B. Description of Proposed Project

B.1 Introduction

Section B describes the Miguel-Mission 230 kV #2 Project (Proposed Project) proposed by San Diego Gas & Electric Company (SDG&E). Detailed descriptions of project construction and operation provide a common understanding of the project parameters considered in Section D, where environmental impacts are evaluated. Sections B.2 and B.3 describe the Proposed Project and its components. Section B.4 describes the construction activities associated with the Proposed Project, and Section B.5 describes the operation and maintenance procedures.

The Proposed Project would be located in the County of San Diego, with portions of the project right-of-way (ROW) located within the Cities of San Diego and Santee, the unincorporated areas of San Diego County, and the Marine Corps Air Station (MCAS) Miramar property (see Figures B-1 and B-2). The Proposed Project would be located entirely within SDG&E's existing 35-mile ROW between Miguel and Mission Substations. The project is composed of three major components: the new 230 kV circuit, relocation of the existing 138 kV and 69 kV lines, and modifications to existing substations. The three major components are described below in Section B.1.1.

Section B.1.2 provides a description of a future 230 kV circuit that SDG&E plans to install along the same corridor between Miguel Substation and Fanita Junction. SDG&E's application for this project was recently submitted to the CPUC, and it will undergo a separate environmental review process if the power purchase agreement is approved by the CPUC. However, because the second 230 kV circuit would occur in the same corridor as the Proposed Project, the construction and operation of this future 230 kV circuit is evaluated in general terms in this Environmental Impact Report (EIR) for California Environmental Quality Act (CEQA) purposes.

B.1.1 Proposed Project Overview

B.1.1.1 New 230 kV Circuit between Miguel and Mission Substations

The primary component of the Proposed Project would be a new 230 kV circuit between Miguel and Mission Substations, which would be located entirely within SDG&E's existing 35-mile ROW. This new 230 kV circuit would be rated at approximately 1,000 megawatts (MW) and consist of three phases of bundled conductors (two conductors per phase).[1]

- Between Miguel Substation and Fanita Junction, a distance comprising approximately 24 miles of the total 35-mile ROW, the new 230 kV circuit would be installed onto new steel poles or existing steel lattice tower structures (or poles replacing the lattice structures) currently supporting 138 kV and 69 kV circuits. The existing 138 kV and 69 kV circuits would be removed and relocated to a newly constructed alignment of wood and steel pole structures within the existing SDG&E ROW (see Section B.1.1.2 below).

[1] The term "bundled conductors" means that two separate conductor wires would be installed at each of the three phase positions on the towers.

- Between Fanita Junction and the Mission Substation (11 miles of the 35-mile ROW), the new 230 kV circuit would be installed in a vacant position on existing steel lattice and steel pole structures. Along this segment of the Miguel-Mission corridor, no towers would be modified, and no poles would be installed.

B.1.1.2 Relocation of 138 kV and 69 kV Circuits onto New Poles

SDG&E proposes that approximately 24 miles of the existing 138 kV and 69 kV circuits would be relocated onto new steel and wood poles within the existing ROW. This phase of the project would require installation of 108 new poles (94 steel and 14 wood) between Miguel Substation and Fanita Junction.

B.1.1.3 Substation Modifications

Modifications of the existing Miguel and Mission Substations would be required to accommodate the new 230 kV circuit. These modifications would consist of the addition of new 230 kV circuit breakers and switching equipment; bus and transport structures; control, protection and communication equipment; and new concrete foundations within the existing substations to support the new equipment.

B.1.2 Future 230 kV Circuit between Miguel Substation and Fanita Junction

SDG&E filed an Amendment to the Miguel-Mission 230 kV #2 Project Application on December 12, 2003, to add a second circuit between Miguel Substation and Fanita Junction. SDG&E planned to install a second bundled 230 kV circuit in a vacant position on the modified steel lattice tower structures used for the Proposed Project and located between Miguel Substation and Fanita Junction, a distance of approximately 24 miles. Similar to the circuit described in Section B.1.1.1, this new circuit would be rated at approximately 1,000 MW and consist of three phases of bundled conductors (two conductors per phase). This new circuit would eventually connect the Miguel Substation with Sycamore Substation, which is located on MCAS property approximately three miles north of Fanita Junction.

On December 19, 2003, SDG&E filed a motion seeking to withdraw the Amendment, and requested that the description of the Miguel-Mission 230 kV #2 Project remain as originally proposed in the original Application filed on July 12, 2002. The CPUC's Administrative Law Judge granted SDG&E's motion to withdraw their Amendment to the original application. However, because the second circuit would be located on the towers proposed as part of SDG&E's current application and is reasonably foreseeable proposal that could result from the Miguel-Mission 230 kV #2 Project, this EIR will evaluate, in general terms, the potential impacts associated with constructing and operating a future 230 kV circuit along the project segment between Miguel Substation and Fanita Junction.

Just before this Draft EIR was released, SDG&E filed a new application (A.04-03-008) for the proposed "Otay Mesa Power Purchase Agreement Transmission Project." If the CPUC approves the power purchase agreement, this project will be evaluated by the CPUC in a separate comprehensive CEQA document. That project includes several components (described below)

- **Segment 1:** New 230 kV circuit installed on a vacant position on existing towers for four miles between Sycamore Canyon and Fanita Junction, along with the reconductor of an existing 138 kV line, replacement of various poles.
- **Segment 2:** Installation of a new overhead 230 kV circuit in a vacant position on modified towers for 23 miles from Fanita Junction to Miguel Substation. [**Note**: the modified towers referenced here are those that would be modified in the Miguel-Mission 230 kV #2 Project to accommodate the first 230 kV circuit.] It should be noted that Segment 2 for the Otay Mesa Power Purchase Agreement Transmission Project is the same as the reasonably foreseeable action analyzed in this EIR.

- **Segment 3:** Installation of a new 10-mile overhead 230 kV circuit from Miguel to the Duke Energy South Bay (DESB) Power Plant Switchyard (63 new tubular steel poles).
- **Segment 4:** Modifications to 50 existing bridge tower structures to accommodate a new 230 kV circuit from the DESB switchyard to near the Main Street substation.
- **Segment 5:** Installation of an underground 230 kV line and associated facilities in city streets from Sicard Street to Old Town Substation.
- **Modifications** to the Miguel, Sycamore Canyon, and Old Town Substations.

B.2 Description of Project

B.2.1 Project Location

The proposed Miguel-Mission 230 kV #2 Project would be located within the Cities of San Diego and Santee, unincorporated areas of San Diego County, and the federally owned MCAS Miramar property (see Figures B-1 and B-2). The Proposed Project area encircles the main urban areas of San Diego, following an existing 35-mile SDG&E ROW that passes through rough foothills, mesas, steep valleys, and ravines. A wide range of land uses are near or adjacent to the Proposed Project route, including commercial and industrial uses, residential developments, county and regional parks, a wildlife refuge, and golf courses. In addition, Sweetwater Reservoir, Lake Jennings, the Santee Lakes, and the San Diego River are also located in close proximity to the Proposed Project route.

This page intentionally blank.

Figure B-1. Regional Project Location

CLICK HERE TO VIEW

This page intentionally blank.

Figure B-2. Project Route

CLICK HERE TO VIEW

This page intentionally blank.

B.2.2 Project Components

The Proposed Project consists of three principal components: (1) the addition of a bundled 230 kV circuit between the Miguel and Mission Substations, including replacement or modification of existing structures; (2) relocation of the existing 138 kV and 69 kV circuits onto new poles within the existing SDG&E ROW between Miguel Substation and Fanita Junction; and (3) modifications to the Miguel and Mission Substations to accommodate the new 230 kV transmission line (see Table B-1).

Table B-1. Summary of Project Components

Transmission System Modifications				
Transmission Circuits	**Project Components**	**Transmission Section**		**Total Miguel to Mission Substation**
		Miguel Substation to Fanita Junction	**Fanita Junction to Mission Substation***	
New 230 kV Circuit Including Tower Modifications	Section length	24 miles	11 miles	**35 miles**
	138 kV/69 kV tower modifications to accommodate the 230 kV circuit	60 towers	NA	**60 towers**
	138 kV/69 kV tower replacements to accommodate the 230 kV circuit	31 poles	NA	**31 poles**
	New 230 kV structures	11 poles	None	**11 poles**
	Number of 230 kV poles to be reconductored	None	45	**45 poles**
Relocate Existing 138 kV/69 kV Circuit	Length of new line	24 miles	NA	**24 miles**
	New 138 kV/69 kV steel pole structures	94 poles	NA	**94 poles**
	New 138 kV/69 kV wood pole structures	14 poles	NA	**14 poles**
Substation Modifications				
Miguel and Mission Substation Modifications	▪ New 230 kV circuit breakers and switching equipment would be added ▪ Bus and support structures would be added ▪ Control, protection and communication would be added ▪ New concrete foundations would be poured within the existing substations			

* No towers in this transmission corridor require replacement. Only reconductoring would be required on the existing towers. However, one new pole may need to be installed on SDG&E's Mission Substation property.

B.2.3 Project Route

Beginning at the Miguel Substation at 7310 San Miguel Road in Bonita, the existing ROW exits the substation in a northeasterly direction and crosses the San Diego National Wildlife Refuge Otay-Sweetwater Unit near the Sweetwater Reservoir. The ROW continues along the northwestern slopes of Mother Miguel and San Miguel Mountains, crosses Campo Road (State Route 94) near Steele Canyon High School (the boundary of which is adjacent to the western edge of the ROW) before entering Jamacha Valley. The ROW continues northeast from Steele Canyon High School to a point just north of the intersection of Steele Canyon Road and Jamul Drive, in Jamacha Valley. At this point, the ROW turns due north and crosses Cottonwood at Rancho San Diego Golf Club and Willow Glen Drive, continuing north/northeast along a ridge paralleling Jamacha Valley on the west until it crosses Dehesa Road and passes through the unincorporated community of Granite Hills.

Between Granite Hills and La Cresta Road, the project ROW heads in a northerly direction along a ridge, passing residences along Camino Monte Sombra and Calle de la Sierra Roads. North of La Cresta Road, the ROW continues along a ridgeline that passes between an avocado grove on the east, and the community of Lakeview on the west. After the ROW crosses Interstate 8, it proceeds northwest and parallels Lake Jennings Park Road where it runs adjacent to the community of Lakeside. Near the R.M. Levy Water Treatment Plant, the ROW crosses Lake Jennings Park Road just south of the Los Coches Substation.

As the ROW passes the Los Coches Substation, it continues along the western boundary of the Lake Jennings campground and then heads north, crossing the San Diego River. Once across the river, the ROW continues north to the southern boundary of the Louis A. Stelzer County Park. At this point the ROW turns west, following the southern boundary of the park, crossing State Route 67 and passing through the residential community of Eucalyptus Hills, the City of Santee and the Santee Lakes Regional Park and Campground. Continuing west past Santee Lakes Regional Park, the ROW enters the southeast corner of the MCAS Miramar property and continues west for 0.9 miles to Fanita Junction.

The ROW heads southwest from Fanita Junction, passing several canyons before crossing State Route 52 and entering Mission Trails Regional Park. Continuing through the park, the ROW maintains a southwesterly direction as it approaches Mission Valley, passing through the community of Tierrasanta near Admiral Baker Golf Course. The ROW then crosses Interstate 15, turning west for a short distance before entering the Mission Substation, located at 9060 Friars Road.

B.2.4 Right-of-Way

Construction of the Proposed Project is expected to occur within the existing SDG&E ROW between Miguel and Mission Substations or on SDG&E substation property. The existing ROW is currently occupied by existing transmission infrastructure including 69 kV, 138 kV, and 230 kV tie lines (TL) and associated tower and pole structures. Table B-2 describes the current SDG&E ROW easement along the Proposed Project route, which ranges from 150 to 250 feet.

Table B-2. Existing ROW Widths between Miguel and Mission Substations

Proposed Project Segment	ROW Width (feet)
Between Miguel Substation and approximately Dehesa Road	250
Between approximately Dehesa Road and point near R.M. Levy Water Treatment Plant	200
Between R.M. Levy Water Treatment Plant and Los Coches Substation	250
Between Los Coches Substation and Willow Road	200
Between Willow Road and Fanita Junction	150
Between Fanita Junction and Mission Substation	200

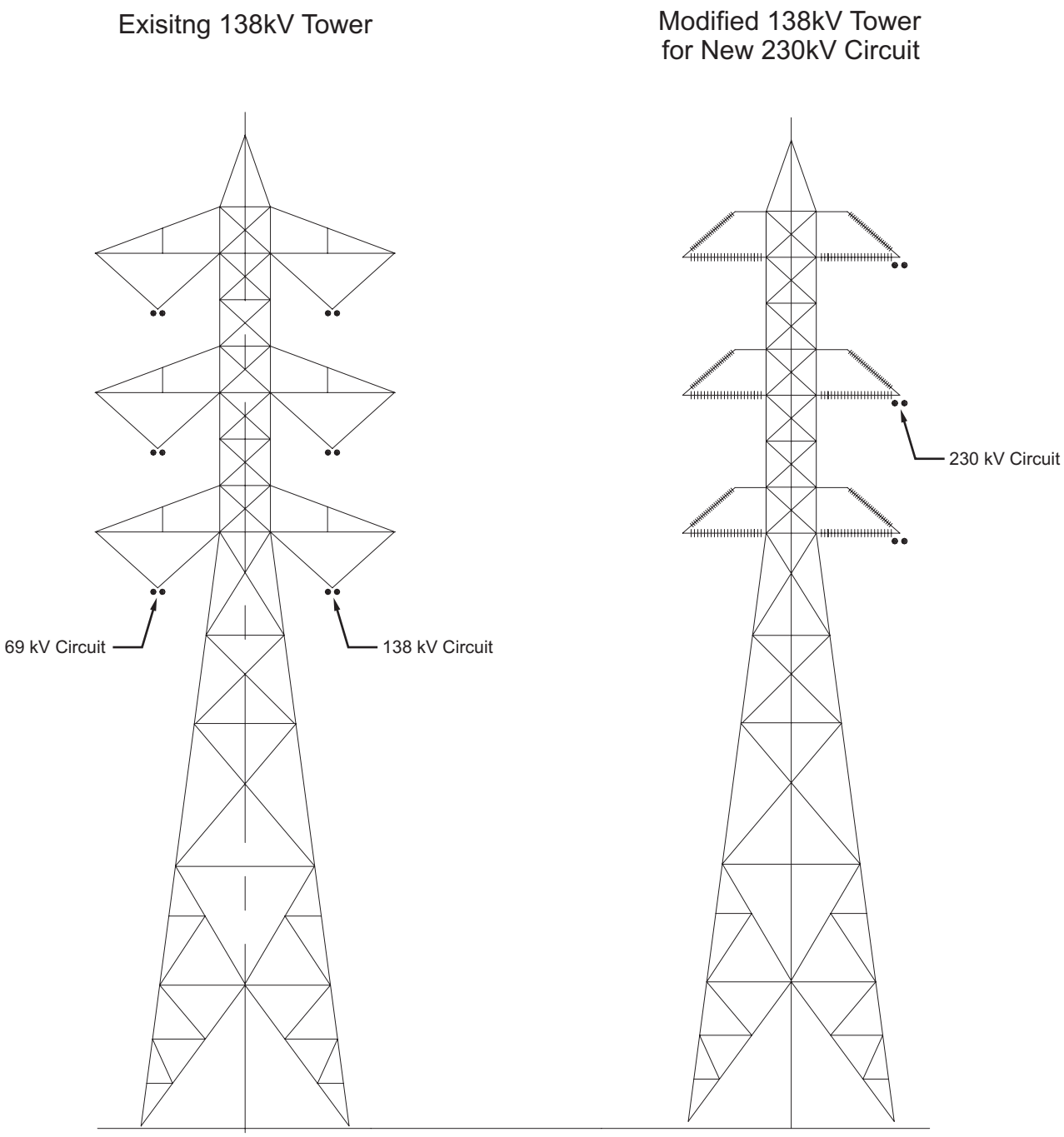
Although SDG&E anticipates that project-related construction will remain within the boundaries of the existing ROW, the possibility exists that additional temporary work or access areas will become necessary as construction proceeds. SDG&E has identified their ROWs, access roads, and pulling sites in Appendix 1 of the EIR. Should SDG&E need additional workspace areas that were not evaluated in the EIR, the CPUC's Mitigation Monitoring, Compliance, and Reporting Program will evaluate the potential issues associated with the additional workspace and assign appropriate measures (or develop new measures) to reduce any impacts to less than significant levels.

B.2.5 Structures

The existing transmission structures currently located between Miguel and Mission Substations consist of 138 kV and 69 kV steel lattice tower structures, 69 kV wood and steel pole structures, and 230 kV steel pole structures. As described in Section B.1.1, the 138 kV steel lattice towers would be modified to accommodate the proposed 230 kV circuit. Figure B-3 provides an illustration of the current steel lattice tower structures, as well as an illustration of the modified tower as proposed by SDG&E.

In addition to modifying the existing 138 kV towers, 11 230 kV steel poles would need to be installed, and 31 138 kV/69 kV towers would be replaced with steel poles. A majority of the new 230 kV poles would be installed near the substations to connect the new circuit with the new substation hardware. Figure B-4 provides an illustration of a typical 230 kV tangent steel pole structure that would be used to support the proposed circuit near the substations.

As described in Table B-1, 94 steel and 14 wood poles would be installed between Miguel Substation and Fanita Junction. Figures B-5 and B-6 illustrate typical steel poles that will be installed. Dead-end poles are used at locations where the transmission line changes direction or ends; a tangent pole is used in areas where the transmission line is constructed in a straight line. Table B-3 defines the proposed structure types and heights for each pole for the relocated 138 kV/69 kV line. Refer to Appendix 1 for maps of proposed pole locations.



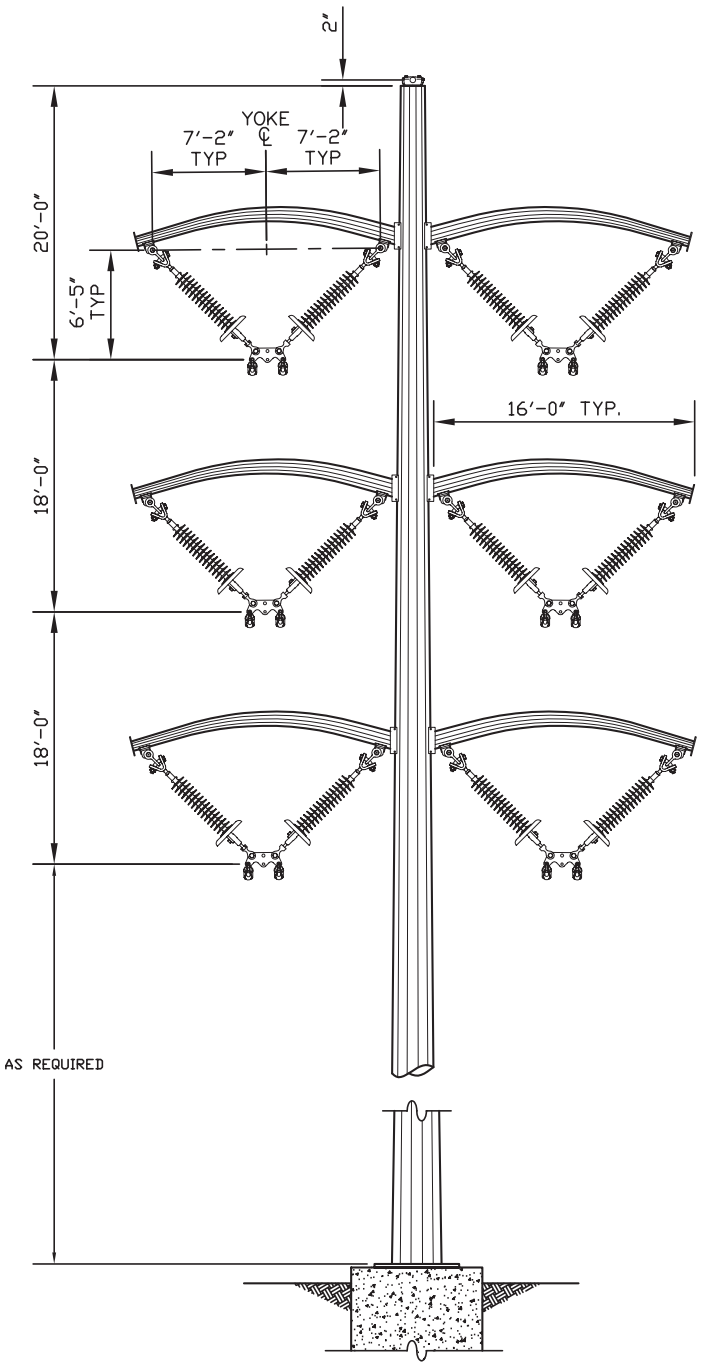
Source: SDGE, PEA 2002.

