentiality of any information provided by the tribes and which the tribes wish to have maintained as confidential. The Forest and the tribes will cooperate to define a process by which confidential information may be provided to the Forest and SDG&E for their management purposes and yet preserve, to the extent possible, the confidential nature of the information. Neither the Forest nor SDG&E will share cultural information identified by the tribes as being of a confidential nature with any other party without the express permission of the tribe and the individual providing the information.

The tribes or other Native Americans with appropriate cultural knowledge may review reports and literature and offer any comments they feel to be useful by way of correcting inaccuracies or supplementing the information so as to improve SDG&E's and the Forest's understanding of relevant historic properties and Native American culture in the APE to better manage historic properties related to the Undertaking.

APPENDIX C

General Public Consultation and Participation

General Public Consultation and Participation

In cooperation with the Forest, SDG&E shall support the Forest to explore ways to enhance public participation in historic preservation during the term of the MSUP. Such efforts may include, but are not limited to:

- Supporting the Forest in assessing public interests in historic preservation and soliciting suggestions from the public,
- Supporting the Forest in determining how historic preservation goals and objectives can be effectively communicated to the public,
- Supporting the Forest in developing training that educates the public to the cultural diversity inherent in regional history and prehistory,
- Supporting the Forest in identifying opportunities for interpreting to the public regional prehistory, history, Native American culture, and other facets of the human experience in the area.

APPENDIX D

Employee Education and Public Awareness Program

Employee Education and Public Awareness Program

SDG&E shall ensure that all appropriate SDG&E personnel responsible for making decisions regarding the planning, construction, maintenance, preservation, or rehabilitation standards for the performance of work authorized in the MSUP on properties listed or eligible for listing on the NRHP receive annual training in the application of The Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR Part 68).

SDG&E qualified personnel or its qualified consultants shall provide training to all appropriate SDG&E operation and maintenance personnel regarding implementation of the HPMP on Forest land, including cultural awareness training for the appropriate treatment of historic properties of religious or cultural significance to tribes. SDG&E has prepared a training video (2010) that was consulted on with several local tribal members and that may be used in conjunction with other training to provide information to operation and maintenance personnel.

SDG&E qualified personnel shall develop and implement an in-house orientation program to advise SDG&E management personnel responsible for decisions potentially affecting historic properties within the MSUP APE regarding the provisions of the HPMP and its implications for operation and management procedures on Forest land. Annual training will be required for all personnel involved in operations and maintenance, including managers and supervisors.

APPENDIX E

Reporting Requirements during O&M of the MSUP

Reporting Requirements during O&M of the MSUP

SDG&E historic preservation activities associated with cultural resources inventory, evaluation, assessment of effects, treatment of effects, planning, Native American and public consultation, and other activities relating to the MSUP will be reported as directed by the Forest and in accordance with the Project Operations and Maintenance Plan. The format and content of such reports will be consistent with guidance of the California Office of Historic Preservation and the Secretary of the Interior and as otherwise stipulated by the Forest. Some reports may be prepared in a manner that is understandable to the educated lay public as directed by the Forest. Reports to the Forest will be prepared by qualified SDG&E personnel or its qualified consultants.

The reports shall:

- Describe the historic preservation program carried out in the APE for the MSUP by SDG&E in the foregoing federal fiscal year, summarizing the results of any inventory, evaluation, monitoring, and treatment efforts for the MSUP;
- Document any SDG&E or Forest on-going consultation with federal agencies and tribes, including any agreements concluded with any parties regarding historic preservation within the APE for the MSUP;
- Recommend changes to the historic preservation program;
- The draft reports will be provided to the Forest not later than December 1 of the calendar year primarily associated with the fiscal year activities.

Appendix F
SDG&E Fire Prevention Plan

Contents

List of Tables

List of Attachments

1.0 Scope

This wildland Fire Prevention Plan outlines fire compliance requirements for all SDG&E Operations & Maintenance (O&M) activities authorized by the Master Special Use Permit (MSUP) and performed by SDG&E personnel, contractors (and their subcontractors), and consultants (collectively, SDG&E's Agents) on the Cleveland National Forest (CNF). These activities also include post-construction habitat restoration, access road decommissioning and other mitigation activities associated with the Power Line Replacement Project (PLRP).

This Fire Prevention Plan has been developed to be consistent with those prepared by other Investor-Owned Utilities (IOUs) operating in the United States Forest Service (USFS) Region 5 (Pacific Region), and to serve as an amendment update the original SDG&E Operations & Maintenance Fire Prevention Plan for the CNF that was implemented at the completion of the Sunrise Power Link (SRPL) Project. O&M activities for SDG&E's SRPL are authorized under Special Use Permit (SUP) DRD418696, issued December 2010, and all other O&M activities on the CNF are authorized under the MSUP DRD418600, issued September 2016.

This plan is designed to assist SDG&E in implementing safe work practices to prevent, report, control, and extinguish fires when engaged in permitted O&M activities which are subject to USFS Project Activity Level (PAL) requirements.

2.0 Purpose

SDG&E facilities, equipment, and activities may present a potential wildland fire ignition risk which must be minimized to the extent reasonably possible. In the event a fire occurs, SDG&E must also be equipped to suppress small fires, thus potentially preventing a major fire. Most importantly, SSDG&E must provide the resources and training necessary to keep our employees safe while working in the wildland areas. The intent of this document is to formalize procedures and routine practices that will:

- Assist SDG&E and its Agents in their understanding of fire prevention and to improve their ability to prevent the start of any fire. The emphasis will be on wildland fires, especially during the critical times of the year when the fire risk is high.
- Set standards for fire tools and equipment to be present in vehicles and at work sites. This will assist with rapid response to small fires in the event one should occur.
- Incorporate State, Federal, and local requirements into our standard way of doing business to provide compliance with rules and regulations on a daily basis, no matter where work is taking place. This would include, but not be limited to: California Public Resource Codes, Forest Standard Practice Regulations, and "Special Use Permit" or "Right-of-Way" fire related requirements.
- Identify at risk activities:
    - Driving or parking in areas where exhaust has the potential to contact the vegetation or hot exhaust is close to the vegetation.
    - Activities with open flame or has the potential to create a spark
    - Work on energized lines or equipment including secondary lines
    - Pole replacement
    - Paving operations, earth moving, grading or using heavy equipment with metal tracks in close proximity to vegetation
    - Construction "hot work"; welding, metal cutting or grinding
    - Blasting
    - Vegetation management

- Provide a fire risk and mitigation matrix based on USFS Project Activity Levels (PAL) to set a level for minimum fire prevention mitigations and suppression tool requirements.
- Define or reference restrictions mandated by "Red Flag Warnings," "Project Activity Levels," or other unique fire danger scenarios. Provide the means for determining when these restrictions are in effect, what activities they prohibit, the precise locations to which they apply; and identify the notification procedures for all affected employees, contractors, and consultants. For more detail, refer to Attachment #1, Fire Risk and Mitigation Matrix.
- Require that SDG&E employees, contractors (and their subcontractors) and consultants have positive communication for reporting fires and initiating assistance from all worksites. If there is no connectivity on the worksite they need to know where the closest site is to be able to report a fire. Dialing 911 is the primary means for reporting emergencies.
- Share some commonsense practices, with regards to fire safety, that should be used in all activities to reduce the risk of fires and to prevent injury to employees as a result of fire.

3.0 Responsibilities

SDG&E shall:

- Abide by the requirements of this Fire Prevention Plan for the duration of the master permits and easements (MPEs) issued by the USFS.
- Ensure that a copy of this Fire Prevention Plan and any special permits are known and accessible to project foreman/supervisor on work site daily.
- Take all steps necessary to prevent SDG&E and its Agents from starting fires when conducting authorized O&M activities on the CNF.
- Take reasonable steps to extinguish all such fires that may start and to notify the appropriate emergency response agency immediately or as soon as reasonably possible.
- Shall take reasonable steps necessary to ensure that project employees, subcontractors and their employees are knowledgeable and comply with the requirements of the Fire Prevention Plan.
- Permit and assist in periodic testing and inspection of required fire equipment, including requiring contractors to test and inspect their equipment.
- Demonstrate compliance with all applicable fire activity requirements as defined in this Fire Prevention Plan during the USFS established Fire Precautionary Periods for the CNF.
- Comply with USFS Project Activity Level (PAL) activity and use restrictions for the CNF.
- Share and confirm emergency contact information for the SDG&E, the USFS, and any other fire response agencies as needed or at the SDG&E's biannual meetings with the USFS.
- The Fire Prevention Plan shall be reviewed and revised by SDG&E with the USFS at intervals of not more than three (3) years

The USFS may conduct periodic field inspections for compliance with the Fire Prevention Plan. The number, timing, and scope of such inspections will be at the discretion of USFS employees responsible for permit administration. Such inspections do not relieve the SDG&E of responsibility for correcting violations of the Fire Prevention Plan or for fire safety in general, as outlined above.

4.0 Definitions

"**At Risk" Activities:** Activities that have the potential to ignite a wildland fire.

Wildland Areas: This is any area with wildland vegetation (e.g., trees, chaparral, grass, and ground litter) that may support the ignition and spread of a wildland fire. This does not include parking strips, ornamental vegetation or areas that are cultivated, landscaped, and irrigated.

Wildland Fuels: Native or invasive vegetation such as grasses, brush and trees that are not cultivated, planted as landscaping and irrigated.

Fire Patrol Person (Fire Patrol): Under certain PALs, the fire patrol person is required for mechanical operations for 30 minutes after cessation of operations.

- **A Designated "Fire Patrol"** is a member of a work crew assigned the responsibility and accountability for fire prevention, risk mitigation, early detection of fires, and rapid extinguishment should one occur. This can be accomplished co-laterally with other work duties and should be documented on the tailboard form or similar document. If a person is working alone, they will be considered the designated "Fire Patrol" for their activity and no documentation is required.

- **A Dedicated "Fire Patrol"** is a person(s) assigned the responsibility and accountability for fire prevention, risk mitigation, early detection of fires, and rapid extinguishment should one occur. This will be their sole duty while serving as a dedicated Fire Patrol. When a Dedicated Fire Patrol is required, the position must be filled with a SDG&E Contracted Qualified Fire Fighter (QFF).

SDG&E Contracted Qualified Firefighter (QFF): A contracted QFF is an individual that has successfully completed certain wildland firefighter classes required by SDG&E that are deemed necessary to perform fire prevention duties when at risk work requires a Dedicated "Fire Patrol". See SDG&E Electric Standard Practice (ESP) 113.1, Attachment #5 for list of training required.

Fire Precautionary Period: For the purpose of this plan, the Fire Precautionary Period will be considered year-long.

Project Activity Level (PAL): The PAL is a scientifically based system to regulate all industrial and contractual activities on National Forest lands in California. The PAL is designed to reduce the risk of large damaging wildfires and legal vulnerability of the Forest Service, contractors, or permittees. The system is fire danger and climatology based, using Energy Release Comments (ERC) and Ignition Components to determine ratings. Each day at 4:00 p.m. the PAL is announced for the following day for the different geographical areas on Forest Service lands.

Fire Safety Coordinator: The SDG&E "On Duty" Fire Coordinator. This will be the primary contact who serves as a liaison or agency representative to the Cleveland National Forest for the prevention and protection procedures for O&M activities on Forest Service land. On duty phone number is 858-503-5152 and is monitored 24/7.

Hot Saw: A hot saw is a harvesting system that uses a high-speed (>1,100 revolutions per minute) rotating felling head (i.e., full rotation lateral tilt head). Not currently used by SDG&E.

Mechanical Operations: Mechanical operations describe the process of felling, skidding, chipping, shredding, masticating, piling, log processing, and/or yarding that requires the use of motorized power tools, such as chainsaws, chippers, motorized carriages, masticators, stroke delimbers, skidders, loaders, and dozers.

Major Operations Work Area (MOW): It will be considered a major operations work area when work activities or staging of resources will be concentrated in and out of a staging facility. These work sites are typically large in size and include but are not limited to construction yards, fly yards, substation pads, lay down yards and any other area where construction work will be concentrated.

Operations and Maintenance (O&M) Work: The inspection, repair, replacement and general maintenance of permitted SDG&E electric facilities. This includes permitted access roads, structure pad areas, maintenance pads and Temporary Structure Access Pads (TSAPs).

TSAP: Temporary Structure Access Pad Temporary helicopter landing sites used infrequently and requiring minimal maintenance or upkeep.

Emergency Response: Emergency response work is required to resolve a situation that, if not corrected, could compromise SDG&E's transmission or distribution facilities, electric system reliability, or USFS resources. Emergency conditions represent immediate threats to human life, public safety, or property regardless of ownership. This definition is based on 36 CFR §251.50b. and is discussed in more detail in Chapter 3.4 of the SDG&E MSUP O&M Plan.

5.0 Tools and Equipment

5.1 Standard Tools

For each piece of equipment used for authorized O&M activities on the CNF, SDG&E shall furnish and have available the following emergency use hand tools and/or equipment (see California Public Resources Code PRC [PRC] 4427, 4428, and 4431):

- One shovel, one axe (or Pulaski), one 5-gallon backpack pump and a fully charged chemical or compressed air foam fire extinguisher Underwriters Laboratories (UL) minimum rating of 2A:10-B:C, on each truck, personnel vehicle, tractor, grader, and other heavy equipment.
- At least one 4A:80-B:C fire extinguisher or equivalent on each mechanized harvesting machine with hydraulic systems, powered by an internal combustion engine (e.g., chipper, feller/buncher, harvester, forwarder, stroke delimber).
- One shovel and one filled 5-gallon or larger backpack-pump type fire extinguisher with hand pump with each welder.
- One shovel, one Pulaski, and a 5-gallon backpack pump (or minimum 2A10BC fire extinguisher) with each piece of free standing (not vehicle mounted) equipment powered by internal combustion engines (e.g., compressor, generator, welder, etc.)
- One shovel and one 16-ounce or larger pressurized chemical fire extinguisher when using gasoline-powered tools, including but not restricted to, chain saws, soil augers, and rock drills. Fire tools shall at no time be farther from the point of operation of the portable gasoline powered tool than 25 feet with unrestricted access for the operator from the point of operation. Fire extinguishers shall be a standard

multi-use extinguisher unless otherwise specified. The shovel must be kept on hand when chain saws are used off cleared landing areas.

All tools and equipment required above shall be in good workable condition and shall meet USFS requirements for fire tools as follows:

- Shovels shall be size "O" or larger and no less than 46 inches in overall length.
- Pulaski's shall have 2-1/2 pound or larger heads and be no less than 28 inches in overall length.

Concentrations of wood dust and debris shall be removed from all equipment daily or more frequently as required. Standard tools must be kept directly accessible to workers at all times when engaged in work activities described in this Fire Prevention Plan.

5.2 Spark Arrestors (see Attachment F3)

All diesel and gasoline-operated engines, both stationary and mobile, and all flues used in O&M activities shall be equipped with spark arresters that meet current USFS standards set forth in the applicable USFS manuals and guidance, including FSM 5100-Fire Management and the San Dimas Technology & Development Center Spark Arrestor Guide. Spark arresters are not required on equipment powered by exhaust-driven turbo-charged engines or on motor vehicles equipped with a maintained muffler, as defined in California PRC 4442 and 4443.

5.3 Water Tank Truck/Trailer

When required, SDG&E and its Agents may be required to furnish a water tank truck (Water Truck), trailer or portable tank on or immediately adjacent to the project area and meet the following minimum specifications.

- The Water Truck and operator must be ready to put out fire at all times.
- The Water Truck, trailer or portable tank shall contain a minimum of 150 gallons of water at the start of each work period
- A combination straight stream-fog nozzle with a discharge rating of 6 to 20 gallons per minute. The closed nozzle must be capable of withstanding 200 pounds per square inch (psi) pump pressure without leaking, slipping of couplings, distortions, or other failures.
- 300 feet of 1-inch fire hose, with no segment shorter than 50 feet
- A pump capable of delivering at least 23 gallons per minute at 175 psi at sea level
- Power unit for pump shall have fuel for at least two hours operation with ample transport available for immediate and safe movement of tank over roads serving the contract area and shall be in good working order.
- Pump outlet shall be equipped with 1.5-inch National Standard Fire Hose thread.
- When required, the Water Truck, Trailer or Portable Tank may be used for other work on the project.
- When Water Truck, Trailer or Portable Tank is used for other operations, water level must not drop below 50 gallons or activity will stop until water source is replenished to 150 gallons.
- A charged hose lay will be installed capable of reaching 100' beyond the work activity whenever a Water Truck, Trailer or Portable Tank is required.

5.4 Fire Patrol

When required, the responsibility of the Fire Patrol shall be to patrol the work area for prevention and detection of fires, to make sure all State, County and Federal Fire regulations and O&M Fire Prevention Plan conditions are met, and to take suppression action when necessary.

- **Designated "Fire Patrol"** is a member of a work crew assigned the responsibility and accountability for fire prevention, risk mitigation, early detection of fires, and rapid extinguishment should one occur. This can be accomplished co-laterally with other work duties and should be documented on the tailboard form or similar document. If a person is working alone, they will be considered the designated "Fire Patrol" for their activity and no documentation is required.
- **Dedicated "Fire Patrol"** is a person(s) assigned the responsibility and accountability for fire prevention, risk mitigation, early detection of fires, and rapid extinguishment should one occur. This will be their sole duty while serving as a dedicated Fire Patrol. When a Dedicated Fire Patrol is required, the position must be filled with a SDG&E Contracted Qualified Fire Fighter (QFF).
- The Fire Patrol shall remain on duty as specified in the Fire Prevention Mitigation Table F1 below.

6.0 General

6.1 Hot Work (Welding, Metal Cutting or Grinding) (see Attachment F2)

SDG&E and its Agents must secure a special written permit from the USFS District Ranger or designated representative before engaging in Metal Cutting, Welding and Grinding (Application for Permit to Burn APCD Form 14 April 2009 or most current version).

SDG&E and its Agents shall confine all welding, metal cutting or grinding activity to cleared areas with a minimum radius of 10 feet measured from the place of welding and, depending on the assigned PAL, may need to utilize a welding tent or metal shield to deflect sparks. A 30-minute fire watch is required after completion of all hot work.

All Hot Work should be in compliance with NFPA 51B requirements.

6.2 Smoking and Fire Rules

- Smoking shall not be permitted during fire season, except in a barren area or in an area cleared to mineral soil at least 10 feet in diameter (CPRC 4423.4).
- Cigarette butts or other smoking materials are not to be discarded on the ground and must be disposed of in an appropriate receptacle.
- In areas closed to smoking, the USFS representative may approve special areas to be used for smoking.
- SDG&E and its Agents shall assign designated smoking areas.

- SDG&E and its Agents shall post signs regarding smoking and fire rules in conspicuous places for all employees to see.
- SDG&E and its Agent's supervisory personnel shall require compliance with these rules.
- Under no circumstances shall smoking be permitted while employees are operating light or heavy equipment or walking or working in grass and woodlands.
- Fire Rules: NO BURNING ALLOWED, NO OPEN FIRES.

6.3 Storage and Parking Areas

Equipment service areas, parking areas, and gas and oil storage areas shall be cleared of all flammable material for a radius of at least 10 feet unless otherwise specified by the local administrative unit. Small mobile or stationary internal combustion engine sites shall be cleared of flammable material for a slope distance of at least 10 feet from such engine. The appropriate project personnel shall approve such sites in writing.

6.4 Oil Filter and Glass Jugs

SDG&E shall remove all oily rags and used oil filters from the CNF. SDG&E shall prohibit the use of glass bottles and jugs during authorized O&M activities on the CNF.

6.5 Clearing of Fuels from Equipment Areas

Welding equipment and stationary log loaders, yarders, and other equipment listed in California State Law shall be cleared of all fuels and logging debris for a slope distance of at least 10 feet.

6.6. Investigation of Utility Related Fires

SDG&E agrees to engage in mutual cooperation with the USFS on all fire investigations.

6.7 Communications

SDG&E shall furnish an agreed-upon communication system connecting each operation with the designated USFS Dispatch Center. The communications system shall be capable of contacting the designated USFS Dispatch Center within five (5) minutes of discovery of a fire in SDG&E's or its Agents work area(s). The communications system shall be operable during the duration of authorized O&M activities on the CNF. The individual responsible for communications must understand how to operate this device and possess it on his/her person at all times or be within a reasonable distance for access.

6.8 Roads

USFS roads on the CNF shall remain open and passable for public, administrative, and emergency use.

6.9 Training

SDG&E and its Agents will receive fire safety and prevention training prior to performing operations and maintenance activities on the CNF. Training will be based on the SDG&E Operations & Maintenance Plan and this Fire Prevention Plan.

7.0 Project Activity Level

The PAL is a decision support tool designed to help fire and timber resource managers establish the level of industrial precaution for the following day. This tool utilizes outputs from the National Fire Danger Rating System, the accepted interagency fire danger model that represents the interaction between fuels, weather, topography, and fire occurrence. The PAL is designed to reduce the risk of large, damaging wildfires and the legal vulnerability of the USFS, its contractors, and permittees.

All SDG&E O&M activities being conducted on the CNF must be in compliance with the applicable PAL restrictions and activity requirements, as described in Table F-1 below. SDG&E and its Agents shall conform to the limitations or requirements of the PAL obtained from the USFS before starting work each day. If practicable, the USFS will determine the following day's activity level on the CNF by 4:00 p.m. local time each afternoon.