Miguel-Mission 230 kV #2 Project

Figure B-3

Typical Modified 69 kV and 138kV Steel Lattice Tower

Aspen Environmental Group



TANGENT FOUNDATION POLE

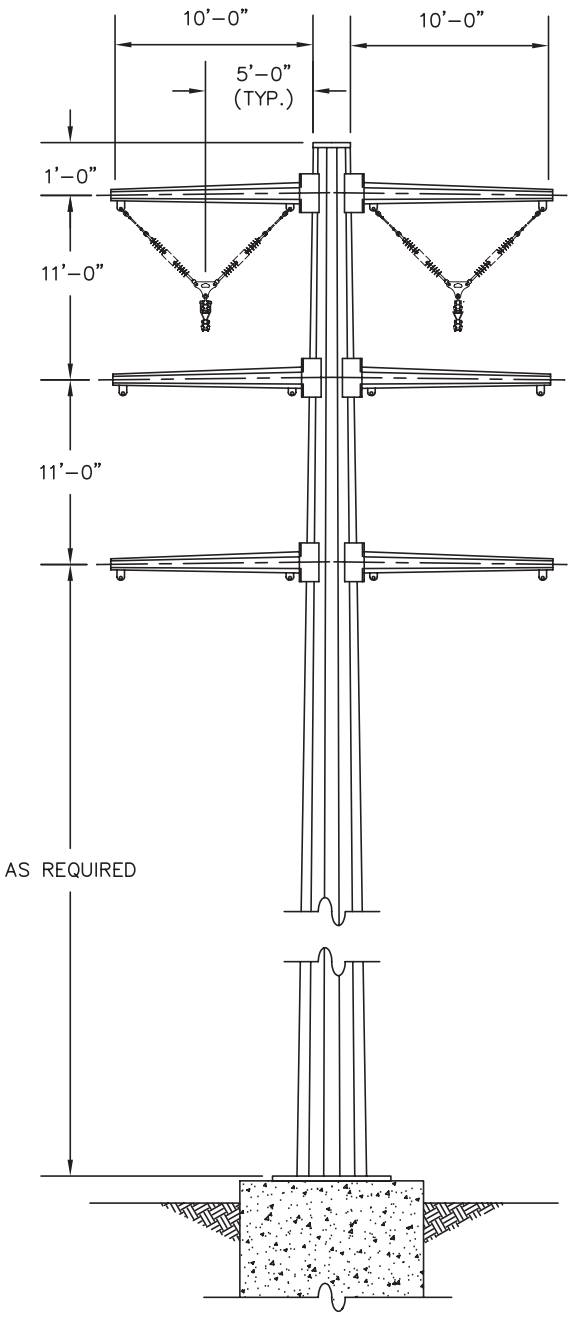
Miguel-Mission 230 kV #2 Project

Figure B-4

General Arrangement
230 kV Tangent Steel Pole

Source: SDGE, 2003.

Aspen Environmental Group



TANGENT FOUNDATION POLE

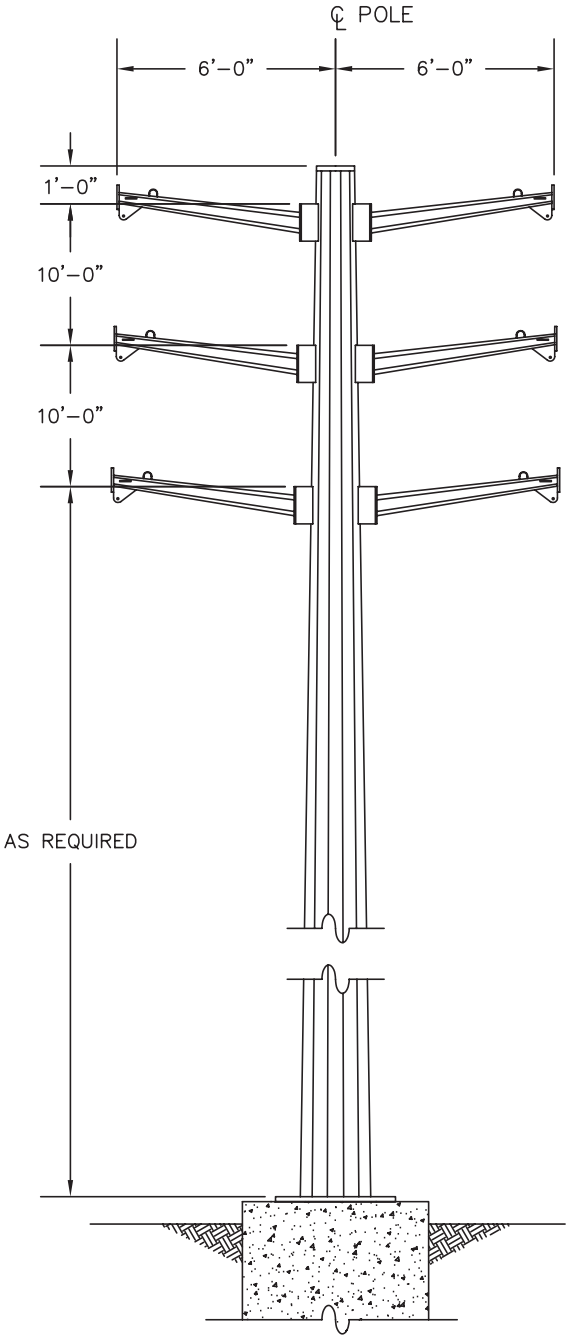
Miguel-Mission 230 kV #2 Project

Figure B-5

General Arrangement
138 kV Tangent Steel Pole

Source: SDGE, 2003.

Aspen Environmental Group



DEADEND FOUNDATION POLE

Source: SDGE, 2003.

Miguel-Mission 230 kV #2 Project

Figure B-6

General Arrangement
138 kV Dead-End Steel Pole
Type X Double Circuit

Aspen Environmental Group

Table B-3. Proposed 138 kV/69 kV Structure Types and Approximate Heights (also see Appendix 1)

Structure	Structure Type	Total Height
10	Full Steel Dead End	81
20	Steel Tangent	120
30	Steel Tangent	135
41	Steel Tangent	105
80	Steel Tangent	105
92	Steel Tangent	100
100	Steel Tangent	110
110	Steel Tangent	110
132	Steel Tangent	116
151	Steel Tangent	90
161	Steel Tangent	90
172	Steel Tangent	116
181	Steel Tangent	110
191	Steel Tangent	85
202	Steel Tangent	80
221	Steel Tangent	85
232	Steel Strain Dead End	71
242	Steel Tangent	80
272	Steel Tangent	86
282	Full Steel Dead End	87
292	Full Steel Dead End	72
321	Steel Tangent	111
342	Steel Tangent	111
352	Steel Tangent	91
361	Steel Tangent	96
371	Steel Strain Dead End	76
381	Steel Tangent	91
411	Steel Tangent	106
440	Steel Strain Dead End	106
481	Steel Tangent	111
493	Steel Tangent	121
522	Steel Tangent	116
543	Steel Tangent	101
571	Steel Strain Dead End	96
592	Steel Tangent	86
601	Steel Tangent	76
611	Steel Strain Dead End	81
643	Steel Tangent	96
663	Steel Strain Dead End	76
672	Steel Strain Dead End	86
692	Steel Tangent	101
752	Steel Tangent	121
792	Steel Strain Dead End	86
794	Wood Pole	75
797	GOAB Steel Dead End	71
803	Steel Tangent	91
812	Steel Tangent	126
822	Steel Tangent	96
842	Steel Strain Dead End	96
873	Steel Tangent	121
881	Steel Tangent	101
891	Full Steel Dead End	76
902	Steel Tangent	91
912	Steel Strain Dead End	91
922	Steel Tangent	91
925	Steel Strain Dead End	81
932	Steel Tangent	111
942	Steel Tangent	106
961	Steel Tangent	81
990	Steel Strain Dead End	81
1000	Steel Strain Dead End	86
1010	Full Steel Dead End	96
1031	Steel Tangent	101
1040	Tangent Wood Pole	70
1050	Tangent Wood Pole	65
1070	Tangent Wood Pole	65
1081	Tangent Wood Pole	75
1090	Tangent Wood Pole	75
1101	Tangent Wood Pole	85
1110	Full Steel Dead End	76
1120	Steel Tangent	101
1130	Full Steel Dead End	86
1140	Full Steel Dead End	76
1150	Steel Strain Dead End	91
1160	Steel Strain Dead End	61
1170	Steel Strain Dead End	56
1180	Steel Tangent	77
1191	Tangent	72
1200	Steel Strain Dead End	76
1210	Steel Tangent	102
1220	Steel Strain Dead End	102
1230	Steel Strain Dead End	71
1240	Steel Tangent	77
1250	Steel Tangent	67
1260	Steel Tangent	72
1270	Steel Tangent	62
1280	Steel Strain Dead End	101
1285	Wood Pole	51
1290	Steel Tangent	77
1300	Steel Tangent	107
1310	Steel Tangent	127
1315	Wood Pole	66
1320	Steel Strain Dead End	106
1331	Steel Tangent	87
1341	Steel Tangent	67
1350	Steel Tangent	77
1360	Steel Strain Dead End	116
1363	Wood Pole	61
1367	Wood Pole	71
1370	Steel Strain Dead End	121
1381	Steel Tangent	82
1390	Steel Tangent	77
1400	Steel Tangent	72
1410	Full Steel Dead End	91

B.3 Existing and Proposed Infrastructure

As indicated in Figure B-7, the Proposed Project has been divided into two sections; the first section is located between Miguel Substation and Fanita Junction, and the second section is located between Fanita Junction and Mission Substation. The section between Miguel Substation and Fanita Junction has been further divided into Subsections A through E; Subsection F defines the ROW between Fanita Junction and Mission Substation. Figures B-8 through B-13 provide a profile of each subsection of the ROW in terms of the existing transmission alignment and the Proposed Project alignment. In addition, Appendix 1 provides the existing pole and tower locations, as well as the proposed new pole locations along the Miguel-Mission ROW.

B.3.1 Subsection A: Miguel Substation to Proposed 138 kV Pole #752 (Near Campo Road)

Existing Alignment. As illustrated in Figures B-8a, B-8b, and B-8c, this section of the ROW is 250 feet wide and consists of an alignment of tower structures that support a 138 kV circuit and a 69 kV circuit, an alignment of tower structures that support two 230 kV circuits, and an alignment of smaller pole structures that support two 69 kV circuits. The existing tower alignments in this subsection are described as follows:

- **138 kV and 69 kV Circuits.** The tower alignment supporting the existing 138 kV and 69 kV circuits consists of steel lattice tower structures located 62 feet from the western edge of the existing ROW. There are currently 39 138 kV steel lattice structures (existing Tower #675996 through Tower #675958) located along this segment (see Appendix 1). A single 69 kV circuit (Tie Line [TL] 632) is located on the west side of each tower structure, while a single 138 kV circuit (TL 13824) is located on the east side of each tower structure. Both TL 632 and TL 13824 connect Miguel Substation with the Los Coches Substation.
- **230 kV Circuits.** The tower alignment supporting two 230 kV circuits consists of steel lattice tower structures located 97 feet east of the 138 kV and 69 kV tower structures, or 159 feet from the western edge of the existing ROW. There are currently 39 230 kV steel tower structures (existing Tower #971839 through Tower #971877) located along this segment. One 230 kV circuit (TL 23022) is located on the west side of each tower structure and another 230 kV circuit (TL 23021) circuit is located on the east side of each tower structure. TL 23022 ultimately ties into Mission Substation, while TL 23021 exits the ROW at Fanita Junction and continues north to Sycamore Substation.
- **69 kV Circuits.** The pole alignment supporting two 69 kV circuits is located 10 feet from the eastern edge of the existing ROW. One 69 kV circuit (TL 643) is located on the west side of each pole, and another 69 kV circuit (TL 627) is located on the east side of each pole. Both circuits connect with Jamacha Substation. TL 627 exits the ROW at proposed 138 kV pole #272, near Campo Road. TL 643 exits the ROW to the west at proposed 138 kV pole #342. There are approximately 109 poles that support these two circuits in the transmission corridor.

Proposed Relocation. As shown in Figure B-8a, one new pole alignment would be constructed 12 feet from the western edge of the existing ROW in order to support the existing 69 kV circuit (TL 632) and 138 kV circuit (TL 13824), which would be relocated from their current position to provide an opening for the new 230 kV circuit. A total of 42 138 kV poles would be installed along this segment (proposed 138 kV poles #10 through #752). TL 632 would be installed on the west side of each wood or tower structure, while TL 13824 would be installed on the east side of each wood or tower structure. As shown in Figure B-8b, the new pole alignment would cross over to a centered position between the two existing alignments of steel lattice towers at proposed 138 kV pole #282 (see Appendix 1). As shown in Figure B-8c, the new 138 kV/69 kV pole alignment remains in the center position after the 69 kV circuits leave the ROW.

Once the existing 138 kV and 69 kV circuits are relocated to the new pole alignment, the existing steel lattice towers would either be modified or replaced with a new steel pole structure. A total of 31 steel lattice structures would be modified and eight would be replaced with a steel mono-pole. The eight steel lattice towers that would be replaced include: #675996, #675979, #675974, #675971, #675966, #675963, #675959, and #675958. A new 230 kV circuit would then be installed on the west side of each modified or replaced tower structure, while the east side of each structure would remain vacant for a future 230 kV transmission circuit. Refer to Appendix 1 for an illustration of which towers would be modified or replaced.

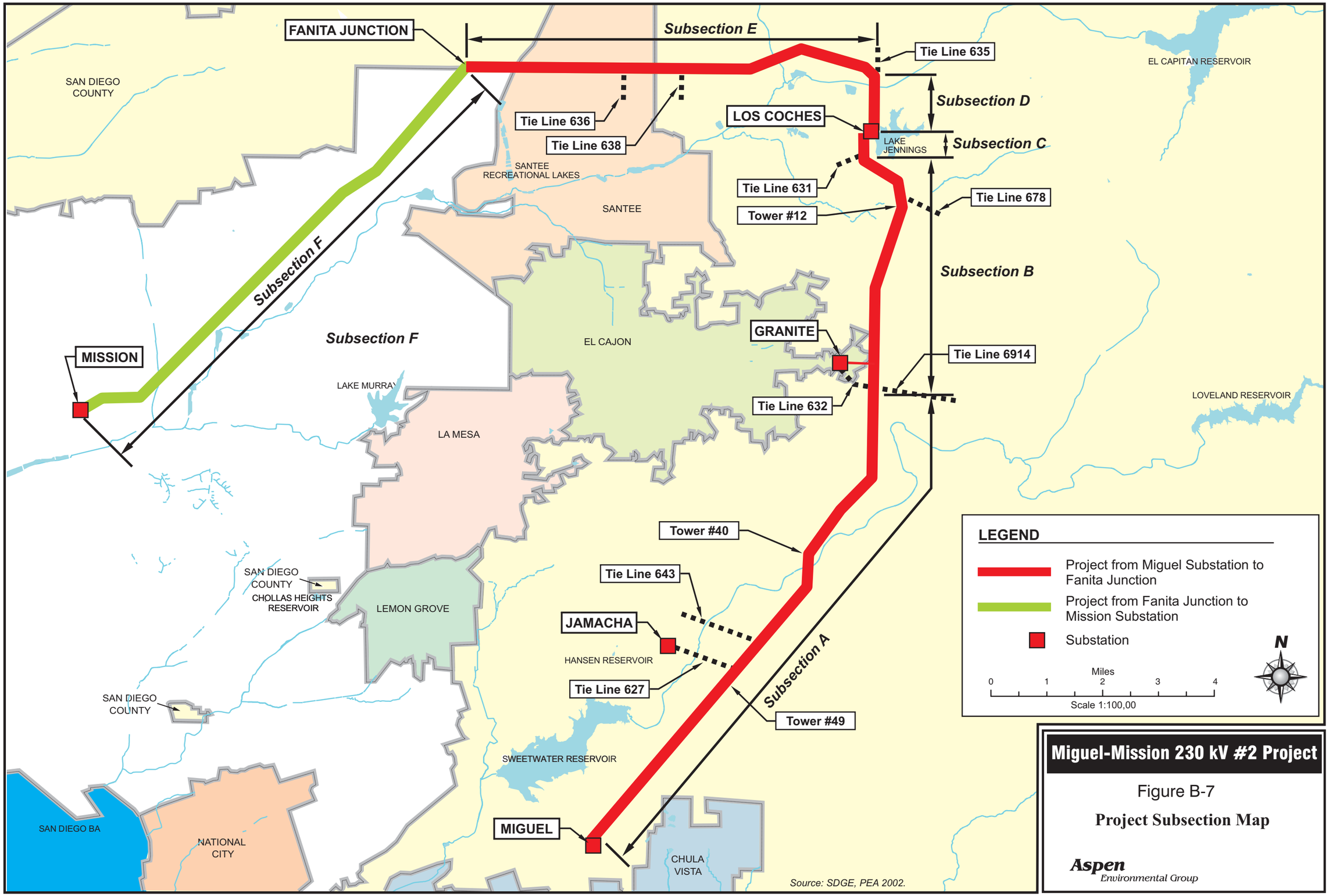
B.3.2 Subsection B: Proposed 138 kV Pole #752 (Near Dehesa Road) to #1110 (Near R.M. Levy Water Treatment)

Existing Alignment. Starting just north of proposed 138 kV pole #752, the existing ROW narrows to 200 feet in width. As shown in Figures B-9a and B-9b, the existing steel lattice tower alignment and associated circuits from Subsection A continue into Subsection B. In addition, three 69 kV circuits enter this portion of the existing ROW, while a 69 kV tap exits the existing ROW at Granite Substation. Refer to Appendix 1 for an illustration of this segment of the ROW. The existing tower alignments in this subsection are described as follows:

- **138 kV and 69 kV Circuits**: The tower alignment supporting the 138 kV and 69 kV circuits is located 50 feet from the western edge of the existing ROW. There are currently 22 138 kV steel lattice structures (existing Tower #675957 through Tower #675936) located along this segment (see Appendix 1). The 69 kV circuit (TL 632) is located on the west side of each tower structure and the 138 kV circuit (TL 13824) is located on the east side of each tower structure.
- **230 kV Circuits**: The tower alignment supporting two 230 kV circuits is located 90 feet east of the existing 138 kV and 69 kV structures. There are currently 21 230 kV steel tower structures (existing Tower #971878 through Tower #971898) located along this segment. One 230 kV circuit (TL 23022) is located on the west side of each tower and the other 230 kV circuit (TL 23021) is located on the east side of each tower.
- **69 kV Circuits**: North of Dehesa Road, an additional 69 kV circuit (TL 6914) enters the existing ROW from the east, crosses under the existing transmission lines, and connects to an alignment of poles located 10 feet from the western edge of the existing ROW. TL 6914 eventually connects with the Los Coches Substation. Also north of Dehesa Road, a 69 kV tap from TL 632 exits the existing ROW to the west toward Granite Substation. After the ROW crosses Interstate 8 and just before proposed 138 kV steel pole #1000, another 69 kV circuit (TL 678) enters the ROW from the east and occupies a pole alignment located 10 feet from the eastern edge of the existing ROW. TL 678 also connects to the Los Coches Substation. There are approximately 49 TL 6914 poles in this segment of the transmission corridor from Dehesa Road to Los Coches Substation.