Exceptions:

1. For all Class IV O&M activities defined as "Emergency Response" (see definitions and Chapter 3 of the O&M Plan)
2. Work may continue in order to mitigate the risk associated with an electric circuit in a compromised or abnormal configuration. The USFS may require additional fire prevention/suppression measures during this period

Instructions for Obtaining the PAL Information:

SDG&E's permitted infrastructure and facilities on the CNF are located in portions of Fire Danger Rating Areas (FDRA) 630, 675, 680 and 685. The PAL for the FDRA where the O&M work takes place will apply. Level A represents the lowest fire danger while Level E represents the highest fire danger.

PAL may be obtained from the USFS before starting work each day. The USFS determines the following day's activity level by 4:00 PM each day.

SDG&E and its Agents can obtain the PAL for the following day by calling 619-557-5262 (24-hour number) after 4:00 PM and asking the Dispatcher for the PAL in the FDRA where the next day's O&M work will occur.

SDG&E and the CNF may agree to a variance for operations at levels B, C, D & Ev. When approved by a Forest Supervisor or delegated USFS staff specified by the USFS, a Variance Agreement can be implemented when the criteria specified in the agreement are met and the necessary fire activity requirements are in place. This approval is valid for 10 calendar days unless cancelled sooner or extended by the Forest Supervisor or designated USFS representative for an additional 10 calendar days. Variance Agreement approval can be withdrawn at the sole discretion of the USFS . The USFS will specify to SDG&E the information necessary to make a variance request for O&M activities on the CNF.

CNF Authority to Change PAL Levels or Stop Work Activities:

The USFS may change the PAL at any time if the fire danger is higher or lower than predicted and the change is consistent with forest management objectives. The USFS has the discretion to decide when to change the PAL and to what level, and how weather observations should be used to determine the appropriate PAL.

SDG&E's authorized O&M activities may be shut down by the USFS at any time due to changes in weather conditions, active fire in the area, local Ranger District drawdown conditions, and/or violation of any requirements of this Fire Prevention Plan. Permission to resume work can only be issued by the USFS and shall be in writing.

8.0 Red Flag Warnings

RED FLAG WARNING

If a Red Flag is issued (despite the PAL level), all work will cease and be suspended until the warning is cancelled and the USFS approves a resumption of the project

Exception: For those O&M activities defined as "Emergency" *(see definitions)*

What is a Red Flag Warning?

Red Flag Warning (RFW) is a term used by fire weather forecasters and fire agencies to call attention to limited conditions of particular importance that may result in extreme burning conditions. The Warning is issued when there is an ongoing event or the fire weather forecaster has a high degree of confidence that Red Flag criteria will occur within 24 hours of issuance. Red Flag criteria occurs whenever a geographical area has been in a dry spell for a week or two or for a shorter period, if before spring green up or after fall color, and the National Fire Danger Rating System (NFDRS) is high to extreme and the following forecast weather parameters are forecasted to be met:

- Relative humidity less than or equal to 15 percent with sustained winds = 25 mph and/or frequent gusts = 35 mph for = 6 hrs.
- Dry lightning (more than isolated coverage)

Further information regarding Red Flag Warning Conditions can be found in the 2012 California Fire Weather Annual Operating Plan at the link below.

Fire Weather Zone Interactive map can be found at: https://www.wrh.noaa.gov/fire2/?wfo=sgx
This map can be used to verify if your work is in an area covered by the RFW.

9.0 SDG&E Fire Contacts

SDG&E shall coordinate with the USFS to obtain and confirm emergency contact information and verify emergency reporting procedures, including providing SDG&E fire contacts for each project or planned work activity.

SDG&E and the USFS shall also confirm PAL contact/recording information where work is anticipated.

SDG&E shall identify and make known to the USFS a qualified Fire Safety Coordinator, as defined in this Fire Prevention Plan, each operating day when authorized O&M activities are occurring on the CNF with a PAL B or higher level in effect.

The Fire Safety Coordinator shall ensure clear and open communication between SDG&E and the USFS regarding any changes in fire conditions, incidents, or other fire-related information.

When required according to work activity and the PAL, SDG&E shall provide a designated or Dedicated fire patrol person whose responsibility the job site fire prevention and detection of fires; take suppression action where necessary; and notify the Fire Safety Coordinator and USFS as required of any changes in fire conditions, incidents, or fires.

The fire patrol person is required to walk the site to assess fire risk and ensure mitigation measures in the Fire Prevention Plan are in place.

Prior to commencing work, SDG&E shall identify and make available the Fire Safety Coordinator and Fire Patrol person's contact information.

Table 1. SDG&E Fire Coordinators (in order of call preference)

POINT OF CONTACT	NAME	TELEPHONE
SDG&E On Duty Fire Coordinator	Various	858-503-5152
SDG&E Fire Science &Coordination Program Manager	Richie Veihl	619-248-0847
SDG&E Fire Coordinator	Bill Molumby	619-843-7304
SDG&E Fire Coordinator	Mike Rottenberg	619-756-5947
SDG&E Fire Coordinator	Dennis W. Baldridge	619-333-9012
SDG&E Fire Coordinator	Scott Perkins	707-654-3473
SDG&E Fire Coordinator	Daryll Pina	619-937-1502

Table 2. USFS Contacts (not in order of call preference)

Additional notification and reporting may be necessary to the following Forest Service Unit Personnel

POINT OF CONTACT	NAME	TELEPHONE
Monte Vista Interagency Communication Center (MVICC)	Forest Service Dispatcher	619-557-5262 (Emergency 911)
Descanso District Fire Management Officer	Talbot Hayes	619-445-6235
Descanso District Ranger	Bob Heiar	619-445-6235
Descanso District Utilities Coordinator	Scott Evans	909-531-0306
Descanso District Fire Patrol	Various	619-445-1725
Palomar District Fire Management Officer	TBD	760-788-0250
Palomar District Ranger	Chris Dowling	760-788-0250
Palomar District Permit Administrator	Vacant	
Palomar District Fire Patrol	Various	

10.0 Reporting All Wildland Fires

Upon discovery, the SDG&E and its Agents shall immediately notify the USFS of any fires within the CNF by calling the Forest Service Dispatch Center at 619-557-5262 and/or calling 911.

- SDG&E will notify the USFS of any fires in O&M activity work areas or along roads on Forest Service land used by SDG&E immediately or as soon as reasonably possible.

- The SDG&E on duty Fire Safety Coordinator shall report all fires as soon as possible to the USFS facilities and/or personnel listed in Section 9.0 above, USFS Contact Information.

When reporting a fire, SDG&E shall provide the following information:

- Reporting person's name
- Call-back telephone number
- Project name (if applicable)
- Location: pole number, legal description (township, range, section) or GPS coordinates and a descriptive location or local reference point
- Fire information, including approximate number of acres, rate of spread, and wind conditions, what's burning/type of fire

Attachment F.1
SDG&E Fire Risk and Mitigation Matrix

Project Activities		**PAL Level (SDG&E O&M Activities on the CNF)**					
Standard Tool Package		**1 round point shovel, 1 Pulaski, 1 (5) gallon backpack pump, a fully charged 2A10BC fire extinguisher**					
ACTIVITY	**ACTIVITY TOOLS AND EQUIPMENT**	**A**	**B**	**C**	**D**	**Ev**	**E and RFW**
If your activity does not fall into a specific category consult the fire prevention plan, ask your FCA, or reach the Project Fire Coordinator/s for clarification. It is your responsibility to know what mitigation tools are required for your activity	**Expected tools for activity; If you use multiple tools or are doing multiple activities you must consult multiple boxes in the matrix. If a vehicle containing the appropriate tools for the activity is parked within the required distance for the activity, those tools meet the requirements of the fire prevention mitigation measure**	**The PAL for the following day can be obtained after 4:00pm by calling (619) 557-5262 and asking the Dispatcher for the PAL for the Fire Danger Rating Area where work will occur**					
Privately Owned Vehicle (POV)	A privately-owned vehicle **used as <u>transportation and parked in a yard ONLY.</u>** (Parking areas must have adequate clearance from combustible material)	No tools required	No tools required	No tools required	No tools required	No tools required	Activity Not Permitted without prior approval from Project Mgr., Construction Supe, or Field Contract Advisor with consult with Fire Coordinator
O&M Vehicles & POV's on the ROW or worksites	Company owned vehicles, Vehicles with company markings, and equipment, and POV's	Standard Tool Package	Standard Tool Package	Standard Tool Package	Standard Tool Package	Standard Tool Package	Activity Not Permitted without prior approval from Project Mgr., Construction Supervisor, or Field Contract Advisor with consultation with Fire Coordinator
Fire Box	3 shovels, 2 Pulaski's, 2 McLeods and 1 full 5-gallon backpack pump.	May be required by Forest Service or Fire Coordination depending on the location and/or site conditions	May be required by Forest Service or Fire Coordination depending on the location and/or site conditions or/s due to site conditions	May be required by Forest Service or Fire Coordination depending on the location and/or site conditions	May be required by Forest Service or Fire Coordination depending on the location and/or site conditions	May be required by Forest Service or Fire Coordination depending on the location and/or site conditions	May be required by Forest Service or Fire Coordination depending on the location and/or site conditions
Helicopter Operations	Helicopter **See specific work activity for tools/equipment involved in helo supported operations. May use Temporary Structure Access Pads (TSAPs)**	Helicopter staging areas will be treated like other staging areas with enough fire equipment for personnel on site or fire box available on MOWs. On TSAPs adequate firefighting equipment shall be carried on the helicopter for the number of personnel working on the ground at those sites.	Helicopter staging areas will be treated like other staging areas with enough fire equipment for personnel on site or fire box available on MOWs. On TSAPs adequate firefighting equipment shall be carried on the helicopter for the number of personnel working on the ground at those sites.	Helicopter staging areas will be treated like other staging areas with enough fire equipment for personnel on site or fire box available on MOWs. On TSAPs adequate firefighting equipment shall be carried on the helicopter for the number of personnel working on the ground at those sites.	Helicopter staging areas will be treated like other staging areas with enough fire equipment for personnel on site or fire box available on MOWs. On TSAPs adequate firefighting equipment shall be carried on the helicopter for the number of personnel working on the ground at those sites.	See specific work activity for tools/equipment involved in the operations, and the mitigation measures for that activity	Activity Not Permitted without prior approval from Project Mgr., Construction Supervisor, or Field Contract Advisor with consultation with Fire Coordinator