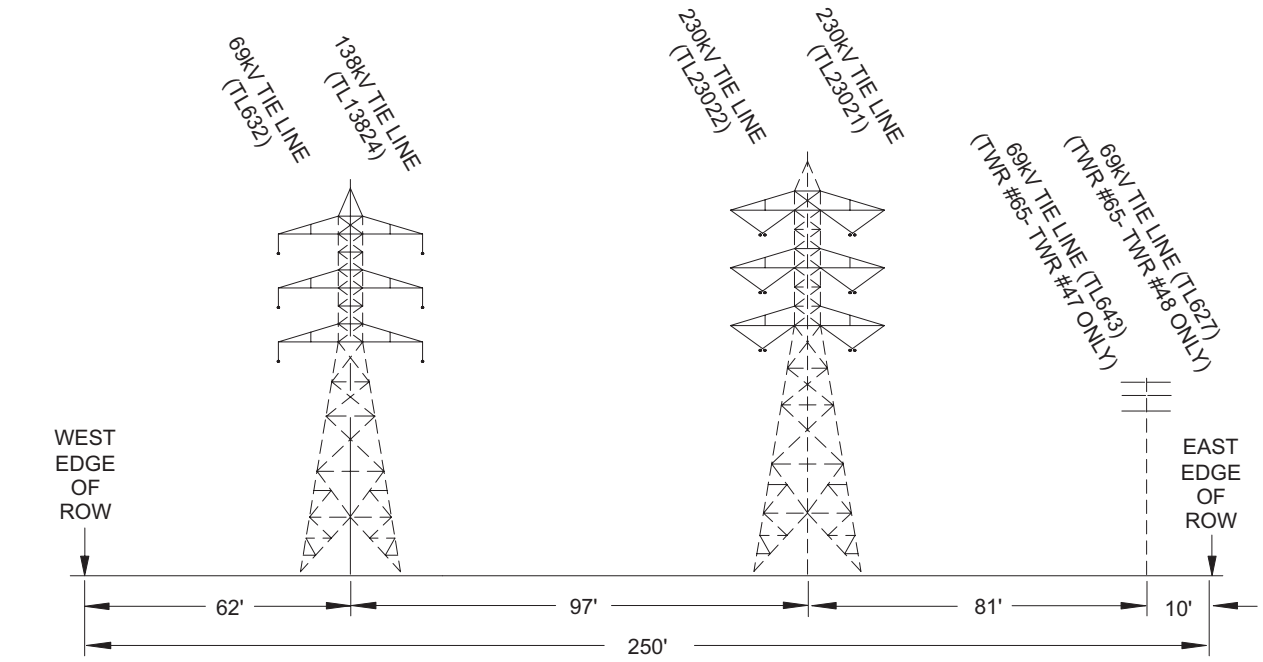
Proposed Relocation. As shown in Figures B-9a and B-9b, in order to create an opening for the new 230 kV circuit, a new 138 kV and 69 kV pole alignment would be constructed in the center of the existing ROW to support the relocation of the 69 kV (TL 632) and 138 kV circuits (TL 13824). A total of 28 138 kV poles would be installed along this segment (proposed 138 kV pole #792 through #1110).

The new 230 kV circuit would then be installed on either the modified steel lattice tower structures or on a replacement 230 kV steel pole structures. A total of 14 steel lattice structures would be modified and eight would be replaced with a steel mono-pole. The eight steel lattice towers that would be replaced include: #675957, #675955, #675950, #675948, #675946, #675942, #675940, and #675936. The new 230 kV circuit would occupy a position on the west side of each modified or replacement structure, while the east side of each structure would remain vacant.

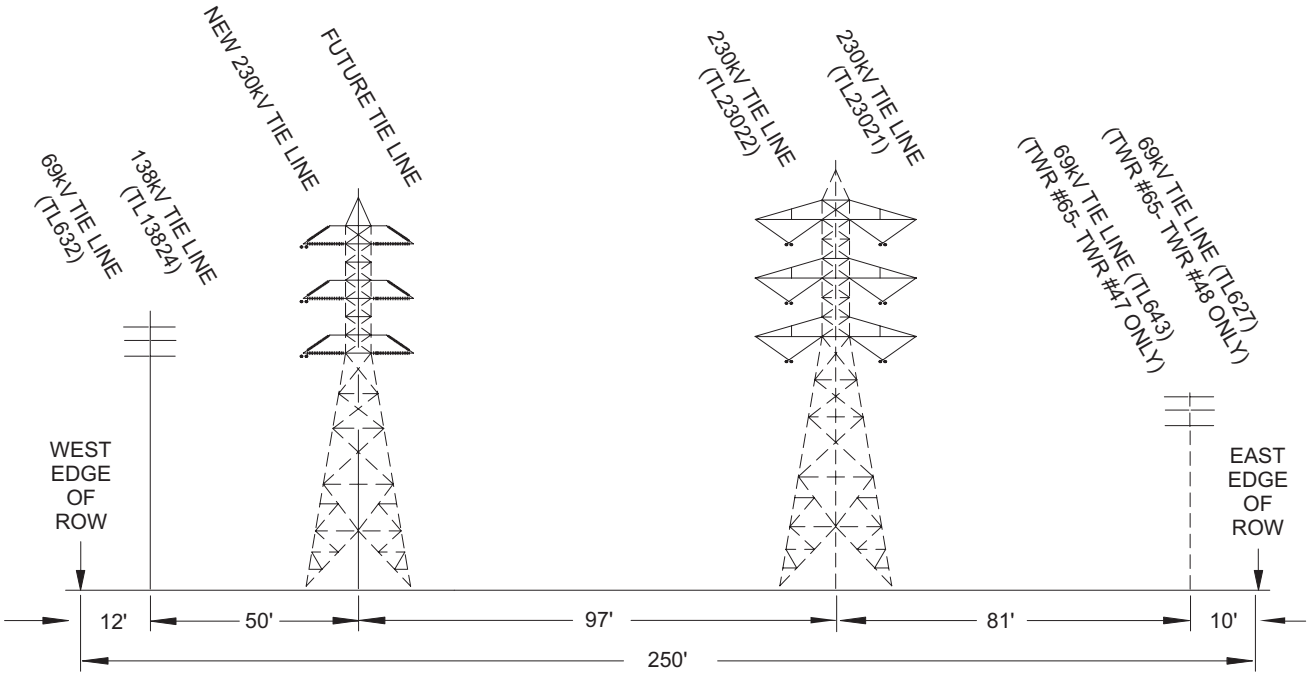

FANITA JUNCTION
Subsection E
Tie Line 635
EL CAPITAN RESERVOIR
SAN DIEGO COUNTY
Tie Line 636
Tie Line 638
Subsection D
LOS COCHES
LAKE JENNINGS
Subsection C
SANTEE RECREATIONAL LAKES
SANTEE
Tie Line 631
Tie Line 678
Tower #12
Subsection B
Subsection F
Subsection F
EL CAJON
GRANITE
MISSION
Tie Line 6914
LAKE MURRAY
Tie Line 632
LOVELAND RESERVOIR
LA MESA
Tower #40
SAN DIEGO COUNTY
CHOLLAS HEIGHTS RESERVOIR
LEMON GROVE
Tie Line 643
JAMACHA
HANSEN RESERVOIR
Tie Line 627
Subsection A
SAN DIEGO COUNTY
Tower #49
SWEETWATER RESERVOIR
SAN DIEGO BA
NATIONAL CITY
MIGUEL
CHULA VISTA
LEGEND
Project from Miguel Substation to Fanita Junction
Project from Fanita Junction to Mission Substation
Substation
N
Miles
0 1 2 3 4
Scale 1:100,00
Miguel-Mission 230 kV #2 Project
Figure B-7
Project Subsection Map
Aspen Environmental Group
Source: SDGE, PEA 2002.

This page intentionally blank.

View: South to North



Existing Alignment



Proposed Alignment

Source: SDGE PEA, 2002.

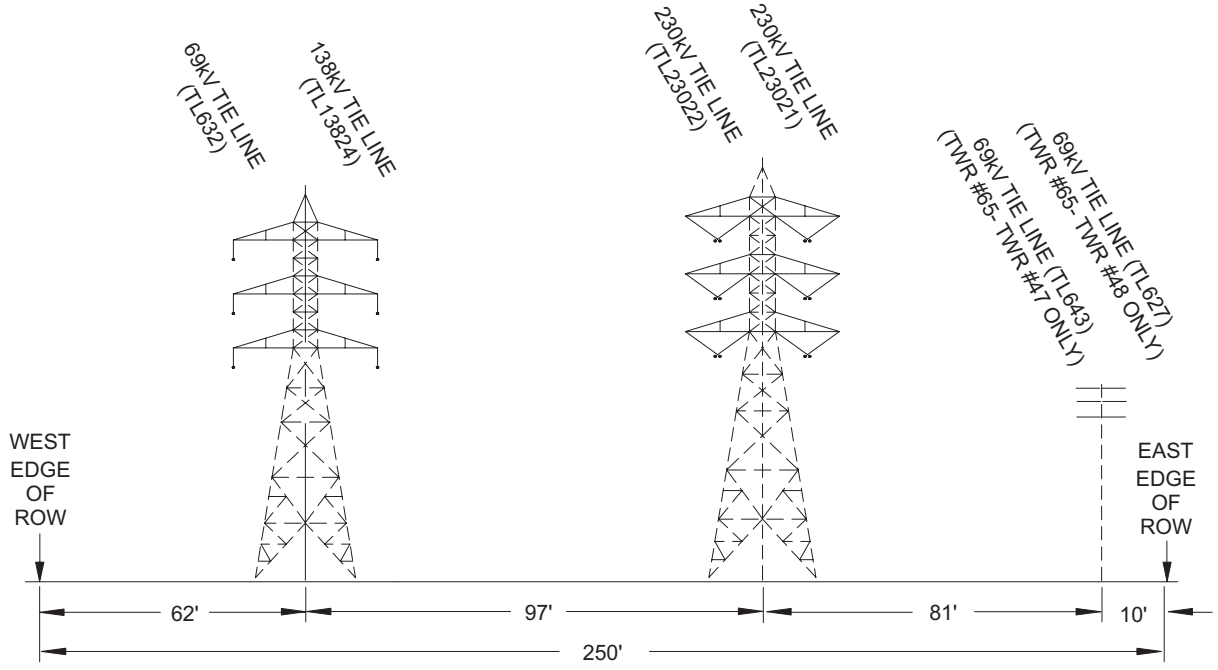
Miguel-Mission 230 kV #2 Project

Figure B-8a

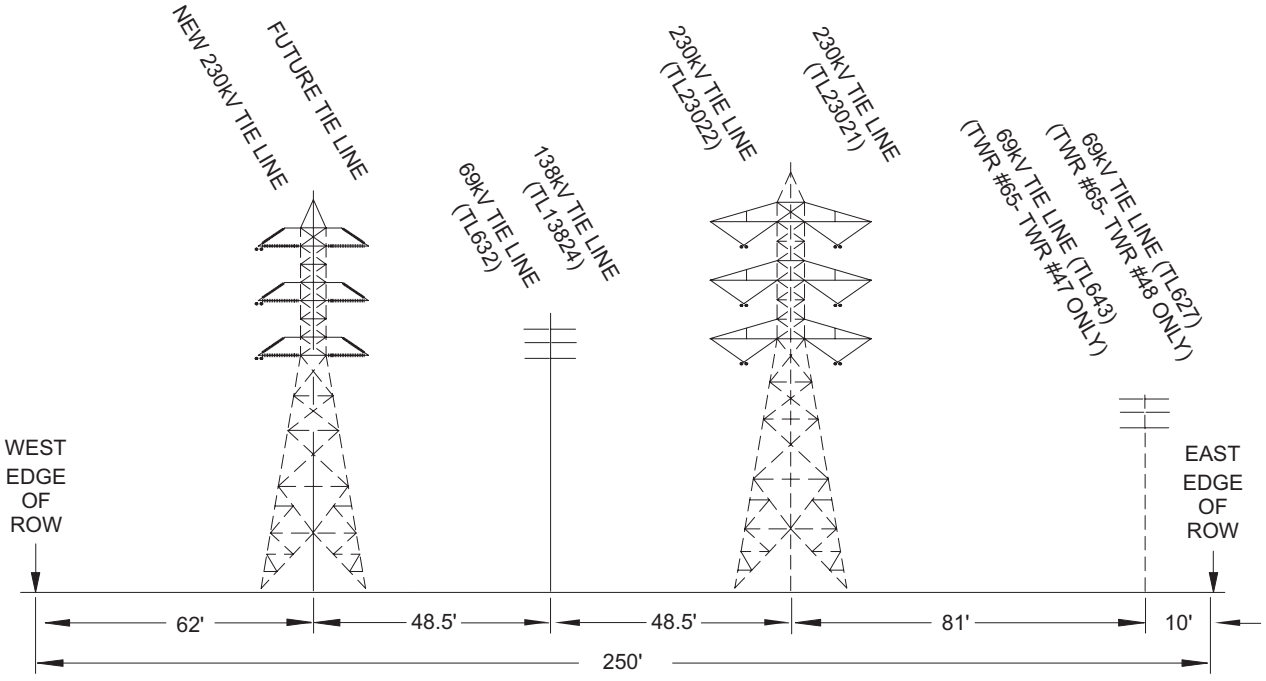
Existing and Proposed Cross-section of Subsection A (Proposed Pole #10 - #282)

Aspen Environmental Group

View: South to North



Existing Alignment



Proposed Alignment

Source: SDGE PEA, 2002.

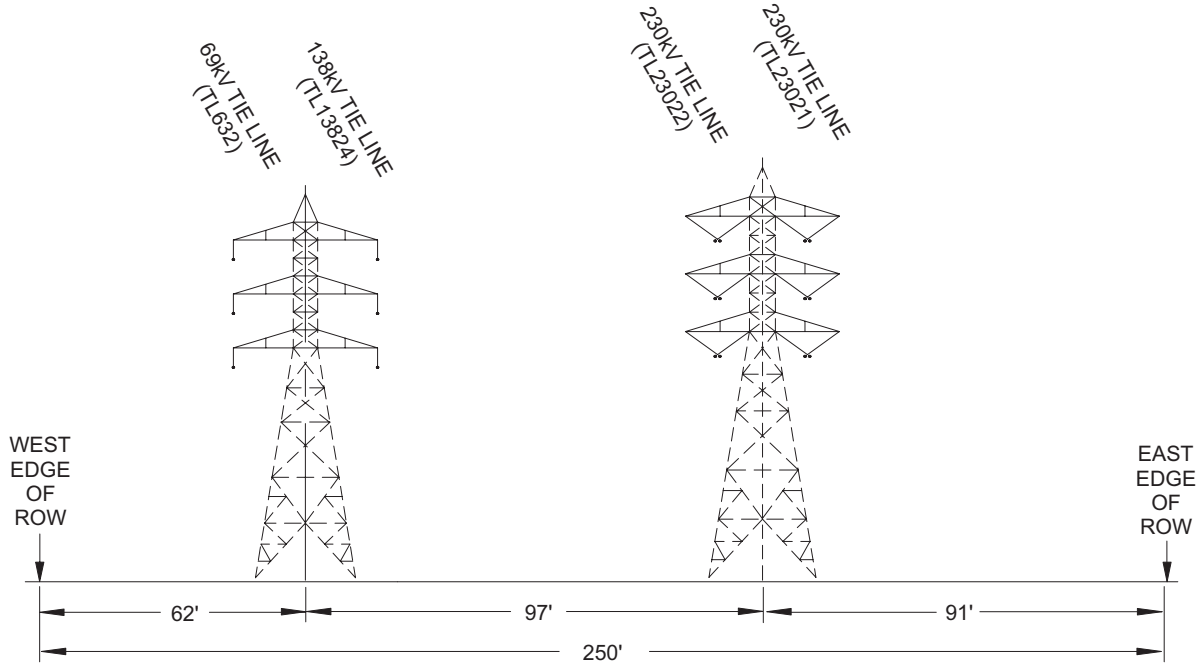
Miguel-Mission 230 kV #2 Project

Figure B-8b

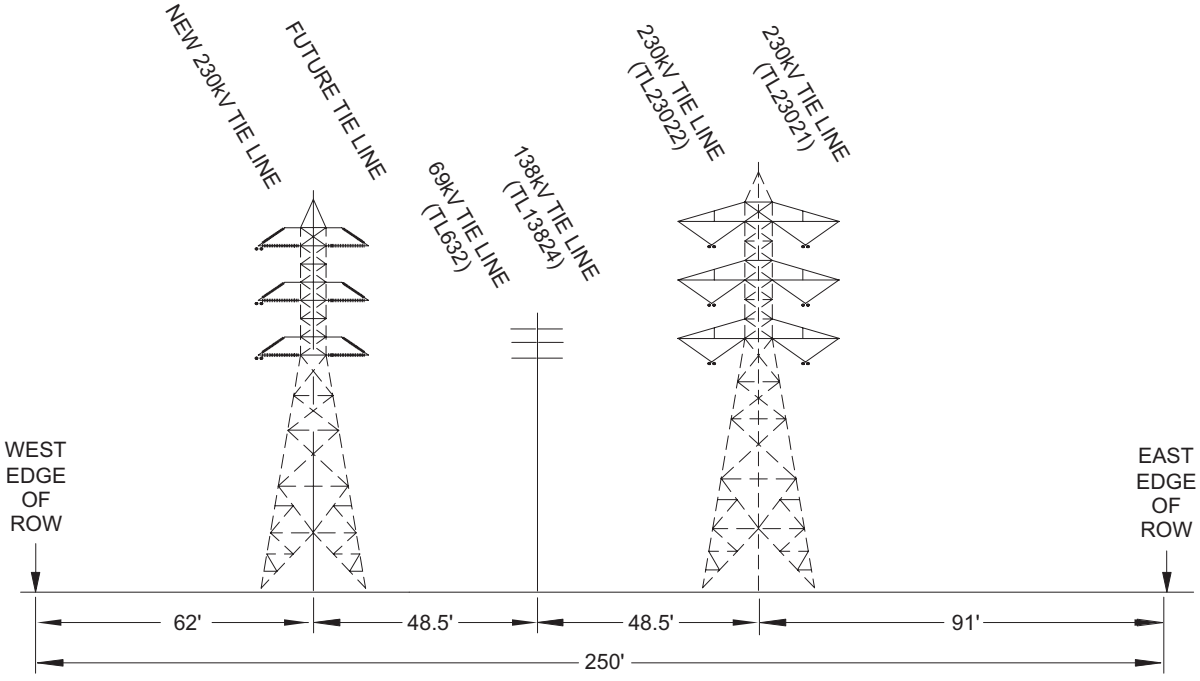
Existing and Proposed Cross-section of Subsection A (Proposed Pole #282 - #342)

Aspen Environmental Group

View: South to North



Existing Alignment



Proposed Alignment

Source: SDGE PEA, 2002.