Project Activities		**PAL Level (SDG&E O&M Activities on the CNF)**					
Standard Tool Package		**1 round point shovel, 1 Pulaski, 1 (5) gallon backpack pump, a fully charged 2A10BC fire extinguisher**					
ACTIVITY	**ACTIVITY TOOLS AND EQUIPMENT**	**A**	**B**	**C**	**D**	**Ev**	**E and RFW**
If your activity does not fall into a specific category consult the fire prevention plan, ask your FCA, or reach the Project Fire Coordinator/s for clarification. It is your responsibility to know what mitigation tools are required for your activity	**Expected tools for activity; If you use multiple tools or are doing multiple activities you must consult multiple boxes in the matrix. If a vehicle containing the appropriate tools for the activity is parked within the required distance for the activity, those tools meet the requirements of the fire prevention mitigation measure**	**The PAL for the following day can be obtained after 4:00pm by calling (619) 557-5262 and asking the Dispatcher for the PAL for the Fire Danger Rating Area where work will occur**					
Unmanned Aerial Vehicle (UAV)Missions (Drone Missions)	UAV's **Battery Powered Only** - Must comply with Project Vehicle/POV on ROW/Worksite compliance requirements	Standard Tool Package	Standard Tool Package	Standard Tool Package	Standard Tool Package. UAV must take-off and land within 50' of remote pilot in charge	Standard Tool Package. UAV must take-off and land within 50' of remote pilot in charge	Activity Not Permitted without prior approval from Project Mgr., Construction Supervisor, or Field Contract Advisor with consultation with Fire Coordinator
Gasoline Powered Hand Tools	Chain saw, Weed Eater, etc.... (Spark Arrester Required)	Standard Tool Package within 50', There must be one shovel and a 16 oz or better fire extinguisher within 25'of the work. Assign a spotter/swamper during operations	Standard Tool Package within 50', There must be one shovel and a 16 oz or better fire extinguisher within 25'of the work. Assign a spotter/swamper during operations	Standard Tool Package within 50', There must be one shovel and a 16 oz or better fire extinguisher within 25'of the work. Assign a spotter/swamper during operations	Standard Tool Package within 50', There must be one shovel and a 16 oz or better fire extinguisher within 25'of the work. Assign a spotter/swamper during operations. Designated fire patrol required.	Standard Tool Package within 50', There must be one shovel within 25' or a fire extinguisher in the operator's immediate possession. Assign a spotter/swamper during operations. **Dedicated Fire Patrol Required**	Activity Not Permitted

Project Activities		**PAL Level (SDG&E O&M Activities on the CNF)**					
ACTIVITY	**ACTIVITY TOOLS AND EQUIPMENT**	**A**	**B**	**C**	**D**	**Ev**	**E and RFW**
Gasoline Powered Tool Fueling (Chain saw, Weed Eater, chipper, generator…)	Gas can/truck	Equipment may be refueled after cooling and in an area with a minimum of 10' of clearance, Shovel and Fire extinguisher within 25'.	Equipment may be refueled after cooling and in an area with a minimum of 10' of clearance, Shovel and Fire extinguisher within 25'.	Equipment may be refueled after cooling and in an area with a minimum of 10' of clearance, Shovel and Fire extinguisher within 25'.	Equipment may be refueled after cooling and in an area with a minimum of 10' of clearance, Shovel and Fire extinguisher within 25'.	Activity Not Permitted without prior approval from Project Mgr., Construction Supervisor, or Field Contract Advisor with consultation with Fire Coordinator	Activity Not Permitted
Combustion engines	Generators, Compressors, any piece of non-vehicular equipment with a combustion engine ***Not integral to the operation of a foundation drill**	Standard Tool Package; + While operating equipment must have 5' of clearance on all sides and no combustible material underneath; ensure equipment that requires a spark arrestor has it installed properly	Standard Tool Package; + While operating equipment must have 5' of clearance on all sides and no combustible material underneath; ensure equipment that requires a spark arrestor has it installed properly	Standard Tool Package; + While operating equipment must have 5' of clearance on all sides and no combustible material underneath; ensure equipment that requires a spark arrestor has it installed properly	Standard Tool Package; + While operating equipment must have 5' of clearance on all sides and no combustible material underneath; ensure equipment that requires a spark arrestor has it installed properly	Activity may take place only with unit mounted on the vehicle, on roadway Standard Tool Package within 50'. While operating equipment must have 10' of clearance on all sides. Ensure equipment that requires a spark arrestor has it installed properly. **Designated Fire Patrol Required**	Activity may take place **only in a cleared MOW**; Standard Tool Package within 50'. While operating equipment must have 10' of clearance on all sides. Ensure equipment that requires a spark arrestor has it installed properly. **Designated Fire Patrol Required**
Chipping	Chippers, Tree Grinders	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet, **100 gallons of water with pump and hose on site** Area is wet down sufficiently to prevent ignitions **Designated Fire Patrol Required**	Standard Tool Package within 50 feet, **100 gallons of water with pump and hose on site** Area is wet down sufficiently to prevent ignitions **Designated Fire Patrol Required**	Standard Tool Package within 50 feet, 150 gallons of water with pump and hose on site, Area is wet down sufficiently to prevent ignitions. **Dedicated Fire Patrol required**	Activity Not Permitted
Hot Work: Welding , Metal Cutting, Grinding Must obtain Permit from Forest Service	Generators, Welder, Grinder, CAD Weld equipment	All welding, cutting and other hot work will follow a hot work program that will at minimum meet the standards set in NFPA 51B, CFC Chapter 35 and have Standard Tool Package within 50 feet; 10' of clearance, Wet down surrounding area, **A Designated Fire Patrol required and must be present during work and 30 minutes after hot work is complete**	All welding, cutting and other hot work will follow a hot work program that will at minimum meet the standards set in NFPA 51B, CFC Chapter 35 and have Standard Tool Package within 50 feet; 10' of clearance, Wet down surrounding area, **A Designated Fire Patrol required and must be present during work and 30 minutes after hot work is complete**	All welding, cutting and other hot work will follow a hot work program that will at minimum meet the standards set in NFPA 51B, CFC Chapter 35 and have Standard Tool Package within 50 feet; 10' of clearance, Wet down surrounding area, **A Dedicated Fire Patrol required and must be present during work and 30 minutes after hot work is complete**	All welding, cutting and other hot work will follow a hot work program that will at minimum meet the standards set in NFPA 51B, CFC Chapter 35 and have Standard Tool Package within 50 feet; 10' of clearance, Wet down surrounding area, **A Dedicated Fire Patrol required and must be present during work and 30 minutes after hot work is complete**	Activity Not Permitted	Activity Not Permitted

Project Activities		**PAL Level (SDG&E O&M Activities on the CNF)**					
ACTIVITY	**ACTIVITY TOOLS AND EQUIPMENT**	**A**	**B**	**C**	**D**	**Ev**	**E and RFW**
Aerial Hot work **(in addition to Hot Work requirements)** Must obtain Permit from Forest Service	Any hot work that occurs with the welder's feet above ground level. Hot work should not be performed with a tool over a crew members head.	A site-specific plan will be discussed and implemented when hot work is required to be performed higher than 6 feet off the ground. To the best of the ability of the project personnel, hot work should be accomplished at ground level.	A site-specific plan will be discussed and implemented when hot work is required to be performed higher than 6 feet off the ground. To the best of the ability of the project personnel, hot work should be accomplished at ground level.	A site-specific plan will be discussed and implemented when hot work is required to be performed higher than 6 feet off the ground. To the best of the ability of the project personnel, hot work should be accomplished at ground level.	A site-specific plan will be discussed and implemented when hot work is required to be performed higher than 6 feet off the ground. To the best of the ability of the project personnel, hot work should be accomplished at ground level.	Activity Not Permitted	Activity Not Permitted
Removal and/or installation of fencing and/or berms	Hand tools, Loader with fence post installer/remover, Tractor, Ditch Witch	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet + **150 gallons of water with pump and hose on site**, Area is wet down pre and post work to sufficiently prevent ignitions.	1 round point shovel, 1 Pulaski, 1 (5) gallon backpack pump, a fully charged 2A:10B:C Fire Extinguisher within 50 feet; **150 gallons of water with pump and hose on site. Dedicated Fire Patrol Required**	Activity Not Permitted
Grading, Road Maintenance, Scraping and Trenching	Bulldozer, Excavator, Scraper, Heavy equipment,	Standard Tool Package within 50 feet, **150 gallons of water with pump and hose on site**, Area is wet down sufficiently to prevent ignitions	Standard Tool Package within 50 feet, **150 gallons of water with pump and hose on site**, Area is wet down sufficiently to prevent ignitions	Standard Tool Package within 50 feet + **150 gallons of water with pump and hose on site**, Area is wet down pre and post work to sufficiently prevent ignitions**.** **Designated Fire Patrol Required**.	Standard Tool Package within 50 feet + **150 gallons of water with pump and hose on site**, Area is wet down pre and post work to sufficiently prevent ignitions. Standard Tool Package within 50 feet + **150 gallons of water with pump and hose on site**, Area is wet down pre and post work to sufficiently prevent ignitions. **Designated Fire Patrol Required**	Activity Not Permitted	Activity Not Permitted
Structure Erection/Pole Setting	Crane, Forklift **(See specific work activity for other tools/equipment involved in operations**	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet, **150 gallons of water with pump and hose on site,** Area is wet down sufficiently to prevent ignitions, **Dedicated Fire Patrol Required**	Activity Not Permitted
Foundation Pouring	Concrete Trucks, Generators, Hand tools, etc	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet		Activity Not Permitted

Project Activities		**PAL Level (SDG&E O&M Activities on the CNF)**					
ACTIVITY	**ACTIVITY TOOLS AND EQUIPMENT**	**A**	**B**	**C**	**D**	**Ev**	**E and RFW**
Erosion Control (BMP)	**Hand tools, battery powered tools, and/or non-ferrous tools only** (If fuel powered equipment is used, see "Gasoline Powered Hand Tools" section)	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet, Area is wet down sufficiently to prevent ignitions, **Dedicated Fire Patrol Required**	Activity Not Permitted without prior approval from Project Mgr., Construction Supervisor, or Field Contract Advisor with consultation with Fire Coordinator
Erosion Control	Heavy equipment	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet, **100 gallons of water with pump and hose on site**, Area is wet down sufficiently to prevent ignitions	Standard Tool Package within 50 feet, **100 gallons of water with pump and hose on site**, Area is wet down sufficiently to prevent ignitions **Designated Fire Patrol Required**	Standard Tool Package within 50 feet, **150 gallons of water with pump and hose on site**, Area is wet down sufficiently to prevent ignitions **Designated Fire Patrol Required**	Activity Not Permitted	Activity Not Permitted
Pad Clearing	Bulldozer, Excavator, hand tools, Steel Track equipment	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet, **100 gallons of water with pump and hose on site**, Area is wet down sufficiently to prevent ignitions	Standard Tool Package within 50 feet, **100 gallons of water with pump and hose on site**, Area is wet down sufficiently to prevent ignitions **Designated Fire Patrol Required**	Standard Tool Package within 50 feet, **150 gallons of water with pump and hose on site**. Area is wet down sufficiently to prevent ignitions **Designated Fire Patrol Required**	Activity Not Permitted	Activity Not Permitted
Vegetation Clearing	**Hand tools, battery powered tools, and/or non-ferrous tools only** (If fuel powered equipment is used, see "Gasoline Powered Hand Tools" section	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet, Area is wet down sufficiently to prevent ignitions, **Dedicated Fire Patrol Required**	Activity Not Permitted
General Construction activities **(Benign work activity conducted with hand/mechanical/non-fuel powered tools or equipment; e.g., archaeological pre-digs)**	**Hand tools or battery powered tools only** (No fuel powered tools; e.g., shovels, mechanic tools, non-ferrous hammer-type tools, wheel barrows, and material screens	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet	Standard Tool Package within 50 feet **Designated Fire Patrol**	Can only take place in a MOW with prior approval from Project Mgr., Construction Supervisor, or Field Contract Advisor with consultation with Fire Coordinator **Dedicated Fire Patrol Required**