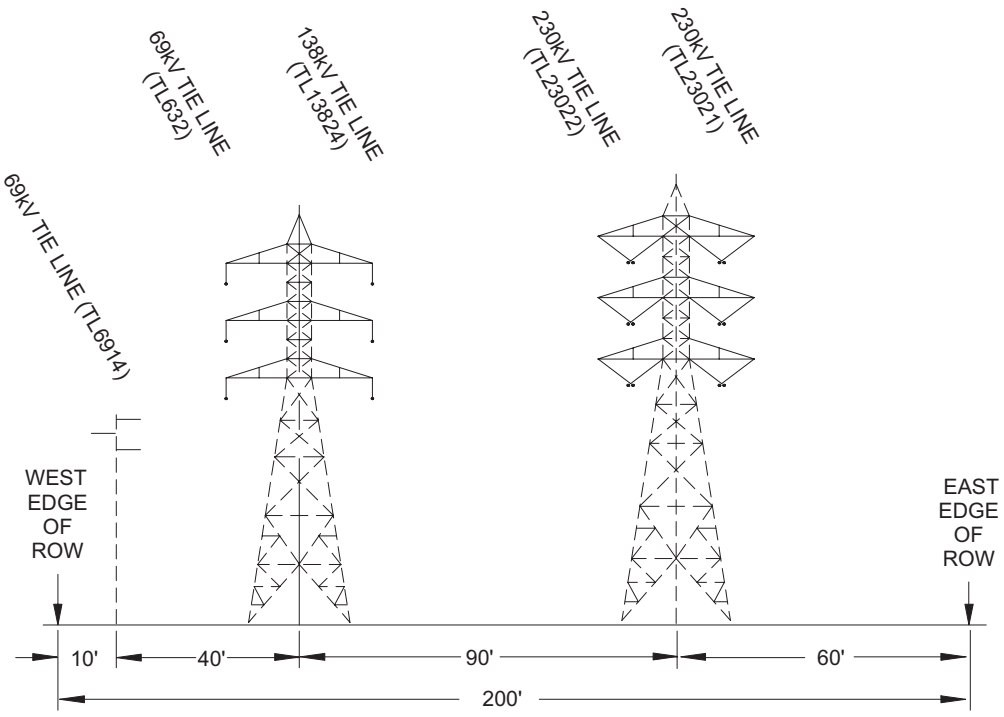
Miguel-Mission 230 kV #2 Project

Figure B-8c

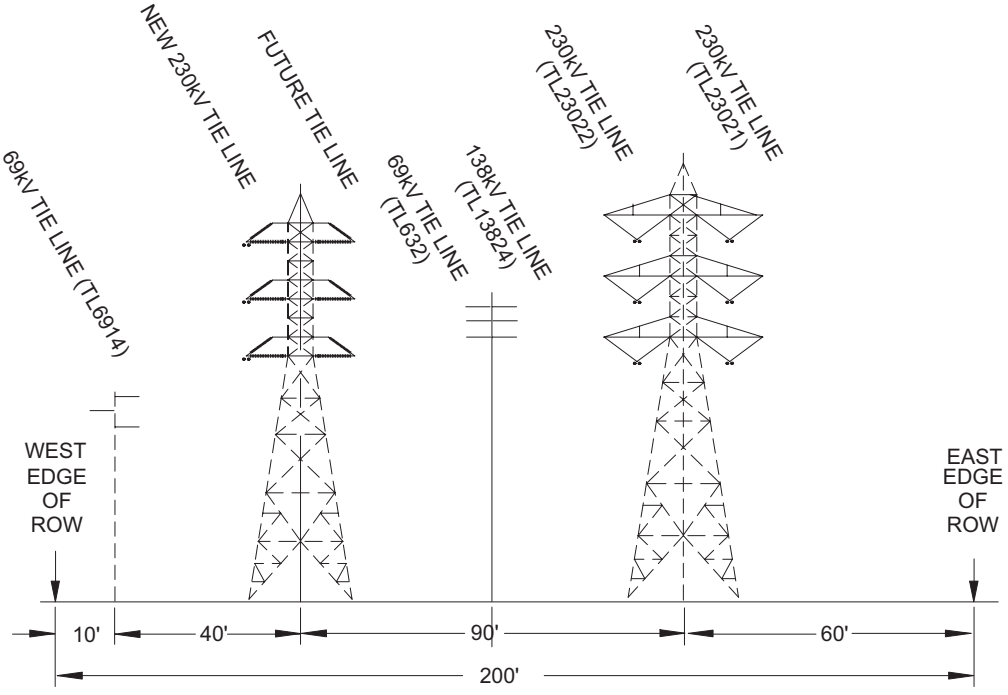
Existing and Proposed Cross-section of Subsection A (Proposed Pole #342 - #752)

Aspen Environmental Group

View: South to North



Existing Alignment



Proposed Alignment

Miguel-Mission 230 kV #2 Project

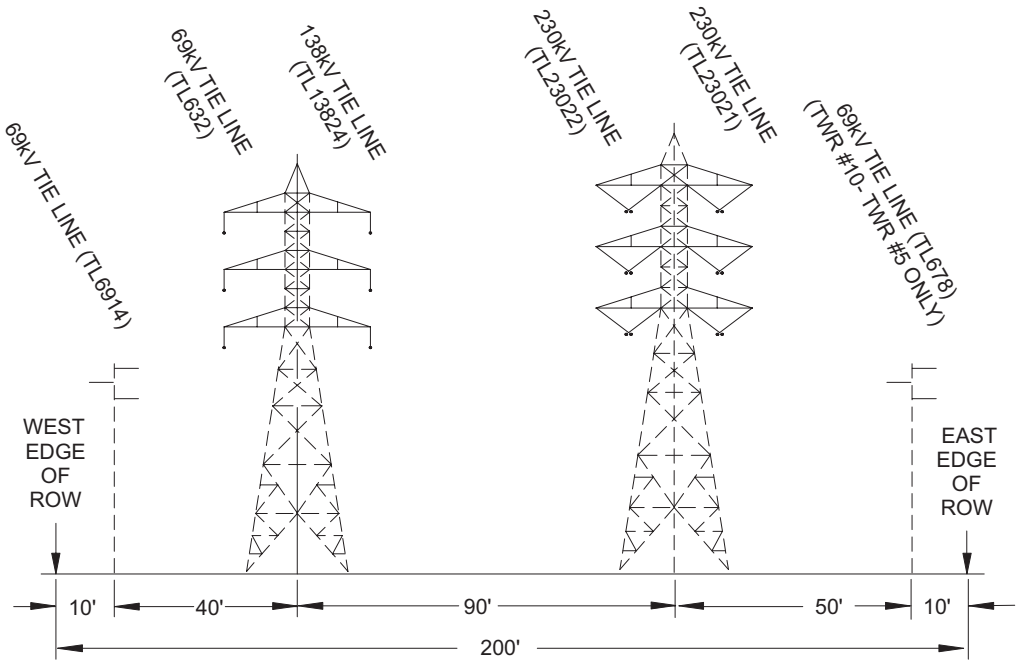
Figure B-9a

Existing and Proposed Cross-section of Subsection B (Proposed Pole #752 - #1000)

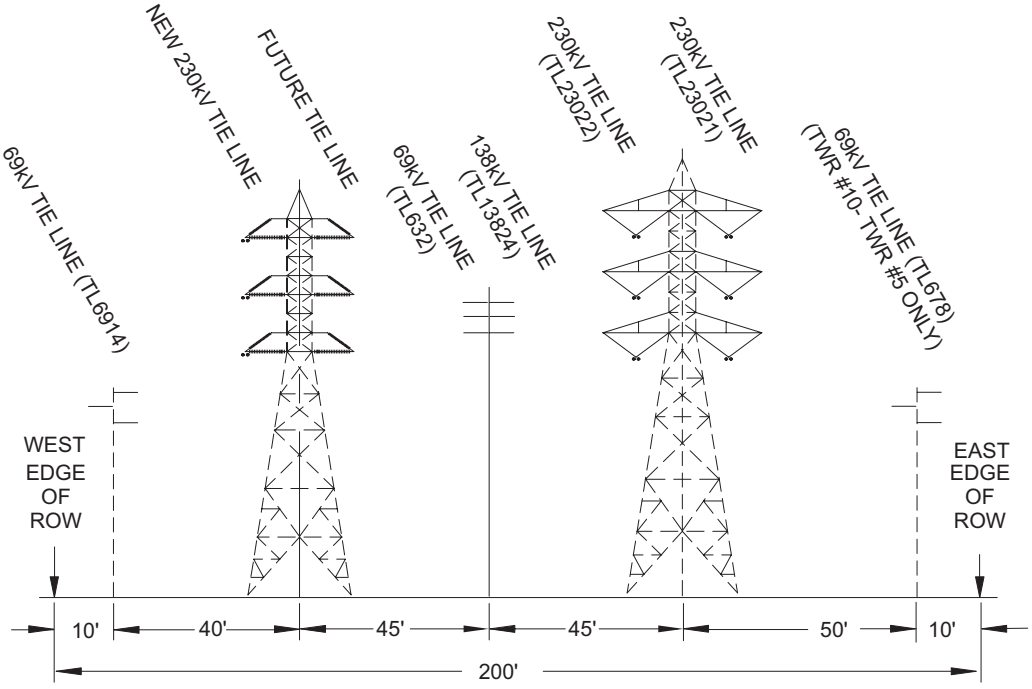
Source: SDGE, PEA 2002.

Aspen Environmental Group

View: South to North



Existing Alignment



Proposed Alignment

Source: SDGE, PEA 2002.

Miguel-Mission 230 kV #2 Project

Figure B-9b

Existing and Proposed Cross-section of Subsection B (Proposed Pole #1000 - #1110)

Aspen Environmental Group

B.3.3 Subsection C: Proposed 138 kV Pole #1110 (Near R.M. Levy Water Treatment Plant) to Los Coches Substation

Existing Alignment. In this section the existing ROW widens to 250 feet in width. As shown in Figure B-10, the 138 kV and 69 kV tower alignment, the 230 kV tower alignment and 69 kV pole alignments detailed in Subsection B continue into Subsection C. In addition, a single 69 kV circuit (TL 631) enters the ROW and connects to an existing 69 kV pole alignment supporting TL 6914. The existing tower alignments in this subsection are described as follows:

- **138 kV and 69 kV Circuits.** The tower alignment supporting the 69 kV circuit (TL 632) and 138 kV circuit (TL 13824) is located 50 feet from the western edge of the existing ROW. There are currently five 138 kV steel lattice structures (existing Towers #675935, #675934, #675933, #678024, and #678023) located along this segment (see Appendix 1). Both TL 632 and TL 13824 circuits terminate at the Los Coches Substation.
- **230 kV Circuits.** The tower alignment supporting two 230 kV circuits (TL 23022 and TL 23021) is located 90 feet east of the existing tower alignment supporting the 138 kV and 69 kV circuits, or 140 feet east of the western edge of the ROW. There are currently two 230 kV steel tower structures (existing Tower #971899 and #971900) located along this segment. These two 230 kV circuits bypass the Los Coches Substation to connect with Fanita Junction.
- **69 kV Circuits.** This subsection contains one 69 kV pole alignment located 10 feet from the western edge of the existing ROW supporting two 69 kV circuits (TL 6914 and TL 631), and another 69 kV pole alignment located 10 feet from the eastern edge of the ROW supporting a 69 kV circuit (TL 678). There are approximately 28 69 kV wood poles (for TL's 678, 631, and 632) along this segment from Olde Highway 80 to Los Coches Substation.

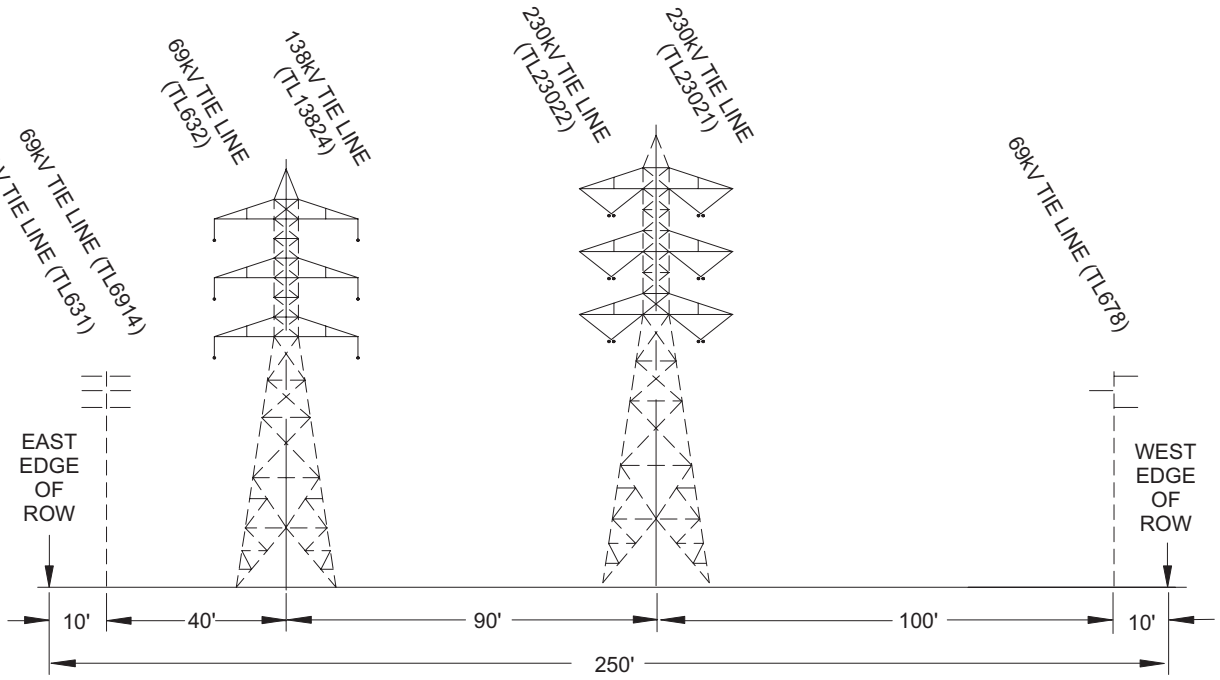
Proposed Relocation. As shown in Figure B-10, a new pole alignment would be constructed in a centered position between the two main existing steel lattice tower alignments in order to support the relocated 69 kV circuit (TL 632) and the relocated 138 kV circuit (TL 13824). Two 138 kV poles would be installed along this segment (proposed 138 kV poles #1120 and #1130). This new pole alignment would remain in a centered position until it reaches the Los Coches Substation. The 69 kV circuit (TL 632) would occupy the west side of each new pole, while the 138 kV circuit (TL 13824) would occupy the east side of each new pole.

The new 230 kV circuit would then be installed on either the modified steel lattice tower structures or on replacement 230 kV steel pole structures. Five steel lattice structures would be modified that include: #675935, #675934, #675933, #678024, and #678023. The new 230 kV circuit would occupy a position on the west side of each modified or replacement structure, while the east side of each structure would remain vacant for a future tie line.

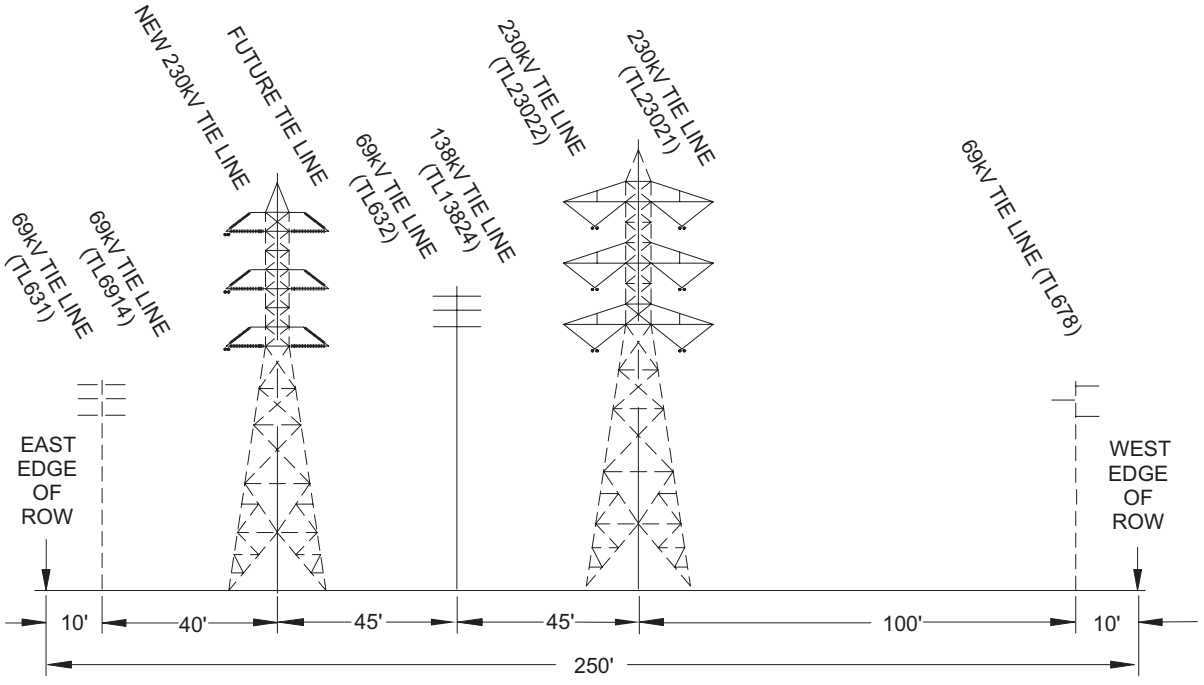
B.3.4 Subsection D: Los Coches Substation to Proposed 138 kV Pole #1160 (Near Willow Road)

Existing Alignment. As shown in Figure B-11, the existing ROW in this section decreases to 200 feet in width. This section consists of two main steel lattice tower alignments, one supporting 138 kV and 69 kV circuits, and the other supporting two 230 kV circuits. To the west of the 138 kV and 69 kV tower alignment is an alignment of wood poles supporting a single 69 kV circuit (TL 636).