Project Activities		PAL Level (SDG&E O&M Activities on the CNF)					
ACTIVITY	**ACTIVITY TOOLS AND EQUIPMENT**	**A**	**B**	**C**	**D**	**Ev**	**E and RFW**
Monitoring and Assessment of: Vegetation, Wildlife, Cultural, etc.	Recording data and taking pictures with Project vehicles, or POV	Standard Tool Package Communications must be maintained at all times	Standard Tool Package Communications must be maintained at all times	Standard Tool Package Communications must be maintained at all times	Standard Tool Package Communications must be maintained at all times	Activity may be permitted with prior approval from Project Mgr., Construction Supervisor, or Field Contract Advisor with consultation with Fire Coordinator	Activity may be permitted with prior approval from Project Mgr., Construction Supervisor, or Field Contract Advisor with consultation with Fire Coordinator
Dust abatement: Wetting the sites, roads or any other area on the ROW	Water Trucks	Standard Tool Package	Standard Tool Package	Standard Tool Package	Standard Tool Package	Activity Not Permitted outside a MOW without prior approval from Project Mgr., Construction Supervisor, or Field Contract Advisor with consultation with Fire Coordinator	Activity Not Permitted outside a MOW without prior approval from Project Mgr., Construction Supervisor, or Field Contract Advisor with consultation with Fire Coordinator
Smoking	Cigarettes, Cigars, etc…	Smoke only in designated smoking areas that are signed, flagged off and have a butt can or in a 10’ diameter circle cleared of all vegetation down to bare soil. Butts and other smoking materials must not to be discarded on the ground and must be disposed of in an appropriate receptacle.	Smoke only in designated smoking areas that are signed, flagged off and have a butt can or in a 10’ diameter circle cleared of all vegetation down to bare soil. Butts and other smoking materials must not to be discarded on the ground and must be disposed of in an appropriate receptacle.	Smokers may only smoke in a MOW in a signed, flagged off, designated smoking area with a butt can. Butts and other smoking materials must not to be discarded on the ground and must be disposed of in an appropriate receptacle	Smokers may only smoke in a MOW in a signed, flagged off, designated smoking area with a butt can. Butts and other smoking materials must not to be discarded on the ground and must be disposed of in an appropriate receptacle	Activity Not Permitted	Activity Not Permitted
Conductor Replacement (working with de-energized lines)	Replacement of conductor, wire spreading, wire puling	Standard Tool Package within 50’	Standard Tool Package within 50’	Standard Tool Package within 50’ Designated Fire Patrol assigned with minimum 150 gallons required if utilizing stringing equipment powered by a combustion engine	Standard Tool Package within 50’ Designated Fire Patrol assigned with minimum 150 gallons required if utilizing stringing equipment powered by a combustion engine.	Fire Patrol assigned with minimum 150 gallons at required if utilizing stringing equipment powered by a combustion engine.	Activity Not Permitted
Conductor Replacement (working with energized lines	eplacement of conductor, wire spreading, wire pulling	Standard Tool Package within 50’	Standard Tool Package within 50’	Standard Tool Package within 50’, Dedicated Fire Patrol assigned with minimum 150 gallons	Standard Tool Package within 50’, Dedicated Fire Patrol assigned with minimum 150 gallons	Activity Not Permitted	Activity Not Permitted
OTHER ACTIVITY/EQUIPMENT REQUIREMENTS:							

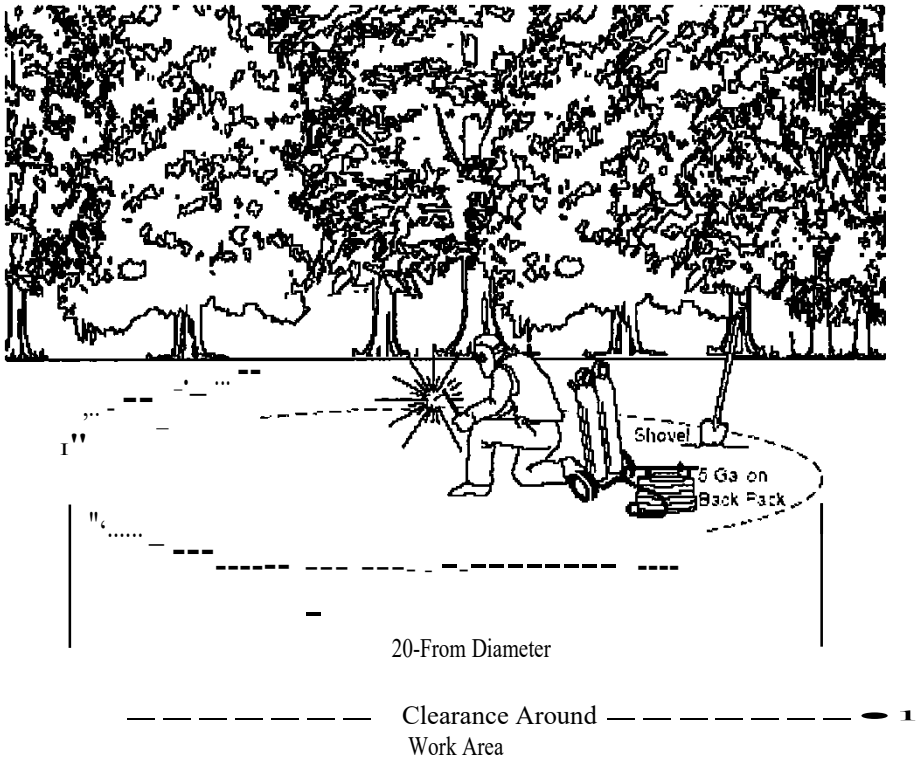
Project Activities		PAL Level (SDG&E O&M Activities on the CNF)					
ACTIVITY	**ACTIVITY TOOLS AND EQUIPMENT**	**A**	**B**	**C**	**D**	**Ev**	**E and RFW**
Spark Arresters: All internal combustion engines shall have approved spark arresters; Engines used to provide motive power for trucks, tractors, buses, and passenger vehicles, except motorcycles, are exempt if the exhaust system is equipped with a muffler; Turbocharged engines are exempt.							
Drive in sites: Standard fire mitigation tools on vehicles will meet the requirements. If the work site is more than 50' from the vehicle the tools will need to be moved from the vehicle to the site. Vehicle must remain stationary while tools are removed.							
				On-Duty Fire Coordinator: (858) 503-5152			Final Revision 01/28/21

Attachment F.2
Metal Cutting, Welding and Grinding

A California Inter-Agency Burning permit is required for all metal cutting, metal grinding, and welding operations. This permit may be obtained from the Forest Service. Contact District Fire Prevention personnel at 619-445-1725 to obtain the permit. Permits expire at the end of the calendar year or upon terms of the permit.

Welding and metal grinding have caused numerous wildfires in California. The following graphic and guidelines are designed to help mitigate fire starts caused by sparks, slag, or hot metal falling into dry vegetation fuel beds.

- Clear and maintain to bare soil a minimum 10-foot area from work site of dead grass, brush, and other combustibles.
- Have a shovel at the work site.
- Have a 5-gallon backpack pump-type fire extinguisher filled with water ready for emergency use.
- Have a dedicated fire patrol on site during work and 30 minutes after completion of work.
- Where practicable, use a welding tent or shield to contain welding and grinding sparks.



Proper clearances around welding operation.

All Construction “hot work” must all be in compliance with NFPA 51B requirements

Attachment F.3
Spark Arrestor Information

USDA Forest Service-approved spark arrestors are required on all internal combustion engines. Heavy equipment that is diesel and turbo charged are exempt from this requirement. All vehicles, such as dump trucks that are licensed and otherwise registered for highway travel, are also exempt from the spark arrestor requirement. (See Fire Plan Section 3: Tools and Equipment and Attachment 2: Exhaust Systems and Spark Arrestors, for additional information on Spark Arrestors).

Vehicle exhaust systems start fires in two ways: (a) an emission of hot carbon particles, and (b) direct contact with flammable materials and vegetation. Contact with flammable materials may occur by a collection of flammables on manifolds and inside heat shields or by parking where flammable vegetation may come in close proximity or contact to exhaust systems and other components. Fire ignition by direct contact most often occurs with a vehicle muffler, catalytic converter, or exhaust pipe. Operating temperatures of any of these components are well above the ignition temperature of dry wildland fuels. Vehicles should always and only be parked on an area cleared of all flammable materials.

All internal combustion engines operating on forest or grass covered lands in California are required to be equipped with an effective spark arrester. Muffler equipped trucks, buses, and passenger vehicles are exempt provided they are licensed and registered for highway travel and the exhaust system has not been modified. Heavy equipment—such as road graders, rubber tired front-end loaders, and caterpillar tractors that are diesel powered and are equipped with a turbo charger where 100% of the exhaust is recycled through the turbo charger—are exempt from the spark arrester requirement. All portable gasoline generators, chain saws, and weed eaters are required to have a spark arrester on the exhaust system.

For further information, the Approved Spark Arrestor Guide List is available online at http://www.fs.fed.us/t-d/programs/fire/spark/sag-index.html

Appendix G
SDG&E Avian Protection Plan

Contents

1.0 Introduction

This Avian Protection Plan (APP) describes the actions to be taken by San Diego Gas & Electric (SDG&E) to ensure that avian protection measures are implemented to avoid avian disturbance and to reduce bird mortalities from electrocution and collision with overhead 69-kV electric transmission lines and 12-kV electric distribution circuits located within the Cleveland National Forest (CNF) during the post-construction phase of the CNF Power Line Replacement Project (PLRP), as well as during the ongoing Operations and Maintenance (O&M) of SDG&E's electric facilities authorized within the CNF by the Master Special Use Permit (MSUP).

The post-construction phase of the PLRP includes monitoring and implementation of habitat restoration and enhancement, access road improvements (including engineered solutions where required), access road decommissioning, and other compensatory mitigation activities. O&M of SDG&E's MSUP authorized facilities includes implementation of routine, non-routine and emergency maintenance, repair and replacement activities for all overhead and underground electric transmission and distribution facilities, as outlined and specified in the Plan. These activities are required to comply with this APP consistent with the MSUP.[22]

This APP was prepared in accordance with Mitigation Measure (MM) BIO-28 of the Final USFS Record of Decision (ROD) for the PLRP/MSUP and the PLRP's Mitigation Monitoring, Compliance, and Reporting Program (MMCRP), as well as Applicant Proposed Measure (APM) BIO-08 of the PLRP/MSUP Environmental Impact Report/ Environmental Impact Statement (EIR/EIS). This APP outlines the requirements of MM BIO-28 that apply to O&M activities and PLRP Post-Construction activities.

2.0 Objectives

This APP provides a description of measures that SDG&E and its contractors will implement to avoid avian disturbance during authorized post-construction and O&M MSUP activities that have potential to adversely affect birds. The APP provides specific information for implementing MM BIO-28, APM BIO-08, and additional Bald and Golden Eagle protection measures amended to the MSUP, as well as the means of monitoring the effectiveness of the avian protection and avoidance measures. The management and reporting practices in this APP are intended to accomplish the following objectives:

- Reduce avian mortality resulting from electrocution and collisions with overhead electric transmission and distribution infrastructure.
- Maintain consistency with MM BIO-28 and APM BIO-08 during all post-construction and O&M activities for the life of the MSUP
- Maintain consistency with
- Comply with Sections 3503, 3503.5, and 3511 of California Fish and Game Code (FGC), and Section 703 of the Migratory Bird Treaty Act (MBTA).

[22] MSUP exhibit 19, page 4 specifies the requirement for an APP covering "operations and maintenance and PLRP construction" activities.

3.0 Mitigation Measures

The ROD for the MSUP/PLRP and associated PLRP MMCRP requires implementation of protective measures to avoid disturbance to birds during authorized O&M activities. Descriptions of the applicable operational avian protection measures in MM BIO-28 are provided below.

3.1 Mitigation Measure BIO-28A

"Construction activities, including to but not limited to tree trimming, road maintenance, (i.e., reestablishing of existing access roads), grading, or site disturbance, may occur during the avian bird breeding season that runs between March 1st and October 1st, for non-listed birds, and other seasons as defined below for special-status species, in compliance with the procedures and provisions of this mitigation measure. To avoid avian disturbance by construction activities, an Avian Protection Plan, including a Nesting Bird Management Plan, shall be developed in coordination with the Wildlife Agencies prior to project onset to develop measures based on site specific conditions to protect birds. This Avian Protection Plan shall be implemented by SDG&E and their biological monitors with oversight by the CPUC and the Forest Service. The Plan shall include procedures to allow the Wildlife Agencies open communication with the biological monitor(s) and access to scientific data collected that will be electronically stored in a database approved by the CPUC, the Forest Service, and the Wildlife Agencies. Between February and October during project construction, SDG&E shall provide a monthly summary of nesting bird monitoring activities and at the completion of each nesting season shall provide an evaluation of the data collected to date as specified in the Nesting Bird Management Plan.

3.2 Mitigation Measure BIO-28B

"The Project's transmission pole and line design may have an impact on certain raptor species. Consequently, in addition to the construction activities, the Plan shall address avian mortality related to line strikes through the use of adaptive management (i.e., measures to make the lines more visible to the suite of species affected), in response to reported mortalities."

3.3 Mitigation Measure BIO-28C

"The Avian Protection Plan shall include the following measures:

a) Compliance with the Migratory Bird Treaty Act (MBTA)
b) Compliance with Fish and Game Code Sections 3503, 3503.5, and 3511
c) Activities shall be prohibited within:
    i. Approximately 0.25 mile of the California spotted owl active nest sites (or activity centers) during the breeding season (February 1 through August 15) unless surveys confirm that California spotted owls are not nesting within 0.25-mile radius.
    ii. 500 feet of raptor or owl active nests.

iii. 500 feet of federally and/or state-listed birds active nests.
iv. 250 feet of occupied burrowing owl burrows from February 1 to August 31 or within 160 feet from October 1 through January 31; and
v. 150 feet of non-listed birds and as specified in the avian protection plan for other bird species of concern.

If year-round burrowing owls are identified and there would only be temporary indirect impacts, then work may continue through coordination with the CDFW and monitoring. If it appears that the burrowing owls may be directly impacted, then a relocation plan will be developed for the specific burrowing owl(s). This plan would include the methods to relocate, location of the relocation, and post-relocation monitoring. Active relocation and banding of birds is not required. Similar buffers will be utilized for non-Forest Service lands as specified in the Avian Protection Plan and Nesting Bird Management Plan. 'Nest' is defined as a structure or site under construction or preparation, constructed or prepared, or being used by a bird for the purpose of incubating eggs or rearing young. Perching sites and screening vegetation are not part of the nest. 'Active nest' is defined as once birds begin constructing, preparing, or using a nest for egg-laying. A nest is no longer an "active nest" if abandoned by the adult birds or once nestlings or fledglings are no longer dependent on the nest."

d) Apply APLIC Measures. Specific APLIC measures to be applied must, at a minimum, allow the circuits to meet National Electric Safety Code (NESC) requirements and should provide general information on specialized construction designs to meet APLIC standards. In particular, conductor separation between the energized and grounded hardware should meet the current state of the art requirements to protect species up to California condor. If appropriate separation is not feasible, then the energized parts and hardware should be covered. As appropriate, bird diverters should be deployed as well."

3.4 Mitigation Measure BIO-28D

"The database shall include special features to accommodate additional- variables (covariate) information requested by the Wildlife Agencies designed for this Project that will provide data which will contribute to the scientific standards of effective avian avoidance measures. In order to help evaluate buffer effectiveness, nests shall be monitored on a daily basis by a qualified biologist during disturbance and-related activities (i.e., brushing, tree trimming, ground-disturbing activities (i.e., brushing, tree trimming, ground-disturbing activities, mechanized or manual construction/removal installation, and restoration activities) and every 4 days following disturbance until nest fates have been determined for entry into the database. Daily nest monitoring will be conducted by a qualified biologist, from as far away as possible while still being able to observe activity. The biologist need not observe the actual contents of the nest but may extrapolate status based on adult behaviors. Actual surveys of the nest contents must not occur more than weekly (i.e., allow at least 7 days between nest visits) and visits should be very brief, paths should go by the nest without stopping, if possible, the biologist should not touch leaves or branches, and should take a new route each time they pass the nest. If brown-headed cowbirds or potential nest predators (e.g., scrub jays, crows, and ravens) are in the area, then the visit should be postponed until they are gone.

At a minimum, the plan(s) shall include the following sections:

- Plan Objectives
- Applicable MMs
- Environmental Awareness Program
- Existing Avian Resources

- Construction Process and Timing (relating to avian resource protection)
- Specific Avian Power Line Interaction Committee (APLIC) measures to be Applied
- Nest Survey and Monitoring Methods
    - Surveyor Experience and Training
    - Nesting Bird Survey Protocol
    - Standard Buffer Distances as determined in consultation with Wildlife Agencies
    - Protections of Listed Species, Raptors, and Eagles
    - Nest Monitoring
    - Data Collection
- Avian Reporting System
    - Nest Monitoring Log to include fates of all nests monitored
    - Reporting including update of database accessible to Wildlife Agencies
- Nest Management
    - Nesting Habitat Reduction
    - Nesting Deterrents
    - Nest Removal
- Risk Assessment and Mortality Reduction,
- Quality Control and Effectiveness,
- Avian Enhancement, and
- Key Resources

Prior to start of construction and implementation, SDG&E will submit the APP to the CPUC, USFS, and Wildlife Agencies (WLAs)[23] for review and approval."

3.5 Mitigation Measure BIO-28E

"In order to identify locations of current bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), California spotted owl (*Strix occidentalis*), American peregrine falcon (Falco peregrinus anatum), or federally and/or state-listed or fully protected bird nests, the monitoring biologists will coordinate with the USFS, USFWS, and CDFW to ensure that the most up to date information is made available to monitoring biologists. If work will be conducted within a one-mile buffer of historic and currently known nests during the bald or golden eagle breeding season (December 15 through July 31), SDG&E will survey the historic and currently known nests sites to determine if they are active. If nests are determined to be active, then work within 1 mile of active nests shall be rescheduled until after the completion of nesting activity at those nests. Alternatively, SDG&E may plan work activities to occur outside of the 1-mile buffers during the breeding season."[24]

[23] The WLAs are comprised of CDFW and USFWS.

[24] See USFS MSUP amendment shown on page 16 that further specify nest survey requirements for Bald and Golden Eagles.

4.0 Applicant Proposed Measures

The PLRP/MSUP EIR/EIS requires implementation of protection measures to reduce impacts to birds. The description of avian protection measure APM BIO-08 is provided below.

4.1 Applicant Proposed Measure BIO-08

"SDG&E will design and install all new poles to conform to the guidelines in the Suggested Practices for Avian Protection on Power Lines Manual developed by the Avian Power Line Interaction Committee."

5.0 Applicable Regulations

5.1 California Fish and Game Code

The Project will comply with FGC Sections 3503, 3503.5, and 3511.

5.1.1 FGC Section 3503

It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.

5.1.2 FGC Section 3503.5

It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey)—or to take, possess, or destroy the nest or eggs of any such bird—except as otherwise provided by this code or any regulation adopted pursuant thereto.

5.1.3 FGC Section 3511

Applicable portions of Section 3511 include the following:

> "(a)(1) Except as provided in Section 2081.7 or 2835, fully protected birds or parts thereof may not be taken or possessed at any time. No provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected bird, and no permits or licenses heretofore issued shall have any force or effect for that purpose."
> "(b) The following are fully protected birds:
> (1) American peregrine falcon (*Falco peregrinus anatum*)
> (2) Brown pelican (*Pelecanus occidentalis*)
> (3) California black rail (*Laterallus jamaicensis coturniculus*)

(4) California clapper rail (*Rallus longirostris obsoletus*)
(5) California condor (*Gymnogyps californianus*)
(6) California least tern (*Sterna albifrons browni*)
(7) Golden eagle (*Aquila chrysaetos*)
(8) Greater sandhill crane (*Grus canadensis tabida*)
(9) Light-footed clapper rail (*Rallus longirostris levipes*)
(10) Southern bald eagle (*Haliaeetus leucocephalus leucocephalus*)
(11) Trumpeter swan (*Cygnus buccinator*)
(12) White-tailed kite (*Elanus leucurus*)
(13) Yuma clapper rail (*Rallus longirostris yumanensis*)"

In August of 2015 the CDFW proposed to adopt new regulations (FGC Sections 681.1 – 681.5 Title 14) regarding nesting birds and birds of prey. The purpose of the proposed regulations is to facilitate pragmatic implementation of FGC Sections 3503 and 3503.5. The proposed regulations will define terminology used in the statutes and regulations, provide exceptions to the proposed regulations and also provides the CEQA Thresholds of Significance to determine the potential significance of impacts related to the take, possession, needless destruction or destruction of native bird nests, eggs, or birds of prey. Therefore, this APP may be adapted to conform to future changes to regulations that apply to the Project.