View: South to North



Existing Alignment



Proposed Alignment

Miguel-Mission 230 kV #2 Project

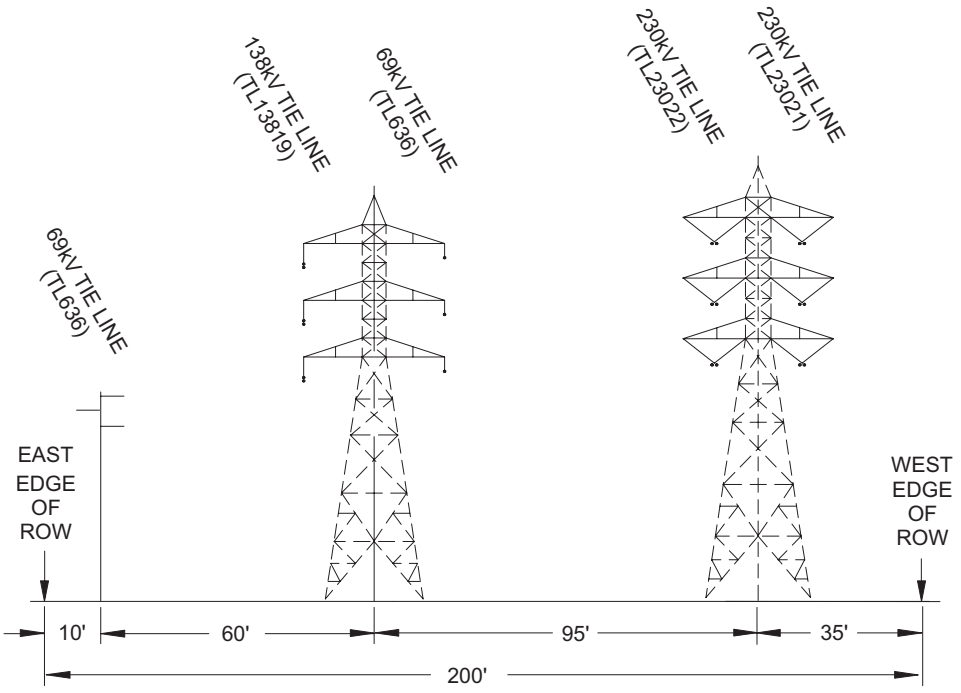
Figure B-10

Existing and Proposed Cross-section of Subsection C (Proposed Pole #1110 - #1130)

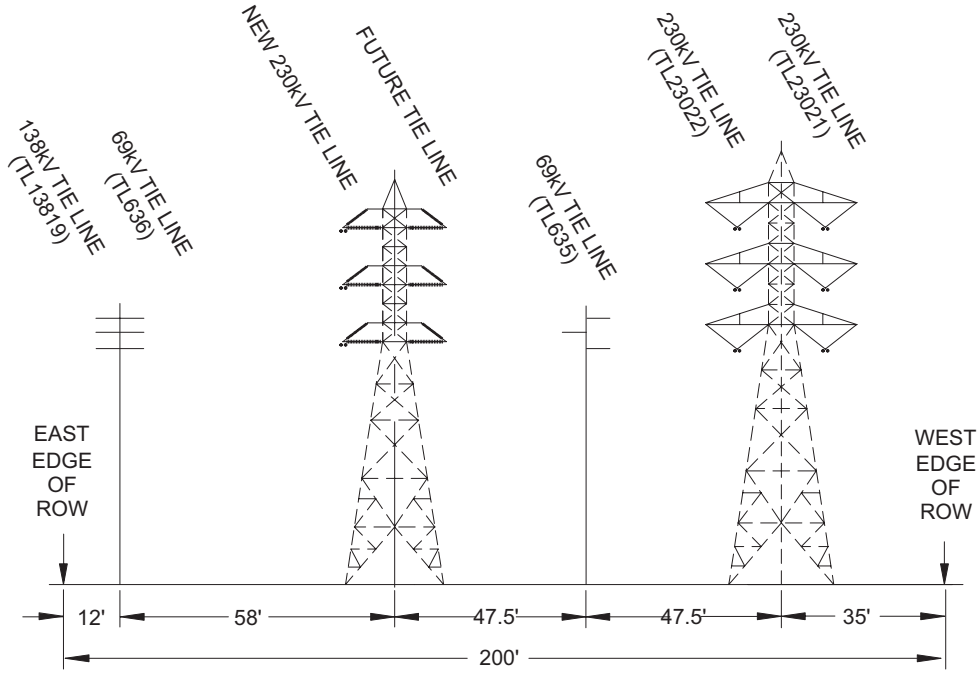
Source: SDGE, PEA 2002.

Aspen Environmental Group

View: South to North



Existing Alignment



Proposed Alignment

Miguel-Mission 230 kV #2 Project

Figure B-11

Existing and Proposed Cross-section of Subsection D (Proposed Pole #1140 - #1160)

Source: SDGE PEA, 2002.

Aspen Environmental Group

- **138 kV and 69 kV Circuits**: After exiting Los Coches Substation, the tower alignment supporting the 138 kV and 69 kV circuits are positioned 70 feet from the western edge of the existing ROW. There are currently three 138 kV steel lattice structures (existing Towers #576669, #576668, and #576667). A 138 kV circuit (TL 13819) is located on the west side of the each tower, while a 69 kV circuit (TL 635) is located on the east side of each tower. TL 13819 continues on to Santee Substation, while TL 635 exits the ROW near proposed pole #1160 and heads north toward Creelman Substation.
- **230 kV Circuit**: The tower alignment supporting two 230 kV circuits is located 35 feet from the eastern edge of the existing ROW and 95 feet east of the tower alignment supporting the 138 kV and 69 kV circuits. There are currently three 230 kV steel tower structures (existing Towers #971901 through #971903) located along this segment. TL 23022 is located on the west side of each tower, and TL 23021 is located on the east side of each tower.
- **69 kV Circuit**: An alignment of wood poles that support a 69 kV circuit (TL 636) is located 10 feet from the western edge of the existing ROW and eventually connects to Fanita Junction.

Proposed Relocation. To provide an opening for the new 230 kV circuit in Subsection D, the 69 kV circuit (TL 635) and the 138 kV circuit (TL 13819) would be removed from their current location on the existing 138 kV and 69 kV tower alignment. Three 138 kV poles would be installed along this segment (proposed 138 kV pole #1140 through #1160). The 138 kV circuit (TL 13819) would be installed in a position on the west side of a new steel pole alignment that would be constructed 12 feet from the western edge of the existing ROW. The existing 69 kV circuit (TL 636) would occupy the east side of this new pole alignment. The existing 69 kV circuit (TL 635) would be relocated onto a new steel pole alignment that would be constructed in a centered position between the existing steel lattice towers for a short distance (two spans) and would exit the ROW at proposed 138 kV pole #1160 heading north toward the Creelman Substation.

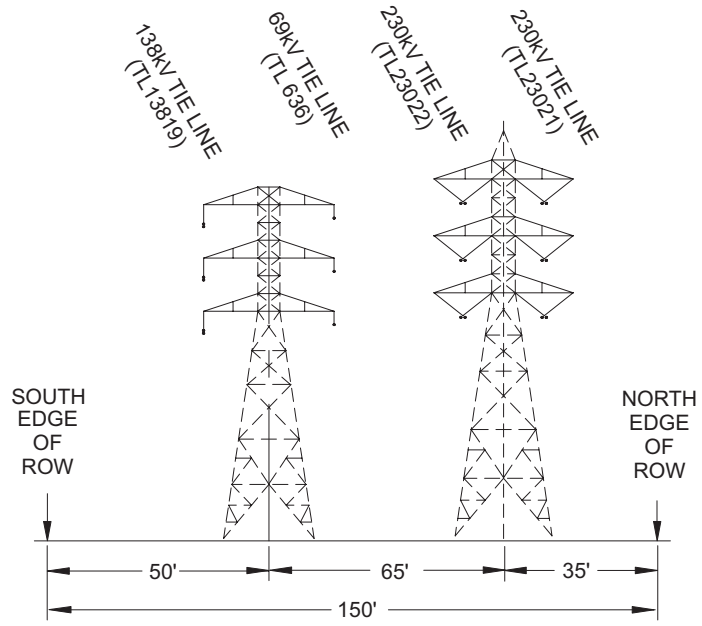
The new 230 kV circuit would then be installed on either the existing but modified 138 kV and 69 kV steel lattice tower structures or on replacement 230 kV steel pole structures. Three steel lattice structures would be modified: #576669, #576668, and #576667. The new 230 kV circuit would occupy a position on the west side of each modified or replacement structure, while the east side of each structure would remain vacant for a future tie line.

B.3.5 Subsection E: Proposed 138 kV Pole #1160 (Near Willow Road) to Fanita Junction

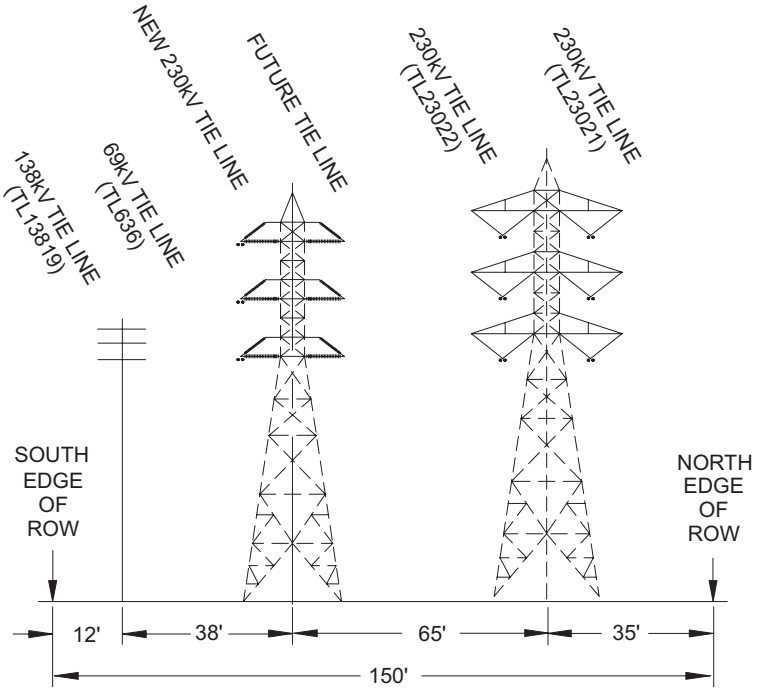
Existing Alignment. As shown in Figure B-12, the existing ROW in this section narrows to 150 feet in width. At the Louis A. Stelzer County Park, the existing ROW turns west and heads toward Fanita Junction. This section of ROW consists of the main 138 kV and 69 kV tower alignment and the 230 kV tower alignment. The last 0.9 miles of this section is located entirely within the MCAS Miramar.

- **138 kV and 69 kV Circuits**: The existing tower alignment supporting the 138 kV and 69 kV circuits is located 50 feet from the southern edge of the existing ROW. There are currently 24 138 kV steel lattice structures (existing Towers #576666 through #576643). The existing 138 kV circuit (TL 13819) is on the south side of each tower, and existing 69 kV circuits (TL 636) currently occupy the north side of each tower. The 138 kV circuits (TL 636) exit the ROW at proposed 138 kV pole #1285 and come back into the ROW at pole #1315 .

View: East to West



Existing Alignment



Proposed Alignment

Source: SDGE, PEA 2002.

Miguel-Mission 230 kV #2 Project

Figure B-12

Existing and Proposed Cross-section of Subsection E (Proposed Pole #1160 - #1410)

Aspen Environmental Group

- **230 kV Circuits**: The existing tower alignment supporting two 230 kV circuits is located 65 feet north of the 138 kV and 69 kV tower alignment, and 35 feet from the northern edge of the existing ROW. There are currently 26 230 kV steel tower structures (existing Tower #971904 through Tower #971929) located along this segment. TL 23022, which connects to Fanita Junction, occupies the south side of each tower and continues to the Mission Substation. TL 23021, which also connects to Fanita Junction, occupies the north side of each tower and proceeds north toward the Sycamore Canyon Substation.

Proposed Relocation. As shown in Figure B-12 in Subsection E, the existing 138 kV and 69 kV circuits would be removed from their current location and be relocated onto a new pole alignment, which would be constructed 12 feet from the southern edge of the existing ROW. A total of 29 138 kV poles would be installed along this segment (proposed 138 kV pole #1170 through #1410). The two 69 kV circuits would occupy a position on the north side of each new pole, while the 138 kV circuit would occupy the south side of each new pole.

Following the relocation of the existing 69 kV circuits and 138 kV circuit, the new 230 kV circuit would then be installed on either the modified steel lattice tower structures or on replacement 230 kV steel pole structures. A total of 24 steel lattice structures would be modified and 10 would be replaced with a steel mono-pole. The 10 steel lattice towers that would be replaced include: #576663, #576661, #576660, #576658, #576657, #576656, #576653, #576648, #576644, and #576643. The new 230 kV circuit would occupy a position on the south side of each modified or replacement structure, while the north side of each structure would remain vacant for a future tie line. In addition, SDG&E plans to install a new pole (#871862) at Fanita Junction.

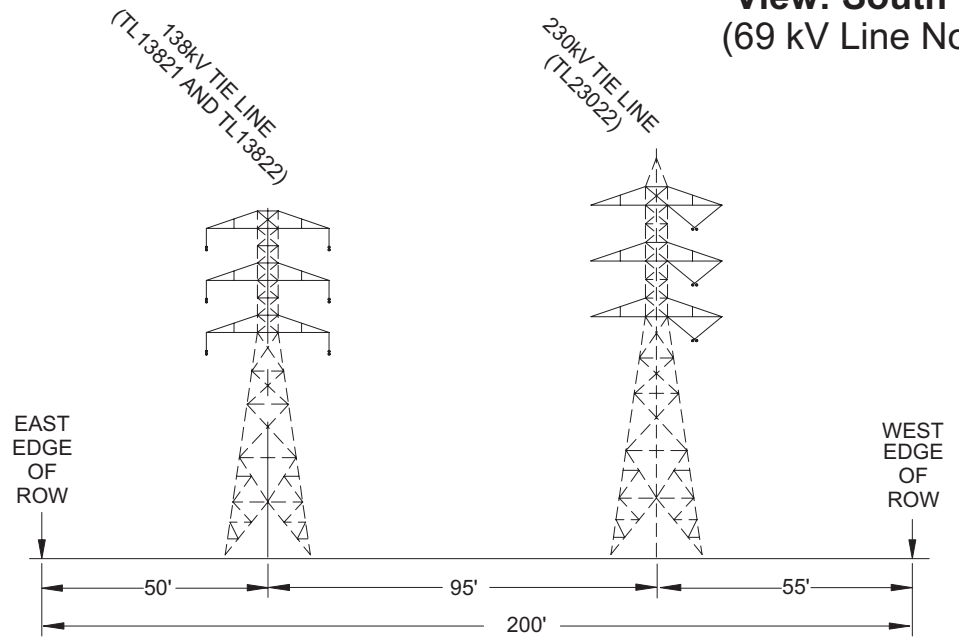
B.3.6 Subsection F: Fanita Junction to Mission Substation

Existing Alignment. As shown in Figure B-13, after exiting Fanita Junction, the ROW increases to 200 feet in width and turns south toward Mission Substation. This section of ROW consists of one alignment of steel lattice structures supporting two 138 kV circuits and one alignment of steel lattice and pole structures supporting one 230 kV circuit.

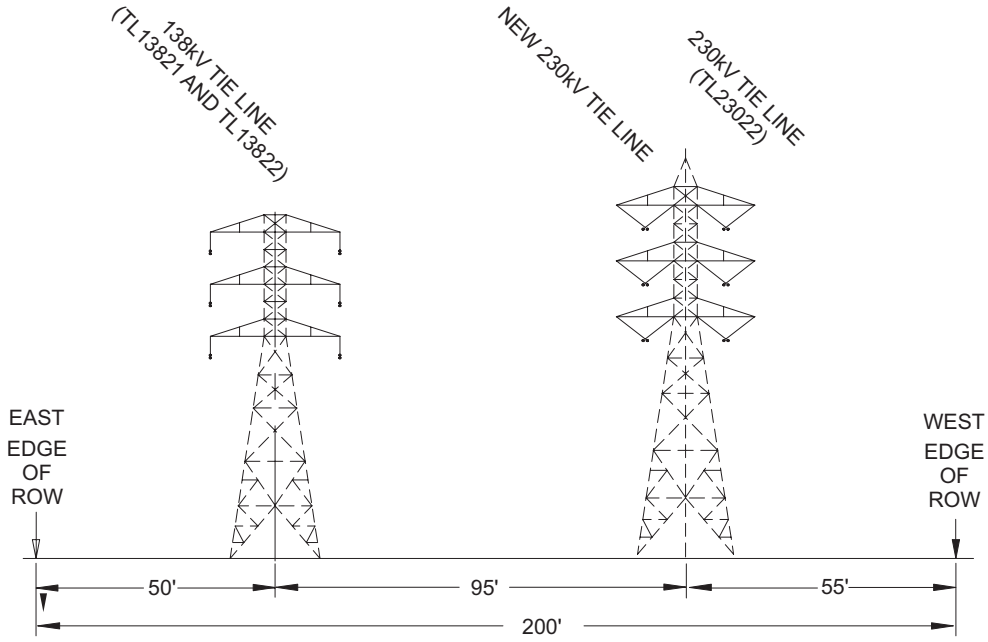
- **138 kV Circuits**: Exiting Fanita Junction, the tower alignment supporting two 138 kV circuits (TL 13821 and TL 13822) is located 50 feet from the east edge of the ROW.
- **230 kV Circuits**: The tower alignment supporting the single 230 kV circuit (TL 23022) is located 95 feet west of the 138 kV tower alignment, and 55 feet from the western edge of the existing ROW. There are currently 41 230 kV steel pole structures (existing poles #873104 through #873068, #731172, #731171, #579862, and #579861) located along this segment. The 230 kV circuit (TL 23022) occupies a position on the west side of each structure, while the east side of each structure is vacant. The 230 kV structures in this alignment heading southwest from Fanita Junction are steel lattice and steel pole structures. The existing 230 kV circuit occupies both sides of the steel poles.

Proposed Relocation. No new structures would be installed in the transmission corridor between Fanita Junction and Mission Substation as part of the Proposed Project. One new structure may be required on SDG&E property at the Mission Substation. The new 230 kV circuit would be installed onto the existing 230 kV tower alignment, in the vacant position on the east side of each structure. No other modifications and no new structures are required to support the new 230 kV circuit. All existing 230 kV conductors would be removed and new conductors installed between Fanita Junction and Mission Substation.

View: South to North
(69 kV Line Not Shown)



Existing Alignment



Proposed Alignment

Source: SDGE PEA, 2002.

Miguel-Mission 230 kV #2 Project

Figure B-13

Existing and Proposed Cross-section of Subsection F

Aspen Environmental Group

B.4 Project Construction

This section presents an overview of construction methods typically used for construction of overhead transmission lines and substation modifications. SDG&E's proposed construction schedule is presented in Section B.4.1, followed by descriptions of construction activities and methods that are anticipated to be required to construct the Proposed Project (Sections B.4.2 and B.4.3). Sections B.4.4 through B.4.7 provide an understanding of construction employment, materials and staging areas, and methods that SDG&E would employ to prevent interruptions in existing utilities services during construction.

B.4.1 Construction Schedule

The proposed construction schedule would commence after securing all required approvals and permits, would require approximately two years to complete, and would require utilizing multiple crews working simultaneously on different project components. Table B-4 provides SDG&E's proposed schedule for the Miguel-Mission 230 kV #2 Project, as defined in its CPCN application. While the schedule will be modified to begin after CPUC approval, this table still illustrates the approximate length of each construction phase.

Table B-4. Project Construction as Proposed by SDG&E

Project Phase	Period
Engineering, design, and permitting	November 2001 to June 2004
Construct access roads	June 23 to November 11, 2004
New 138 kV/69 kV pole line	July 7, 2004 to June 18, 2005
Remove existing 138 kV/69 kV conductors	April 1, 2005 to September 22, 2005
Modifications to existing 138 kV/69 kV towers	May 5, 2005 to May 1, 2006
Conductor stringing on modified towers (Miguel Substation to Fanita Junction)	December 6, 2005 to May 30, 2006
Conductor stringing from Fanita Junction to Mission Substation	October 5, 2004 to June 23, 2005
Substation modifications	June 21, 2005 to May 9, 2006
Energize new circuit	May 31, 2006 to June 13, 2006
Total construction	June 2004 to June 2006
Start of operation	June 2006

Source: SDG&E; CPCN application, Attachment C, 2002 (modified based on permitting schedule).

Landowners and tenants adjacent to the ROW would be notified by mail in advance of construction in their areas. Construction would generally take place between 7 a.m. and 7 p.m., six days per week, except for those areas where local ordinances and traffic considerations dictate otherwise, in which case, working hours would be revised consistent with local requirements or adopted mitigation measures for the project. Although construction may be necessary adjacent to sensitive noise receptors (e.g., schools), appropriate project procedures and protocols would be used to reduce noise impacts; work during holidays would be minimized (see Section D.8, Noise and Vibration, for further details). When helicopters are used, daily construction activity could occur between 7:00 a.m. and 7:00 p.m.

B.4.1.1 138 kV/69 kV Construction Schedule

SDG&E has estimated that construction of new 138 kV and 69 kV poles between Miguel Substation and Fanita Junction would occur starting in the third quarter 2004 and continue into the middle of 2005. However, this is dependent on when SDG&E is granted a CPCN for the Proposed Project. Beginning

in early 2005, SDG&E would begin installing new 138 kV and 69 kV circuits onto the newly constructed pole structures and would remove the existing 138 kV and 69 kV circuits from the existing lattice towers. It is estimated that the relocation of the 138 kV and 69 kV circuits from Miguel Substation to Fanita Junction would take approximately 14 months to complete.

B.4.1.2 230 kV Construction Schedule

Once SDG&E has removed the 138 kV and 69 kV circuits from the existing lattice towers, work would begin in modifying and replacing the existing towers to accommodate the new 230 kV circuit. This phase of construction is anticipated to occur between early 2005 and mid-2006. Stringing of the new 230 kV circuit would begin in 2005 as the lattice tower modifications are completed, and would be completed by mid-2006.

Because no major construction activities, such as tower modifications, would be required to support the new 230 kV circuit between Fanita Junction and Mission Substation, conductor stringing in this section of the ROW would be done at any time during the course of the project as allowed by environmental or other regulatory constraints (e.g., avoiding the vernal pool near Santo Road during wet periods and timing requirements of the California Independent System Operator govern when SDG&E can take a circuit offline) to ensure completion by June 2006.

B.4.1.3 Substation Modification Schedule

Substation modifications would occur at both Miguel and Mission Substations between mid-2005 and early 2006. All modifications would occur within the existing property boundary of the substation and would occur in areas currently graded, surfaced, or otherwise developed or previously disturbed areas (see Table B-4).

B.4.2 Transmission Line Construction

This section describes the construction activities that would occur during the construction of the Proposed Project transmission line component. This discussion is divided into two distinct areas of transmission line construction activity. The majority of project-related construction would occur along the first segment, Miguel Substation to Fanita Junction. The second segment, from Fanita Junction to Mission Substation, requires only reconductoring of existing 230 kV structures to accommodate the new circuit.

B.4.2.1 Miguel Substation to Fanita Junction

Between Miguel Substation and Fanita Junction, the new 230 kV circuit would be installed onto new steel poles or the existing lattice towers currently supporting the 138 kV and 69 kV circuits. This would require that the existing 138 kV and 69 kV circuits be relocated to new wood or steel poles adjacent to the existing lattice towers within the SDG&E ROW. See Section B.2.5 for further details on the location and configuration of these two circuits.

ROW Preparation and Access

Prior to construction, areas along the project ROW would need to be cleared for project related construction activities. In order to safely travel within the ROW, existing access roads may need to be regraded and/or extended. New access or spur roads would be required to provide construction access for the new steel pole installations. The construction contractor would also be required to clear approximately ten stringing/staging areas and approximately 24 stringing/snubbing areas along the ROW

between Miguel Substation and Fanita Junction, which would range from one to two acres in size. For construction activity, work areas approximately 150 feet by 150 feet would be required around each new or modified structure. Finally, during the conductor stringing phase of construction, approximately 34 stringing sites, one to two acres in size, as mentioned above, would be required along the ROW to facilitate the stringing, pulling, tensioning, and slicing of wire for the relocated 138 kV and 69 kV circuits and the new 230 kV circuit. Temporary easements or rights-of-entry may be required to access certain stringing/staging, stringing/snubbing, and access road locations along the ROW to allow for temporary access and the use of stringing/staging or stringing/snubbing sites for pulling, tensioning and splicing of conductors.

Every effort would be made to utilize previously disturbed areas for laydown and construction areas. However, if paved or otherwise disturbed areas are not available, the construction contractor would create an all-weather pad using a bulldozer to clear an area, and then stabilize the area with crushed rock. In some locations, intermittent blading of rough areas would be done to allow for a single-lane route, approximately 12 feet wide on straight sections and wider on curves. New roads would be constructed using a D-8 bulldozer (or other types of excavation equipment), and blading would be used for subsequent maintenance of roads and pad areas that will remain for permanent maintenance and operations access. Surface material, including rocks, would be bladed and side-cast to allow for passage of rubber-tired vehicles and to maintain a safe access to structures.

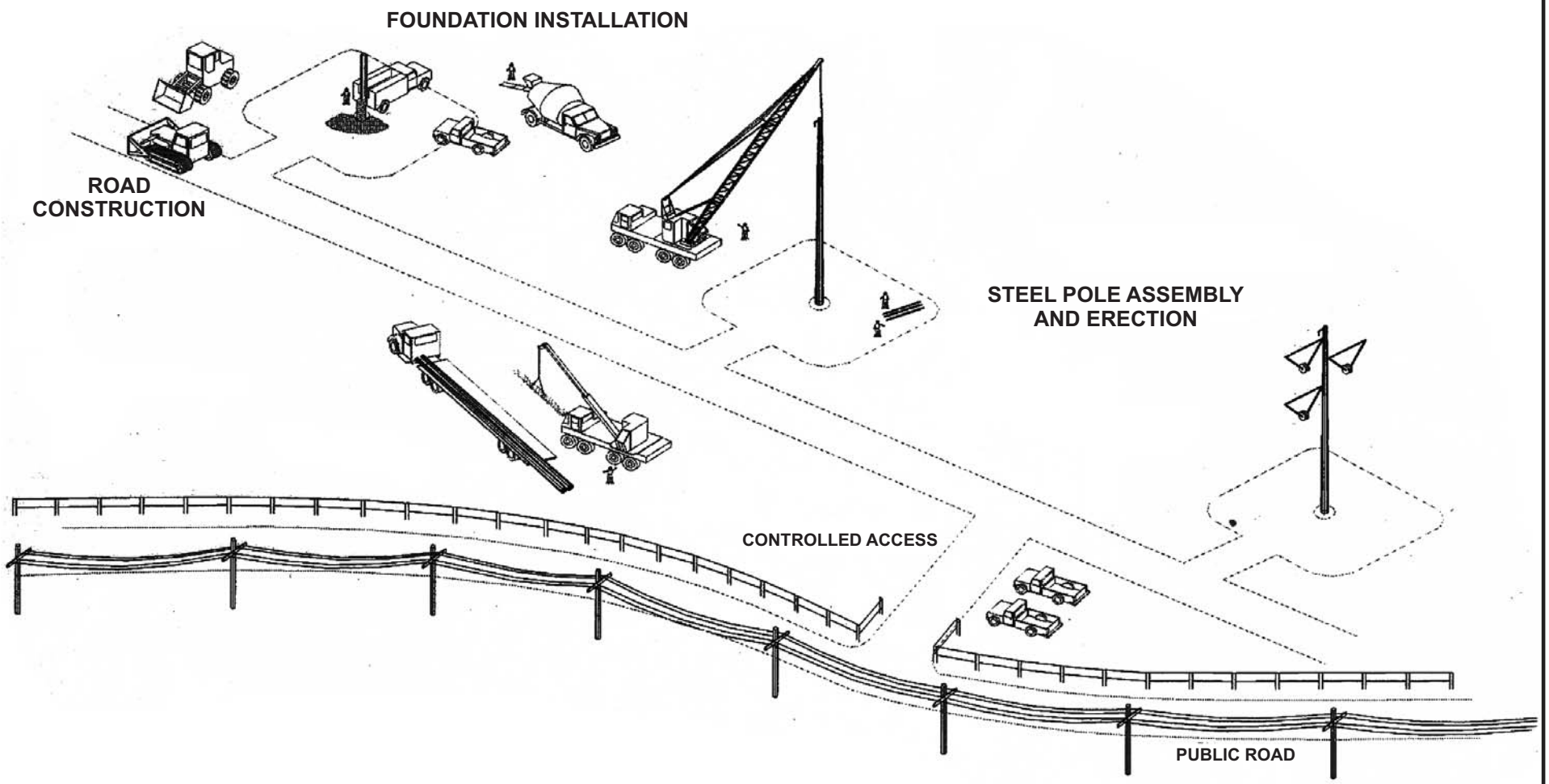
Installation of New Poles for 138 kV and 69 kV Circuits

Once access roads have been established, an area approximately 150 feet by 150 feet would be cleared around each new structure site prior to the commencement of construction activities. This would allow for a safe working area and provide for the placement of equipment, vehicles, and materials at each location.

A total of 108 wood and steel poles would be constructed between Miguel Substation and Fanita Junction. The new poles range in height from approximately 50 to 140 feet (see Table B-3). Span lengths between each pole would vary from 300 to 3,500 feet, depending on terrain, conductor types, required tensions, and available ROW. Wherever possible, the spans between each pole will match existing pole spans in order to lessen the visual impacts of the new structures. As described in Table B-1, SDG&E anticipates that approximately 14 of the new 138 kV and 69 kV poles would be wood, and the remaining poles would be galvanized steel.

As illustrated in Figures B-14 and B-15, installation of new wood poles to support the relocated 138 kV and 69 kV circuits would begin with the excavation of holes three feet in diameter and eight to 12 feet in depth, depending on the height of the pole. Holes would be drilled using a truck-mounted auger or similar equipment. Once excavated, the holes would be cleaned and prepared and the new pole would be lifted into place using a mobile crane. The holes would then be backfilled with the excavated material and compacted. Any remaining excavated material would be placed around the holes or spread onto adjacent access roads.

Installation of new steel pole structures to support the relocated 138 kV and 69 kV circuits would begin with the excavation of foundations approximately eight to nine feet in diameter and 20 to 40 feet in depth. A truck-mounted auger, backhoe, or similar equipment would typically be used for excavation of this type. Once the foundation holes are cleaned, reinforcing steel would be inserted and concrete would be poured in to backfill the hole and create a foundation. The foundation would typically extend 2 feet above-ground. The steel pole structures would then be assembled at each site, and using a mobile crane, each



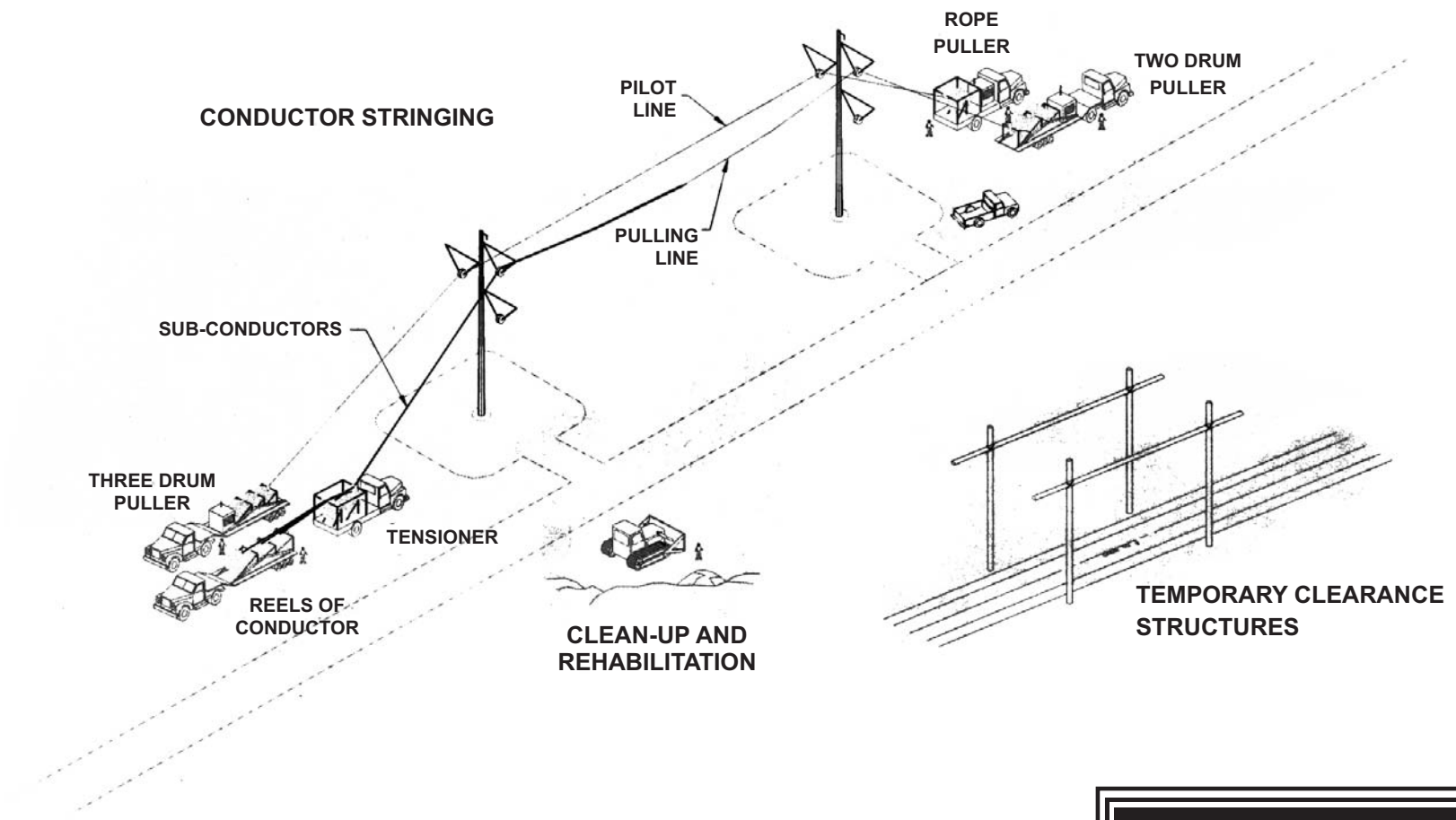
Source: SDGE, PEA 2002.

Miguel-Mission 230 kV #2 Project

Figure B-14

Typical Construction Activity

Aspen Environmental Group



Source: SDGE, PEA 2002.

Miguel-Mission 230 kV #2 Project

Figure B-15

Typical Conductor Stringing Activity

Aspen Environmental Group

structure would be lifted into position, while the construction crew bolts the pole to the foundation. Not all steel pole structures will require foundations and reinforcing steel; some may be direct-buried and backfilled with concrete to provide stability and corrosion protection.

Relocate the 138 kV and 69 kV Circuits

Once the new poles are constructed, the relocated 138 kV and 69 kV conductors would be installed. As illustrated in Figure B-15, installing the new conductors to pole structures typically involves a three-step process: (1) pull-ropes (also called a sockline) are installed; (2) the sockline is used to pull the conductors and wires; and (3) sagging and connecting conductors to the structures. To assist with stringing, pulleys (also known as sheaves) would be attached to each structure. This process would be performed every one to four miles connecting multiple structures to each other in order to be strung all at one time. Terrain and sensitive environmental constraints will determine how many structures can be strung at one time.

Sockline installation would require the use of a puller truck carrying reels of sockline and a crane or heavy piece of construction equipment. The puller truck would be parked at the beginning of the run of structures to be strung, and multiple socklines would be attached to a crane, which would travel from the puller truck to each structure. In areas where the terrain is too steep for a crane, a dozer or helicopter may be used to pull the sockline. The pull ropes would then be threaded through the stringing blocks (or sheaves) attached to the insulators at each structure.

Once the socklines have been installed, trucks carrying conductor and shield wire would be brought onsite. A tensioner truck would be parked at the end point of the run of structures being strung. The sockline would then be connected to one conductor or pair of conductors at a time. The line would be pulled in by the puller truck parked at the beginning of the line, while the tensioner truck parked at the end maintains enough tension to keep the line from dragging on the ground as it is pulled. After the conductors and shield wire have been strung, they are sagged to proper tension and secured to temporary anchors. The conductors are then removed from the stringing blocks and permanently attached to the structure insulators using a clipping crew.

Modification of Existing Lattice Towers for New 230 kV Circuit

Once the existing 138 kV and 69 kV circuits are relocated from the existing lattice tower structures, the lattice towers would be modified or replaced to accommodate the new 230 kV circuits. As indicated in Table B-1, 60 lattice towers would be modified, and 31 would be removed and replaced with steel pole structures.

Modifications to the existing lattice towers would involve replacing the existing structural arms with a horizontal-post brace insulator configuration to handle the 230 kV circuit, and either adding or modifying structural steel members to strengthen the lattice towers. The conductors for the proposed new 230 kV circuit would be installed on the east side of the modified lattice towers or replacement poles, leaving the west side of the lattice structures vacant for a possible future circuit. Depending on accessibility, either a flatbed truck or helicopter would be used to transport steel members to the structure sites. Typically, the replacement steel members would be assembled on the ground and lifted into place by either a helicopter or crane.

Installation of New Poles for the New 230 kV Circuit

As described above, 31 lattice towers would need to be removed to accommodate new steel poles. An additional 11 steel poles would be added to route the new 230 kV circuit to Los Coches Substation and to facilitate interconnection between Miguel and Mission Substations. A total of 42 new steel poles would

require construction of new concrete foundations to support the steel poles. Each foundation would begin with the excavation of a hole approximately 9 feet in diameter and 20 to 40 feet deep, depending on the height of the pole. Each hole would be excavated using a truck-mounted auger, backhoe, or similar equipment that would typically be used for excavation. Where solid rock is encountered, blasting or rock hauling equipment may be required. Refer to Section D.8 for information on blasting activities during construction.

Once excavated, the new holes would be filled with reinforcing steel cages, followed by 40 to 100 cubic yards of concrete depending on structure type. The new foundations would extend two feet aboveground. The new steel pole structures would then be assembled onsite, erected and bolted to each foundation, possibly with the use of either a helicopter or large crane.

Installation of New 230 kV Circuit

The conductor stringing activities for the 230 kV circuit would be similar to what is described for the 138 kV and 69 kV circuits above. However, since the 138 kV and 69 kV circuits are already on the existing towers that the new 230 kV circuit is proposed to occupy, it is possible that the existing 138 kV and 69 kV conductors would be used to pull the socklines (or ropes) through the sheaves for use in stringing the new 230 kV conductors on the modified lattice towers.

Right-of-Way Cleanup and Site Restoration

The approach to cleanup and restoration along the ROW would be based on applicable laws and guidelines of federal, State, and local agencies having jurisdiction; implementation of Project Protocols and adopted Mitigation Measures; and agreements with private property owners. (See Section D for issue area requirements.) Cleanup would include (but not be limited to): removal of debris, construction signs, surplus material and equipment; and fence, road, driveway, and trail repairs.