5.2 Migratory Bird Treaty Act

The MBTA (Title 16, Section 703 of the U.S. Code) states the following:

> "Unless and except as permitted by regulations made as hereinafter provided in this subchapter, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, any migratory bird, any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird or any part, nest, or egg thereof...."

This law only applies to migratory bird species that are native to the U.S. Additionally, the USFWS's guidance regarding unoccupied nests states that the MBTA does not contain any prohibition that applies to the destruction of a migratory bird nest alone (without birds or eggs), provided that no possession occurs during the destruction (USFWS 2003).

The USFWS is currently evaluating a new incidental take permitting program under the MBTA that would apply to the unavoidable take of birds associated with industry sectors, including electric utilities (USFWS 2015). The program would allow for general authorization take permits and individual permits that address industry practices and facilities that chronically result in avian mortality or injury. Additionally, the USFWS is evaluating voluntary guidance approaches for industry sectors that will identify best management practices (BMPs) to minimize avian mortality and injury (USFWS 2015). If the proposed program or guidance approach applies to the Project, the APP may be adapted to conform to the changes in federal regulations.

6.0 Plan Implementation

6.1 Environmental Compliance Training Program

SDG&E implements annual, mandatory environmental compliance training for its O&M personnel. The training reviews environmental compliance requirements prior to and while conducting operations, maintenance, repairs or replacement of electric facilities, and includes specific review of applicable NCCP/HCP avoidance and minimization protocols, and compliance requirements with federal and state laws that protect avian resources. Throughout post-construction of the PLRP and MSUP O&M activities, SDG&E Environmental Services will continue to provide avian avoidance and minimization guidance to its personnel via the compliance training program. SDG&E periodically evaluates the effectiveness of its environmental compliance training programs and updates them to incorporate new information, technologies, changes in industry standards, and feedback from utility field personnel and agencies.

6.2 Existing Avian Resources

SDG&E's MSUP facilities on the CNF traverse much of San Diego County's open and largely undeveloped mountainous area within the Peninsular Range geological province, which supports hundreds of bird species, including raptors, warblers, ducks, woodpeckers, sparrows, towhees, and flycatchers. The diversity of bird species in San Diego County is a result of varied topography, climate, soils, and the county's location along the Pacific Flyway. Topography ranges from relatively flat pasturelands to steep, rocky cliffs in higher mountain areas. The area is characterized as rolling foothills and canyons, and includes chaparral, oak woodland, grassland, wetland and riparian communities (Dudek 2015). Suitable habitat for raptor breeding is present. All of the habitats support varying numbers of bird species. Most of these species are migrants or winter residents. Migration timing varies from species to species, and for some, there is little documentation of the timing; for others, the arrival and departure has been well documented (Unitt 2004). In general, bird migration occurs during the months of March through April and August through November. The majority of bird species present in the CNF MSUP area are protected under the MBTA, with the exception of some game species and all non-native species.

The westernmost portion of the CNF MSUP area is located approximately 30 miles from the Pacific coast and passes through elevations ranging from 2,700 to 3,900 feet. The Pacific Flyway is a known migratory pathway for birds in the western U.S. and is generally split into a coastal route and an interior route in San Diego County. The coastal route occurs primarily at lower elevations close to the coast. The interior migration route does not occur within the CNF MSUP area but is focused on a stopover at the Salton Sea, which is located approximately 45 to 60 miles northeast of the Project. According to the Project's EIR/EIS, the Project area is not a major route of the coastal Pacific Flyway for birds during migration. Several small waterbodies are located within or adjacent to the Project (e.g., Lake Henshaw, Loveland Reservoir, Barret Lake, and Lake Morena), which may provide stopovers for avian species in low numbers. Although migratory species are observed within the Project area, there is no evidence to suggest that the Project is located within a major migratory flyway route or that the Project will increase risk to migratory avian species.

6.3 O&M Activity Process and Timing

SDG&E O&M activities are discussed at bi-annual meetings with the USFS. Known and anticipated Class I, IIa, b, and c and Class III O&M activities, a description of each and their locations within the CNF MSUP area are provided for review and discussion. For Class I activities SDG&E follows the environmental review process outlined in the O&M Plan, and for Class IIa, b, and c and Class III activities SDG&E follows the environmental review and notification process for the USFS outlined in the Plan. Note that the timing and duration of both annual routine and non-routine O&M activities can be variable depending upon circumstances and are contingent upon uncontrollable and unforeseen circumstances including but not limited to extreme weather and wildland fires that can cause schedule delays or require Class IV emergency activities.

6.4 Specific APLIC Measures to be Applied

As required by APM BIO-08 and MM BIO-28C(d), SDG&E will design and install all new poles to conform to the guidelines in APLIC's Suggested Practices for Avian Protection on Power Lines Manual. Those guidelines will allow for power lines to meet CPUC General Order (G.O.) 95 and G.O. 128. G.O. 95 and G.O. 128 are state laws regulating the construction and maintenance of overhead and underground utility lines. MM BIO-28C(d) incorrectly references National Electric Safety Code which is not applicable to SDG&E Construction and Maintenance, as G.O. 95 and G.O. 128 are the appropriate regulations to reference.

6.4.1 Construction Design

All transmission pole and line design for CNF MSUP facilities occurring during O&M will comply with APLIC's Suggested Practices for Avian Protection on Power Lines. APLIC's guidelines summarize the research that has been conducted to address bird electrocution and collision mortality associated with electric transmission and distribution systems (2006; 2012). This research has prompted federal and state resource agencies in concert with the electric utility industry to adopt various measures for the structural design and siting of new lines that avoid or minimize bird electrocutions and collisions.

6.4.2 Electrocution

The O&M avoidance and minimization measures described in the APP are sufficient to protect from electrocution the largest birds that may perch or roost on transmission and distribution lines or structures. Avian electrocution can occur anytime there is a difference in potential, such as when a bird makes contact with two energized phase conductors, or an energized conductor and grounded hardware. This can occur when the horizontal separation between these elements is less than the wrist-to-wrist (flesh-to-flesh) (2006) distance of a bird's wingspan, or where vertical separation is less than a bird's length from its head to foot. Project design adheres to strict SDG&E and industry standards for allowable clearances.

To minimize risk of avian electrocution, the following APLIC guidelines are incorporated into the electric facilities maintained, repaired or replaced during O&M:

- Include 60 inches of horizontal separation between phase-to-phase and 40 inches of vertical separation between phase-to-ground (these recommendations are for golden eagles).

- Use the following methods to cover exposed energized or grounded parts (i.e., phases or grounds) to prevent avian contact where adequate separation is not feasible:
    - Distribution phase covers, bushing covers, arrester covers, cutout covers, jumper wire hoses, and covered conductors can be used to prevent avian contact.
    - Perch discouragers may be used to deter birds from landing on hazardous pole locations where separation, covers, or other insulating techniques cannot be used.

- If birds are likely to nest on power structures, nesting platforms may be installed on power structures to enhance nesting while decreasing the risks of electrocution, equipment damage, current tracking which can lead to fires, or loss of service.

APLIC measures do not provide specific guidelines of conductor separation for California condor. Project transmission pole and line design exceeds the APLIC guidelines, thereby reducing the risk of electrocution of large avian species, including the California condor. SDG&E's distribution construction standards for avian protection require a minimum distance of 60 inches for uncovered conductor phase-to-phase or phase-to-neutral (-ground) (SDG&E 2014). SDG&E's design for all high-voltage electric lines complies with APLIC's 2006 design recommendations through adherence to SDG&E's overhead construction standards. In O&M activity areas where California condors occur (perch or nest) or may occur in the future, insulator covers, or similar protection will be used if separation between insulators is less than seven feet.

6.4.3 Collision

Consistent with the PLRP and MSUP, the operation, repair and maintenance of SDG&Es electric transmission and distribution facilities on the CNF are not expected to restrict flight movement or significantly affect aerial corridors for bird species (Dudek 2015). Risk assessment within the Project area is discussed in Section 6.4 below. If the need for adaptive management arises, SDG&E may elect to modify the existing lines using methods such as line marking or installation of diverters, per APLIC (2012) recommendations.

6.5 Risk Assessment and Mortality Reduction

SDG&E maintains information regarding avian mortalities on its equipment and facilities (e.g., poles, lines, and substations). SDG&E identifies risk of avian mortality within its service territory based on evaluation of bird related outages, raptor and waterfowl concentration areas, habitat characteristics, bird electrocutions, notification by a resource agency, or as necessary based on credible input from the public. When a dead or injured bird is found near or on SDG&E facilities or rights-of way, a report is generated to document the occurrence and for avian protection evaluation and management purposes. If an eagle or a federally and/or state-threatened or endangered species is found, then SDG&E's Environmental Services department will notify the appropriate contacts at USFWS and CDFW. Special arrangements to preserve the remains may be made under the direction of the agencies. Through the internal process, dead or injured bird records may indicate specific problem areas where more in-depth analysis is necessary. SDG&E investigates problem areas to determine whether corrective measures are

required. Agency coordination will be initiated as needed or where required by applicable laws, regulations, and permits.

6.6 Quality Control and Effectiveness

SDG&E will review and update practices to ensure efficiency and effectiveness. This APP will undergo review and updating consistent with the SDG&E CNF MSUP O&M Plan as additional information becomes available. SDG&E will continue to monitor data collection and results and assess mortality reporting procedures to ensure that discoveries of avian mortalities are properly documented.

6.7 Avian Enhancement

SDG&E will work cooperatively with the USFWS and CDFW throughout the post-construction and O&M activities occurring on the CNF, to ensure that any potential impacts to protected avian species from its existing facilities or ongoing routine or non-routine O&M activities are avoided or minimized to the greatest extent feasible.