Site restoration activities would be followed pursuant to the requirements of SDG&E's Project Protocols (described in Section B.6) and mitigation measures as contained in SDG&E's NCCP and additional mitigation measures adopted in this EIR. Maintenance and operations personnel would maintain select number of access roads for future use and would control vehicular access to the ROW by installing gates at fenced property lines. Access roads either created or extended for the project that are not needed would be removed following construction activities and restored to their original condition either naturally or by reseeding.

Restoration efforts would include preemptive measures that would be carried out prior to and during construction, such as separating topsoil from the subsoil and storing the topsoil so that it can be replaced after construction, salvaging protected plants and using staked hay bales and silt fences to control erosion and water runoff. Erosion control would be further mitigated pursuant to PP-55, which requires the preparation and implementation of an Erosion Control and Sediment Transportation Control Plan that must be submitted to San Diego County for review and comment at the same time the grading plans for the project are submitted.

B.4.2.2 Fanita Junction to Mission Substation

As described in Section B.2.2, the new 230 kV circuit would be installed in a vacant position on existing steel lattice and steel pole structures between Fanita Junction and Mission Substation. In order to install the new 230 kV circuit, the existing 230 kV circuit, which is comprised of one conductor on each side of the existing poles, would need to be removed and replaced with new bundled conductor on the west

side of the existing pole structure. The new 230 kV circuit, which is also built as bundled conductor, would then be installed in the vacant position on the east side of the existing poles.

ROW Preparation and Access

ROW preparation and access for reconductoring activities between Fanita Junction and Mission Substation may require that existing access roads be re-graded or extended, and would also require the clearing of approximately six stringing sites and two stringing/staging areas approximately two acres in size. These cleared areas would be contained within the existing ROW and on SDG&E substation property. If necessary, for staging and laydown areas, SDG&E would use previously disturbed areas if at all possible; however, if paved or otherwise disturbed areas are not available, the construction contractor would create an all-weather pad using a bulldozer to clear the area and then cover it with crushed rock.

Removal of Existing 230 kV Circuit

The removal of the existing 230 kV circuit from the existing poles would be very similar to that described in the installation of the 138 kV and 69 kV circuits in Section B.4.2.1. Sheaves would be attached to the arms of the existing poles for removing and installing the existing 230 kV circuit. The existing 230 kV circuit would be removed from the insulators and positioned within the sheaves, and a sockline would be attached to the end of the subject circuit. A puller truck would then pull the circuit off of the existing poles, leaving the sockline within the sheaves on the subject poles. This sockline would be used to install the two new 230 kV bundled conductors on to the existing steel pole structures between Fanita Junction and Mission Substation.

Installation of New 230 kV Circuits

The new 230 kV conductors would be attached to the ends of the socklines that would be temporarily strung onto the existing steel pole structures. The pull truck would then pull the socklines through the sheaves, which would thread the new 230 kV conductors through the sheaves and on to the existing steel poles. Once the 230 kV circuits are strung, the contractor would move the new 230 kV circuit from the sheaves and attach it to the existing insulators on the poles.

Right-of-Way Cleanup and Site Restoration

Right-of-way cleanup and site restoration would be similar to that described in Section B.4.2.1 for the Miguel Substation to Fanita Junction segment.

B.4.3 Substation Modifications

The modifications proposed at the Miguel and Mission Substations would take place in areas previously disturbed by the initial construction of the substation facilities. New substation equipment would be added as part of the Proposed Project in order for each substation to accommodate the new 230 kV circuit. New substation equipment would include 230 kV circuit breakers, disconnects and protection equipment. Construction of the new equipment would include pouring new concrete foundations, lengthening electrical conduits for equipment power and control, installing associated equipment for the new circuit breakers, and possible placement of new steel support structures on existing substation property to facilitate the interconnection of the new 230 kV circuit.

B.4.4 Construction Employment

Construction employment for the Proposed Project would include skilled or semi-skilled positions including line workers, welders, heavy equipment operators, surveyors, engineers, utility equipment workers, truck drivers, warehouse workers, clerical workers, and laborers. SDG&E would use contractors to construct the transmission line and could have as many as 100 or more people directly involved in construction throughout the 24-month construction period. It is anticipated that a large percentage of workers would come from the San Diego area, although contractors will use personnel that live outside of the San Diego area.

B.4.5 Materials and Staging Areas

In addition to the approximately 27 stringing sites required for conductor stringing activities, SDG&E has identified 11 materials and equipment staging areas between Miguel and Mission Substations (refer to Appendix 1 for material and staging area locations). These cleared areas would be confined to the existing ROW or to SDG&E substation property and each would be approximately one to two acres in size. The material and equipment staging locations include the following locations:

- 0.25 miles southeast of the Miguel Substation
- 150 feet east of Steele Canyon High School
- Adjacent to the east of the Herrick Center for Children
- 400 feet east of the intersection of Willow Glen Drive, and Hillsdale Road near Jamacha Valley
- 100 feet north of Olde Highway 80
- Adjacent to the south of Willow Road, 50 to 100 feet north of the San Diego River
- Adjacent to the east of Moreno Avenue near Santee
- Adjacent to the east of Summit Avenue in Santee
- Adjacent to the west of Strathmore Drive near the Santee Lakes
- 100 feet southeast of the Elliott Substation
- 500 feet northwest of the intersection of Mission Village Drive and Friars Road.

B.4.6 Equipment

Equipment required for construction would include bulldozers, backhoes, graders, air compressors, man lifts, generators, rock blasting equipment, drill rigs, truck-mounted augers, flatbed trucks, boom trucks, rigging and mechanic trucks, small wheeled cranes, concrete trucks, and crew trucks. The new steel support structures and modifications to existing towers would also require the use of a large crane. Equipment necessary for stringing operations include pullers, tensioners, and wire reel trailers. Helicopters may also be used during construction and installation of poles.

B.4.7 Potential Service Interruptions

The Proposed Project would be phased-in according to California Independent Operator (Cal-ISO) requirements in order to reduce the potential for electricity service interruptions during construction. It should be noted, there could be some short-term local outages (less than 8 hour period during daylight hours) in order to transfer the power from one circuit to another. However, SDG&E would notify customers and businesses well in advance of any such planned local outage. Notification of planned outages would be by mail and door hangings.

In addition, potential interruptions in utility services due to trenching or excavation operations for the entire Proposed Project would be minimized by SDG&E coordination with Underground Service Alert (also know as 1-800-Dig-Alert), a non-profit organization supported by utility firms, which maintains a database of companies with buried utilities.

B.5 Operation and Maintenance

Operation or maintenance personnel would require access to the ROW for routine maintenance and inspection activities or during emergency situations. Maintenance to the ROW would include patrol of the lines, climbing inspections, and maintenance of necessary access and spur roads. SDG&E would keep the areas around all structures clear of vegetation and would limit the height of vegetation on the ROW. Routine maintenance activities to the transmission towers generally occur every three to four months.

B.6 SDG&E Project Protocols

Appendix A of the July 2002 Proponent's Environmental Assessment (PEA) prepared by SDG&E details the Project Protocols that would be followed during all project related construction activity. Project Protocols are specific to environmental issue areas, such as air quality, biological resources, cultural resources, or traffic impacts. Table B-5 lists which Project Protocols are applicable to each environmental issue area, while Table B-6 lists the Project Protocols as proposed in the PEA.

All project-related activity is subject to the Project Protocols. In addition, all project personnel are subject to training prior to beginning work on the project to ensure that the Project Protocols, environmental laws and regulations, and all other agency requirements are understood and followed.

The impact analysis in this EIR assumes implementation of all SDG&E Project Protocols. However, where other impacts are identified that are not addressed by these protocols, or where the protocols are not considered to be adequate to reduce impacts to less than significant levels, additional mitigation measures are recommended. Project Protocols will be incorporated into the Mitigation Monitoring, Compliance, and Reporting Program (MMCRP) developed for this Proposed Project and monitored in the same fashion as the mitigation measures developed in this EIR (see Section G for details on the MMCRP).

Table B-5. Protocols for Each Issue Area

Issue Area	Protocols
Aesthetics	3, 4, 5, 36, 37, 40, 48, 49, 61, 62
Air Quality	56, 57, 58, 59, 60
Biological Resources	1, 2, 6, 7, 11, 12, 14, 17, 20, 21, 22, 24, 25, 26, 27, 28, 29, 30, 31, 34, 35, 36, 37, 39, 40, 41, 42, 43, 44, 50, 51, 52, 53, 54, 55
Cultural Resources	7, 39, 40, 41, 53, 63
Geology, Soils, Mineral Resources, Paleontology	3, 5, 6, 7, 11, 15, 34, 38, 55, 64, 65
Hazardous Materials	7, 19, 20, 23, 29, 30, 32, 33
Hydrology and Water Quality	6, 11, 16, 35, 38, 39, 40, 41, 52, 55
Land Use	18, 37, 45, 46, 50
Noise	8, 9, 60
Population and Housing	No Project Protocols required
Public Services, Utilities, and Service Systems	3, 5, 6, 7, 16, 32, 33, 38, 66
Traffic & Transportation	59

Table B-6. Project Protocols

PP No.	Description
1	Except when not feasible, all project vehicle movement would be restricted to existing access roads and access roads constructed as a part of the project and determined and marked by SDG&E in advance for the contractor, contractor-acquired accesses, or public roads. New access road construction for the project would be allowed year-round. However, when feasible every effort would be made to avoid constructing roads during the nesting season. When it is not feasible to keep vehicles on existing access roads or to avoid constructing new access roads during the nesting, breeding, or flight season, SDG&E would perform three site surveys in the area where the work is to occur. The surveys would be performed to determine presence or absence of endangered nesting birds, or other endangered species in the work area. Endangered species for which surveys would be performed include the least Bell's vireo, arroyo southwestern toad, coastal California gnatcatcher, Quino checkerspot butterfly, San Diego fairy shrimp, Southern California rufous-crowned sparrow, grasshopper sparrow, coastal cactus wren, Cooper's hawk, golden eagle, western burrowing owl, southern mule deer, orange-throated whiptail, and San Diego horned lizard. SDG&E would submit results of those surveys to the USFWS and CDFG in accordance with its NCCP and consult on reasonable mitigation measures to avoid or minimize for potential impacts, prior to vehicle use off existing access roads or the construction of new access roads. However, these site surveys would not replace the need for SDG&E to perform detailed on-the-ground surveys as required by Protocols 20, 21, 42, 43 and 44. Parking or driving underneath oak trees is not allowed in order to protect root structures. In addition to regular watering to control fugitive dust created during clearing, grading, earth-moving, excavation and other construction activities which could interfere with plant photosynthesis, a 15 mph speed limit shall be observed on dirt access roads to allow reptiles and small mammals to disperse and reduce dust.
2	The area limits of project construction and survey activities would be predetermined based on the temporary and permanent disturbance areas noted on the final design engineering drawings to minimize environmental effects arising from the project, with activity restricted to and confined within those limits. Survey personnel shall keep survey vehicles on existing roads. During project surveying activities, brush clearing for footpaths, line-of-sight cutting, and land surveying panel point placement in sensitive habitat would require prior approval from the project biological resource monitor in conformance with Protocols 20 and 21. Hiking off roads or paths for survey data collection is allowed year-round as long as other Protocols are met. Stringing of new wire and reconductoring for the project would be allowed year-round in sensitive habitats if the conductor is not allowed to drag on the ground or in brush and all vehicles used during stringing remain on project access roads. Where stringing requires that conductor drag on the brush or ground or vehicles leave project access roads, SDG&E would perform three site surveys to determine presence or absence of endangered nesting birds or other endangered species in the work area. Endangered species for which surveys would be performed include the least Bell's vireo, arroyo southwestern toad, coastal California gnatcatcher, Quino checkerspot butterfly, San Diego fairy shrimp, Cooper's hawk, Southern California rufous-crowned sparrow, grasshopper sparrow, golden eagle, coastal cactus wren, western burrowing owl, southern mule deer, orange-throated whiptail, and San Diego horned lizard. SDG&E would submit results of those surveys to the USFWS and CDFG in accordance with its NCCP and consult on reasonable and feasible mitigation measures for potential impacts, prior to dragging wire on the ground or through brush, or taking vehicles off project access roads. However, these site surveys would not replace the need for SDG&E to perform detailed on-the-ground surveys as required by Protocols 20, 21, 42, 43, and 44. No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate limits of survey or construction activity where any sensitive cultural resources or wildlife habitats are encountered in the field.
3	Project construction activities shall be designed and implemented to avoid or minimize new disturbance, erosion on manufactured slopes, and off-site degradation from accelerated sedimentation, and to reduce maintenance and repair costs. Maintenance of cut and fill slopes created by project construction activities would 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.
4	In areas where recontouring is not required, vegetation would be left in place wherever feasible and original ground contour would be maintained to avoid excessive root damage and allow for resprouting.
5	In areas where ground disturbance is substantial or where recontouring is required (e.g., marshaling yards, tower sites, spur roads from existing access roads), surface restoration would occur as required by the governmental agency having jurisdiction. The method of restoration normally would consist of returning disturbed areas back to their original contour, reseeding (if required), installing cross drains for erosion control, placing water bars in the road, and filling ditches for erosion control. Erosion would be minimized on access roads and other locations primarily with water bars. The water bars would be constructed using mounds of soil shaped to direct the flow of runoff and prevent erosion. Soil spoils created during ground disturbance or recontouring shall be disposed of only on previously disturbed areas, or used immediately to fill eroded areas. However, material for filling in eroded areas in roads or road ruts should never be obtained from the sides of the road that contain habitat without the approval of the onsite biological resource monitor. Cleared vegetation would be hauled off-site to a permitted disposal location. To limit impact to existing vegetation, appropriately sized equipment (e.g., bulldozers, scrapers, backhoes, bucket-loaders, etc.) would be used during all ground disturbance and recontouring activities.

Table B-6. Project Protocols

PP No.	Description
6	Potential hydrologic impacts would be minimized through the use of best management practices (BMPs) such as water bars, silt fences, staked straw bales, and mulching and seeding of all disturbed areas. These measures will be designed to minimize ponding, eliminate flood hazards, and avoid erosion and siltation into any creeks, streams, rivers, or bodies of water.
7	Prior to construction, all SDG&E, contractor, and subcontractor project personnel would receive training regarding the appropriate work practices necessary to effectively implement the Protocols and to comply with the applicable environmental laws and regulations including, without limitation, hazardous materials spill prevention and response measures, erosion control, dust suppression, and appropriate wildlife avoidance, impact minimization procedures, and Stormwater Pollution Prevention Plan (SWPPP) BMPs. To assist in this effort, the training would address: (a) federal, State, local, and tribal laws regarding antiquities, fossils, plants, and wildlife, including collection and removal; (b) the importance of these resources and the purpose and necessity of protecting them; and (c) methods for protecting sensitive cultural, paleontological, and ecological resources.
8	SDG&E would respond to third-party complaints of radio or television interference generated by operation of the transmission line by investigating the complaints and by implementing feasible and appropriate measures. As a part of SDG&E's repair inspection and maintenance program, the transmission line would be patrolled and damaged insulators or other transmission line materials, which could cause interference, would be repaired or replaced.
9	A bundled configuration of the conductors would be used on the 230 kV line and relocated 138 kV and 69 kV lines to limit the audible noise, radio interference, and television interference due to corona. Caution would be exercised during construction to try to avoid scratching or nicking the conductor surface, which may provide points for corona to occur. In addition to the bundled configuration conductors, special hardware design would also be used to limit corona potential.
10	At the time of construction, SDG&E would conduct a good faith investigation to identify the existing potential for induced currents and voltage hazards which may arise from the operation of the transmission facilities and educate property owners and occupants concerns regarding the probability of induced currents and voltage hazards within conductive objects sharing or within reasonable proximity to the existing right-of-way.
11	To the extent feasible, access roads would be built at right angles to the streambeds and washes. Where it is not feasible for access roads to cross at right angles, SDG&E would limit roads constructed parallel to streambeds or washes to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in a manner that minimizes potential adverse impacts on "waters of the U.S." or "waters of the State." Streambed crossings and roads constructed parallel to streambeds would require review and approval of necessary permits from the U.S. Army Corps of Engineers (USACOE), CDFG, and RWQCB. Culverts would be installed where needed for right angle crossings, but rock crossings would be utilized across most right angle drainage crossings. All construction and maintenance activities would be conducted in a manner that would minimize disturbance to vegetation, drainage channels, and streambanks (e.g., towers would not be located within a stream channel; construction activities would avoid sensitive features). Prior to construction in streambeds and washes, SDG&E would perform three pre-activity surveys to determine the presence or absence of endangered riparian species. Endangered riparian species for which surveys would be performed include the least Bell's vireo, arroyo southwestern toad, and San Diego fairy shrimp. However, these site surveys would not replace the need for SDG&E to perform detailed on-the-ground surveys as required by Protocols 20, 21, 42, 43, and 44. In addition, road construction would include dust-control measures (e.g., watering of construction areas to suppress dust) during construction in sensitive areas, as required. Erosion control during construction in the form of intermittent check dams and culverts should also be considered to prevent alteration to natural drainage patterns and prevent siltation.
12	In the construction and operation of the project, SDG&E would comply with all applicable environmental laws and regulations including, without limitation, those regulating and protecting air quality, water quality, wildlife and its habitat, and cultural resources.
13	Fences and gates would be installed or repaired and replaced to their original condition to the extent agreed upon between the owner of the fences or gates and SDG&E if they are damaged or destroyed by construction activities. Any temporary gates located outside of the right-of-way would be installed only with the permission of the landowner and, to the extent feasible, would be restored to original condition following construction.
14	Littering is not allowed. Project personnel would not deposit or leave any food or waste in the project area, and no biodegradable or nonbiodegradable debris would remain in the right-of-way following completion of construction.
15	If paleontological resources were encountered, appropriate field mitigation efforts would be implemented to protect the resources. For example, if significant resources were discovered, such as vertebrate fossils, construction would be stopped in this area while SDG&E and its designated paleontologist determine the appropriate method and schedule to recover or protect the resource. When it is not feasible to avoid paleontological sites, SDG&E would consult with the appropriate federal, State, and resource agencies and specialists to either develop alternative construction techniques to avoid paleontological resources or develop appropriate mitigation measures. Appropriate mitigation field measures may include actions such as protection-in-place by covering with earthen fill, removal and cataloging, and/or removal and relocation.