SDG&E currently engages in many activities that provide avian enhancement and benefit bird populations within its service territory and anticipates continuing these activities under the MSUP where needed. SDG&E's construction of nest platforms provides nesting sites while minimizing the risks of electrocution. A variety of birds may nest on power poles, including hawks, falcons, owls, ravens, and kingbirds. Nests that become established on poles or other structures that do not pose a risk to safety, reliability, fire, or electrocution will be left in place. However, if a nest is established on a pole or structure that poses a fire or safety risk, it may need to be relocated to a nest platform or removed. The installation of a nest platform can provide a suitable alternative nesting site for many avian species. Constructing a nest platform or modifying poles to accommodate both the nest and power operations are management options that will be considered with the CNF.

6.8 Nest Protection and Management

Several bird species are known to nest on or in transmission and distribution structures, poles, substations, and construction equipment. Although electrocution of birds that nest on transmission and distribution poles and structures is infrequent, bird nests can cause operational problems to an electric system (e.g., an outage) when the nest materials span the distance between the conductors/phases. SDG&E will comply with all federal and state laws and regulations regarding avian nest management during all post-construction and O&M activities. The species of the nest occupant and the status of its nest will be identified, and the USFS, USFWS and CDFW consulted in accordance with applicable regulations and permits, including the SDG&E NCCP[25] before taking any management actions.

6.8.1 Non-Threatened/Endangered or Non-Raptor Species

All native bird nests occupied by eggs or young are protected under the MBTA and Sections 3503 and 3503.5 of the California Fish and Game Code. Permits may be required by the USFWS and/or CDFW

[25] Includes applicable Subregional Plan species-specific protocols for avoidance and minimization to nesting birds.

before taking action on or managing any active nest. Nests located during post-construction and O&M activities will be left in place if they do not pose a threat to the reliability of an electric line or if they do not create a potential fire risk or an electrocution risk to the birds. Unoccupied nests encountered during O&M activities may be removed, if needed, to facilitate maintenance, repair or replacement of those facilities. SDG&E will not needlessly remove a nest of a native, non-game bird during the avian breeding season. Furthermore, SDG&E will not remove a nest containing eggs or young of any bird species protected under the MBTA without appropriate permits and consultation with USFWS and CDFW. . The breeding season for most birds is between February 1 and October 1, and as early as December 15 for raptors.

A memorandum issued by the USFWS on April 15, 2003, discussed nest management and nest destruction and stated that the MBTA does not contain any rule against the destruction of an unoccupied migratory bird nest alone, provided that no possession occurs during the destruction. In addition, a federal permit is not required to remove or manipulate an unoccupied nest for a non-threatened/endangered or non-eagle species during the non-breeding season. SDG&E O&M personnel are trained to consult with SDG&E's Environmental Services department prior to unoccupied nest removal actions, and all nest removal locations within the CNF will be documented for the USFS.

6.8.2 Bald and Golden Eagle

In addition to all applicable federal and state laws and MM BIO-28E presented in this APP, the following additional mitigation measures for Bald and Golden Eagle nest protection are amended to the APP and will be in effect for the life of the MSUP through 2066 (USFS 2020). These mitigation measures shall be implemented by SDG&E (Permittee) and their contractors with oversight by the USFS.

1. Permittee shall provide USFS, USFWS and CDFW a detailed accounting of any new nesting activity by Golden or Bald Eagles on the day upon which the nesting activity is detected. Permittee shall respond within 5 working days to USFS requests for discussions or field trips to address Golden or Bald Eagle nest protection concerns.

2. In order to identify locations of current bald eagle (*Haliaeetus leucocephalus*), and golden eagle (*Aquila chrysaetos*), monitoring biologists will coordinate with USFS, USFWS, and CDFW to ensure that the most up to date information is made available to monitoring biologists. If work will be conducted within a one-mile buffer of historic and currently known nests during the bald or golden eagle breeding season (December 1 through July 31, annually), SDG&E will survey the historic and currently known nests sites to determine if they are active. If nests are determined to be active, then work within one mile of active nests shall be rescheduled until after the completion of nesting activity at those nests. Alternatively, SDG&E may plan work activities to occur outside of the 1-mile buffers during the breeding season.

   Permittee shall implement a 1-mile radius nest buffer on the day upon which Golden or Bald Eagle nesting activity is discovered.

   Permittee shall adhere to the USFWS Interim Golden Eagle Inventory and Monitoring Protocol (2010) and the USFS Golden Eagle Survey Protocol (2011), including but not limited to these measures: a) observation posts for monitoring known territories will be no closer than 300 meters for extended observations, and b) observation periods will last at least 4 hours for known nest sites or until territory occupancy or nesting status can be determined.

3. An active nest shall be defined as follows:

Active nest: A structure or site that birds begin constructing, preparing, or using as a nest for egg-laying and rearing young, with additional parameters for Bald or Golden Eagles. For these two species, to minimize the potential for disturbing eagles early in the breeding season, nests will be considered active and nest buffers will be in place effective December 1 if there are one or more eagles visiting nest sites, courting, or exhibiting other behaviors showing nesting intent.

6.8.3 Raptors

Active raptor nests will be left in place if they do not pose a threat to reliability of the electric line or if they do not create a potential fire risk. If a specific nest poses a threat to operations, or if it may be a problem in the future, then management action may be necessary. Nest management actions will be accomplished during the non-breeding season to the extent feasible. If it is necessary to remove an existing raptor nest during the breeding season, a qualified biologist will survey the nest prior to removal to determine if it is active. If the nest is determined to be unoccupied, it will promptly be dismantled and removed from the site under the supervision of a qualified biologist. If the nest is determined to be active, authorized Class II or III O&M activities may be delayed until after the nest is no longer active. For Class IV emergency O&M activities, removal of the nest, eggs, and/or chicks may be required. In such cases, SDG&E's Environmental Services department will notify the USFS consistent with the timelines in the O&M Plan, and USFWS and CDFW in accordance with all applicable regulations and permits. This may include contacting a permitted raptor rehabilitator, as provided in Section 6.8 Key Resources.

6.8.4 Threatened/Endangered, State Fully Protected, or Eagle Species

Coordination with the USFWS and CDFW is required prior to the removal of any unoccupied or active nest belonging to a threatened or endangered bird species. SDG&E will obtain the appropriate permits or conduct consultation with the wildlife agencies as appropriate, if nest removal for a threatened or endangered species is necessary. Nests of species that are listed under the Bald and Golden Eagle Protection Act have additional protections, and unoccupied eagle nests cannot be removed without a permit.

6.9 Key Resources

Contact information is provided below for SDG&E, USFS, other Federal and State agencies and internal and external resources that will assist with the implementation of this APP.

6.9.1 SDG&E Environmental Services

Tanzania Ware
SDG&E Environmental Programs Manager
Office: (619) 717-8121
Cell: (310) 902-2415
Email: tware@sdge.com

Glen Lubcke
SDG&E Natural Resources Team Lead

Office: (619) 676-5849
Cell: (619) 241-5354
Email: glubcke@sdge.com

Karen Wilson
SDG&E Post Construction Team Lead
Office: (858) 636-3972
Cell (858) 761-4390
Email: kwilson@sdge.com

Tanzania Ware
SDG&E Environmental Programs Manager
Office: (619) 717-8121
Cell: (310) 902-2415
Email: tware@sdge.com

6.9.2 USFS Cleveland National Forest

Kirsten Winter
Forest Biologist
Cleveland National Forest
10845 Rancho Bernardo Road #200
San Diego, CA 92127
Phone: (858) 674-2956
Email: kwinter@fs.fed.us

Jeff Wells\
Wildlife Biologist
Cleveland National Forest
10845 Rancho Bernardo Road #200
San Diego, CA 92127
Phone: (858) 674-2943
Email: jmwells@fs.fed.us

6.9.3 CDFW

Eric Hollenbeck
Senior Environmental Scientist
South Coast Region 5
3883 Ruffin Road
San Diego, CA 92123
Phone: (858) 467-2720
Email: eric.hollenbeck@wildlife.ca.gov

David Mayer
South Coast Region 5
3883 Ruffin Road
San Diego, CA 92123

Phone: (858) 467-4324
Email: david.mayer@wildlife.ca.gov

6.9.4 USFWS

Jesse Bennett
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008
Phone: (760) 431-9440, ext. 305
Email: jesse_bennett@fws.gov

Tom Dietsch
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, CA 92008
Phone: (760) 431-9440, ext. 214
Email: thomas_dietsch@fws.gov

6.9.5 Eagles

To report a dead or injured eagle, SDG&E's primary contact is the USFWS Office of Law Enforcement:

Ed Nieves, Special Agent
USFWS Office of Law Enforcement
610 West Ash St., Suite 1103
San Diego, CA 92101
Phone: (619) 557-5063
Email: eduardo_nieves@fws.gov

6.9.6 Injured Wildlife

Sky Hunters is the primary contact for reporting injured wildlife:

Sky Hunters
P.O. Box 1275
Lakeside, CA 92040
Phone: (619) 445-6565
Email: skyhunters@juno.com

Other rehabilitators in the area:

Project Wildlife
4343 Morena Blvd, #7
San Diego, CA 92117
Phone: (858) 866-0555
Email: info@projectwildlife.org

The Fund for Animals Wildlife Center
18740 Highland Valley Road
Ramona, CA 92065
Phone: (760) 789-2324
Email: acrumpacker@humanesociety.org

7.0 REFERENCES

APLIC. 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C. and Sacramento, CA.

APLIC. 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC. Washington, D.C.

APLIC and USFWS. 2005. Avian Protection Plan (APP) Guidelines.

Dudek. 2015. Environmental Impact Report/Environmental Impact Statement and Master Special Use Permit and Permit to Construct Power Line Replacement Projects. Online. http://www.cpuc.ca.gov/environment/info/dudek/CNF/Final-EIR-EIS.htm. Site visited October 2015.

IUCN. 2015. Gymnogyps californianus. Online. http://www.iucnredlist.org/details/22697636/0. Site visited December 2015.

Ralph, J.C. Geupel, G.R., Pyle, P., Martin, T.E., and DeSante, D.F. 2003. Handbook of Field Methods for Monitoring Landbirds.

SDG&E. 1995. Company Subregional Natural Community Conservation Plan.

SDG&E. 2013. East County Substation Project Avian Protection Plan.

SDG&E. 2013. East County Substation Nesting Bird Management, Monitoring, and Reporting Plan.

SDG&E. 2014. San Diego Gas & Electric Overhead Construction Standards. Section 1600 Wildlife Protection.

Unitt, P. 2004. San Diego County Bird Atlas. No. 39. Proceedings of the San Diego Society of Natural History. San Diego, California: Ibis Publishing Company.

USFWS. 2003. Migratory Bird Treaty Act Memorandum. A memorandum from USFWS on nest management and nest destruction issued on April 15, 2003.

USFWS. 2015. Migratory Bird Permits; Programmatic Environmental Impact Statement. Federal Register, Vol 80, No. 100.

USFS. 2020. Bald and Golden Eagle Protection Measures. Memorandum amended to the SDG&E MSUP effective November 16, 2020.