Table B-6. Project Protocols

PP No.	Description
16	Hazardous materials would not be disposed of or released onto the ground, the underlying groundwater, or any surface water. Totally enclosed containment would be provided for all trash. All construction waste, including trash and litter, garbage, other solid waste, petroleum products and other potentially hazardous materials, would be removed to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials.
17	Prior to construction, the boundaries of plant populations designated as sensitive by USFWS or CDFG, cultural resources, and other resources designated sensitive by SDG&E and the resource agencies would be clearly delineated with clearly visible flagging or fencing. The flagging and fencing shall remain in place for the duration of construction. Flagged areas would be avoided to the extent practicable during construction and maintenance activities. Where these areas cannot be avoided, focused surveys for covered plant species shall be performed in conformance with Protocol 21, and the responsible resource agency(ies) would be consulted for appropriate mitigation and/or revegetation measures prior to disturbance. Notification of the presence of any covered plant species to be removed in the work area would occur within ten (10) working days prior to the project activity, during which time the USFWS or CDFG may remove such plant(s) or recommend measures to minimize or reduce the take. If neither USFWS nor CDFG has removed such plant(s) within the ten (10) working days following the written notice, SDG&E may proceed with the work and cause a take of such plant(s), if minimization measures are not implemented.
18	To the extent feasible, transmission line facilities (e.g., the transmission right-of-way, access roads, tower sites, and other facilities) would be designed to avoid or minimize impact to agricultural land operations and production. Where project facilities cannot be relocated or redesigned to avoid impacts to agricultural lands or operations, SDG&E would pay compensation to owners of agricultural lands where those lands or operations are permanently impacted (i.e., removed from practical use) by project facilities.
19	Wildfires shall be prevented or minimized by exercising care when operating utility vehicles within the right-of-way and access roads and by not parking vehicles on or in close proximity to dry vegetation where hot catalytic converters can ignite a fire. In times of high fire hazard, it may be necessary for construction vehicles to carry water and shovels or fire extinguishers. Fire protective mats or shields would be used during grinding or welding to prevent or minimize the potential for fire.
20	Brush clearing around any project facilities (e.g., towers, poles, substations) for fire protection, visual inspection, or project surveying in areas which have been previously cleared or maintained within a two-year or shorter period shall not require a pre-activity survey. In areas not cleared or maintained within a two-year period, brush clearing shall not be conducted during the breeding season (March through August) without a pre-activity survey for vegetation containing active nests, burrows, or dens. The pre-activity survey performed by the onsite biological resource monitor would make sure that the vegetation to be cleared contains no active migratory bird nests, burrows, or active dens prior to clearing. If occupied migratory bird nests are present, fire protection or visual inspection brush clearing work would be avoided until after the nesting season or until the nest becomes inactive. If no nests are observed, clearing may proceed. Where burrows or dens are identified in the reconnaissance level survey, soil in the brush clearing area would be sufficiently dry before clearing activities occur to prevent mechanical damage to burrows that may be present.
21	In the event that SDG&E identifies a threatened, endangered, or species of special concern species of plant not previously identified in surveys performed for the project within the 10- foot radius for brush clearing around project facilities, SDG&E shall 1) notify the USFWS (for ESA listed plants) and CDFG (for CESA listed plants) in writing of that plant's location and identity and 2) of the nature of the project activity that may affect the plant. Notification would occur within ten (10) working days prior to the project activity, during which time the USFWS or CDFG may remove such plant(s) or recommend measures to minimize or reduce the take. If neither USFWS or CDFG have removed such plant(s) within the ten (10) working days following the written notice, SDG&E may proceed with the brush clearing for fire protection purposes or visual inspection and cause a take of such plant(s), if minimization measures are not implemented.
22	No wildlife, including rattlesnakes, may be harmed except to protect life and limb.
23	Firearms shall be prohibited in all project areas except for those used by security personnel.
24	Feeding of wildlife is not allowed.
25	Project personnel are not allowed to bring pets to any project area in order to minimize harassment or killing of wildlife and to prevent the introduction of destructive animal diseases to native wildlife populations.
26	Plant or wildlife species may not be collected for pets or any other reason.

Table B-6. Project Protocols

PP No.	Description
27	Project supplies or equipment (e.g., foundation excavations, steel pole sections) where wildlife could hide 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 wildlife cannot escape or be removed, shall be covered or otherwise made secure from wildlife intrusion or entrapment at the end of each workday. Supplies or excavations that have been left open shall not be covered or otherwise made secure from wildlife intrusion or entrapment until inspected and any wildlife found therein is allowed to escape. If any wildlife are found entrapped in supplies, equipment, or excavations, those supplies, equipment, or excavations shall be avoided and the wildlife left to leave on their own accord, except as otherwise authorized by the USFWS and CDFG. Where project construction activities require that supplies, equipment, or excavations proceed despite the presence of hiding or entrapped wildlife, SDG&E may request that the USFWS and CDFG allow the onsite biological resource monitor, or a recognized wildlife rescue agency (such as Project Wildlife), to remove the wildlife and transport them safely to other suitable habitats.
28	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 is located in the trench or excavation, the onsite biological resource monitor shall be called immediately to remove them if they cannot escape unimpeded. The onsite biological resource monitor would make the required contacts with the USFWS and CDFG resource personnel and obtain verbal approval prior to removing any entrapped wildlife. If the biological resource monitor is not qualified to remove the entrapped wildlife, a recognized wildlife rescue agency (such as Project Wildlife) may be employed to remove the wildlife and transport them to safely to other suitable habitats.
29	SDG&E, its contractors, subcontractors and their respective project personnel shall refer all environmental issues, including wildlife relocation, sick or dead wildlife, hazardous waste or questions about environmental impacts, to the onsite biological construction monitors. Experts in wildlife handling (such as Project Wildlife) may need to be brought in by the project biological construction field monitor for assistance with wildlife relocations.
30	Emergency repairs may be required during the construction and maintenance of the project to address situations (e.g., downed lines, slides, slumps, major subsidence, etc.) that potentially or immediately threaten the integrity of the project facilities. During emergency repairs the Protocols shall be followed to the fullest extent practicable. Once the emergency has been abated, any unavoidable environmental damage would be reported to the project biological construction monitor, who would promptly submit a written report of such impacts to the USFWS and CDFG and any other government agencies having jurisdiction over the emergency actions. If required by the government agencies, the biological construction monitor would develop a reasonable and feasible mitigation plan consistent with the Protocols and any permits previously issued for the project by the governmental agencies.
31	When critical habitat exists on either side of the project's existing right-of-way, SDG&E would not oppose dedication by the fee owner of the underlying property for conservation purposes provided that it shall acknowledge and except them from SDG&E's continued use of the property in a manner sufficient to reliably install, operate, maintain, and repair its existing and necessary public utility facilities within the right-of-way.
32	A hazardous substance management, handling, storage, disposal, and emergency response plan would be prepared and implemented.
33	Hazardous materials spill kits would be maintained onsite for small spills.
34	In areas where soils and vegetation are particularly sensitive to disturbance, existing access roads would be repaired only in areas where they are otherwise impassable or unsafe.
35	To minimize ground disturbance impacts to streams in steep canyon areas, access roads in these areas would avoid streambed crossings to the extent feasible. Where it is not feasible for access roads to avoid streambed crossings in steep canyons, such crossings would be built at right angles to the streambeds. Where such crossings cannot be made at right angles, SDG&E would limit roads constructed parallel to streambeds to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in a manner that minimizes potential adverse impacts on "waters of the U.S." Streambed crossings or roads constructed parallel to streambeds would require review and approval of necessary permits from the USACOE, CDFG, and RWQCB.

Table B-6. Project Protocols

PP No.	Description
36	Environmentally sensitive tree trimming locations for the project would be identified in SDG&E's existing vegetation management tree trim database utilized by tree trim contractors. The biological field construction monitor shall be contacted prior to trimming in environmentally sensitive areas. Whenever feasible, trees in environmentally sensitive areas, such as areas of riparian or native scrub vegetation, would be scheduled for trimming during non-sensitive (i.e., outside of breeding or nesting) times. Where trees cannot be trimmed during non-sensitive times, SDG&E would perform three site surveys to determine presence or absence of endangered nesting bird species in riparian or native scrub vegetation. Endangered nesting bird species for which surveys would be performed include the least Bell's vireo, coastal California gnatcatcher, Southern California rufous-crowned sparrow, grasshopper sparrow, coastal cactus wren, Cooper's hawk, and golden eagle. SDG&E would submit results of those surveys to the USFWS and CDFG in accordance with its NCCP and consult on mitigation measures for potential impacts prior to tree trimming in environmentally sensitive areas. However, these site surveys would not replace the need for SDG&E to perform detailed on-the-ground surveys as required by Protocol 43. Where riparian areas with overstory vegetation are crossed, tree removal (i.e., clear-cut) widths would be varied where feasible to minimize visual landscape contrast and to maintain habitat diversity at established wildlife corridor edges. Where tree removal widths cannot be varied, SDG&E would consult with the USFWS and CDFG to develop alternative tree removal options that could reasonably maintain edge diversity.
37	All new access roads constructed as part of the project that are not required as permanent access for future project maintenance and operation would be permanently closed. Where required, roads would be permanently closed using the most effective feasible and least environmentally damaging methods appropriate to that area with the concurrence of the underlying landowner and the governmental agency having jurisdiction (e.g., stock piling and replacing topsoil or rock replacement). This would limit new or improved accessibility into the area. Mowing of vegetation can be an effective method for protecting the vegetative understory while at the same time creating access to the 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 would be necessary to maintain permanent access. The project biological construction monitor shall conduct checks on mowing procedures to ensure that mowing for temporary or permanent access roads is limited to a 12-foot-wide area on straight portions of the road (slightly wider on turns) and that the mowing height is no less than 4 inches from finished grade.
38	Secure any required General Permit for Storm Water Discharges Associated With Construction Activity (NPDES permit) authorization from the SWRCB and/or the RWQCB to conduct construction-related activities to build the project and establish and implement a SWPPP erosion control measures during construction to minimize hydrologic impacts in areas sensitive from flooding or siltation into waterbodies.
39	To the extent feasible, where the construction of access roads would disturb sensitive features, the route of the access road would be adjusted to avoid such impacts. Examples of sensitive features include, without limitation, cultural sites, identified habitats of endangered species, and streambeds. As another alternative, construction and maintenance traffic would use existing roads or cross-country access routes (including the right-of-way), which avoid impacts to the sensitive feature. To minimize ground disturbance, construction traffic routes must be clearly marked with temporary markers such as easily visible flagging. Construction routes, or other means of avoidance, must be approved by the authorized officer or landowner before use. When it is not feasible to avoid constructing access roads in sensitive habitats, SDG&E would perform three site pre-activity surveys to determine the presence or absence of endangered or threatened species, or species of special concern, in those sensitive habitats. SDG&E would submit results of those surveys to the USFWS and CDFG in accordance with its NCCP and consult on reasonable and feasible mitigation measures for potential impacts prior to access road construction. However, these pre-activity surveys would not replace the need for SDG&E to perform detailed on-the-ground surveys as required by Protocols 20, 21 42, 43, and 44. Where it is not feasible for access roads to avoid streambed crossings in steep canyons, such crossings would be built at right angles to the streambeds. Where such crossings cannot be made at right angles, SDG&E would limit roads constructed parallel to streambeds, to a maximum length of 500 feet at any one transmission line crossing location. Such parallel roads would be constructed in a manner that minimizes potential adverse impacts on "waters of the U.S." Streambed crossings or roads constructed parallel to streambeds would require review and approval of necessary permits from the USACOE, CDFG, and RWQCB. When it is not feasible to avoid cultural sites, SDG&E would consult with the appropriate federal and State SHPO and local (indigenous Native American tribes) cultural resource agencies and specialists to either develop alternative construction techniques to avoid cultural resources or develop appropriate mitigation measures. Appropriate mitigation measures may include actions such as removal and cataloging and/or removal and relocation.

Table B-6. Project Protocols

PP No.	Description
40	To minimize ground disturbance and/or reduce scarring (visual contrast) of the landscape, the alignment of any new access roads (i.e., bladed road) or cross-country route (i.e., unbladed route) would follow the landform contours in designated areas to the extent feasible, providing that such alignment does not additionally impact sensitive features (e.g., riparian area, habitat of sensitive species, cultural site). To the extent feasible, new access roads would be designed to be placed in previously disturbed areas and areas that require the least amount of grading in sensitive areas. Whenever feasible, in areas where there are existing access roads, preference shall be given to the use of new spur roads rather than linking facilities tangentially with new, continuous roads. Where it is infeasible to locate roads along contours, or in previously disturbed areas, or use spur roads to limit grading, the revegetation/seeding plans for the project would incorporate plant species in areas adjacent to access roads that are capable of screening the visual impacts of the roads.
41	In areas designated as sensitive by SDG&E or the resource agencies, to the extent feasible structures and access roads would be designed to avoid sensitive and/or to reduce visual contrast. These areas of sensitive features include but are not limited to high-value wildlife habitats and cultural sites, and/or to allow conductors to clearly span the features, within limits of standard tower or pole design (also see Protocol 52 for avoidance of sensitive water resource features). If the sensitive features cannot be completely avoided, poles and access roads would be placed to minimize the disturbance to the extent feasible. When it is not feasible to avoid constructing poles or access roads in high value wildlife habitats, SDG&E would perform three site surveys to determine presence or absence of endangered species in those sensitive habitats. SDG&E would submit results of those surveys to the USFWS and CDFG in accordance with its NCCP and consult on mitigation measures for potential impacts, prior to constructing poles or access roads. However, these site surveys would not replace the need for SDG&E to perform detailed on-the-ground surveys as required by Protocols 20, 21 42, 43, and 44. Where it is not feasible for access roads to avoid sensitive water resource features such as streambed crossings, such crossings would be built at right angles to the streambeds. Where such crossings cannot be made at right angles, roads constructed parallel to streambeds would be limited to a maximum length of 500 feet at any, one transmission line crossing location. Such parallel roads would be constructed in a manner that minimizes potential adverse impacts on "waters of the U.S." Streambed crossings or roads constructed parallel to streambeds would require review and approval of necessary permits from the USACOE, CDFG, and RWQCB. When it is not feasible for poles or access roads to avoid cultural sites, SDG&E would consult with the appropriate federal, State SHPO, and local (indigenous Native American tribes) cultural resource agencies and specialists to either modify the project or develop alternative construction techniques to avoid cultural resources or develop appropriate mitigation measures. Appropriate mitigation measures may include actions such as data recovery studies, cultural resource removal and cataloging, and/or cultural resource removal and relocation.
42	Conduct detailed on-the-ground surveys (focused or protocol surveys), as required by the applicable government environmental resource agencies, to determine whether the Quino checkerspot butterfly and arroyo southwestern toad habitat are present within the project's route. If these species habitats are determined to be potentially affected by project activities, specific alternative strategies to avoid such habitat and, where avoidance of such impacts is unavoidable, specific mitigation measures would be determined through consultation, in accordance with SDG&E's NCCP, with the USFWS and CDFG. If it is determined that it is not feasible to avoid such habitat impacts, the project biologist would recommend mitigation in consultation with applicable resource agencies. In those situations where more than one site visit may be necessary to identify a given species, no more than three site visits shall be required. It is expected that the typical USFWS search protocols would not be utilized in most situations due to the priority of these protocols to avoid where feasible.
43	Conduct surveys as required by the applicable government environmental resource agencies to determine whether least Bell's vireo, coastal California gnatcatcher, Southern California rufous-crowned sparrow, grasshopper sparrow, coastal cactus wren, Cooper's hawk, and golden eagle are present within the project route. If these species are present and unavoidable impacts to suitable habitat would occur, SDG&E would, to the extent feasible, cause such impacts to suitable habitat to occur during the non-breeding season for each species. Specific alternative mitigation measures (e.g., offsite restoration or enhancement of these species' habitats) would be determined through consultation, in accordance with SDG&E's NCCP, with the USFWS and CDFG. If it is determined that it is not feasible to avoid habitats during the breeding season, the project biologist would recommend an alternative mitigation approaches to SDG&E, and a decision on how to proceed would be made in consultation with the applicable resource agencies. In those situations where more than one site visit may be necessary to identify a given species or its habitat, such as certain birds, no more than three site visits shall be required. It is expected that the typical USFWS search protocols would not be utilized in most situations due to the priority of these protocols to avoid where feasible.

Table B-6. Project Protocols

PP No.	Description
44	Conduct surveys as required by the applicable government environmental resource agencies to determine whether vernal pools containing San Diego fairy shrimp are present within the project route. If vernal pools and/or San Diego fairy shrimp are determined to be potentially affected by project activities, specific avoidance strategies and mitigation measures would be identified through consultation, in accordance with SDG&E's NCCP, with the USFWS and CDFG and USACOE (if necessary). Project facilities and activities shall be planned to avoid disturbance to vernal pools, their watersheds, or impacts to their natural regeneration. Continued maintenance of the project's facilities, utilizing existing access roads and access routes constructed as a part of the project, are allowed to continue in areas containing vernal pool habitats. Construction and maintenance of the project's facilities, which span vernal pool habitats, is allowed as long as the placement of the facilities or location of associated construction activities in no way impacts vernal pools.
45	To the extent feasible, project facilities would be installed along the edges or borders of private property, open space parks, and recreation areas. When it is not feasible to locate project facilities along property borders, SDG&E would consult with affected property owners to identify facility locations that create the least potential impact to property and are mutually acceptable to property owners. When SDG&E cannot mutually resolve facility locations with property owners, SDG&E would pay just compensation to those property owners based on the facility locations identified by SDG&E.
46	To the extent feasible during final engineering design, coordinate the installation location of the project facilities line with landowners and/or the government agency having jurisdiction and/or the local government having an interest in the location of the facilities. When SDG&E cannot resolve facility locations in coordination with affected property owners that create the least potential impact to property and that are mutually acceptable to property owners, SDG&E would pay just compensation to those property owners based on the facility locations identified by SDG&E.
47	High-visibility devices, where required by the Federal Aviation Administration, would be used to minimize the potential for aircraft to collide with the transmission line.
48	Non-specular conductors would be used to reduce visual impacts.
49	Dulled-finish poles may be used to reduce visual impacts.
50	Where necessary to avoid significant protected environmental land use impacts, limit potential visual impacts and reduce the footprint of structures, use steel pole support structures in place of steel lattice tower structures.
51	To minimize perching opportunities for raptors near habitats supporting sensitive prey species, select structures incorporating a design to discourage raptor perching.
52	To the extent feasible, design structure locations to avoid wetlands, streams, and riparian areas. These sensitive water resource features include riparian areas, habitats of endangered species, streambeds, cultural resources, and wetlands. If these areas cannot be avoided, a qualified biological contractor shall conduct site-specific assessments for each affected site. These assessments shall be conducted in accordance with USACOE wetland delineation guidelines, as well as CDFG streambed and lake assessment guidelines, and shall include impact minimization measures to reduce wetland impacts to a less than significant effect (e.g., creation and restoration of wetlands). Though construction or maintenance vehicle access through shallow creeks or streams is allowed, staging/storage areas for equipment and materials shall be located outside of riparian areas. Construction of new access through streambeds that require filling for access purposes would require a Streambed Alteration Agreement from CDFG and/or consultation with the USACOE. Where filling is required for new access, the installation of properly sized culverts and the use of geotextile matting should be considered in the CDFG/USACOE consultation process.
53	Known and potential cultural and biological resources, which may be affected by the project, would be monitored during project implementation. This would involve pedestrian surveys (i.e., Class III) to inventory and evaluate these resources along the selected route and any impacted area (e.g., access roads, substation sites, staging areas, etc.) beyond the right-of-way. In consultation with appropriate land managing agencies, SHPO officers, and applicable resource agencies, specific avoidance strategies and mitigation measures would be developed and implemented to avoid or mitigate identified adverse impacts on private, State, BLM, tribal, or other lands. The primary goal is to avoid impacts to environmental resources, and secondarily to mitigate for unavoidable impacts. These may include project modifications to avoid adverse impacts, monitoring construction activities, or data recovery studies.
54	In addition to the restoration and habitat enhancement, mitigation measures developed during the consultation period under Section 7.

Table B-6. Project Protocols

PP No.	Description
55	An *Erosion Control and Sediment Transport Control Plan* would be included with the project grading plans submitted to San Diego County for review and comment. The sediment transport control plan would be prepared in accordance with the standards provided in the *Manual of Erosion and Sedimentation Control Measures* and consistent with practices recommended by the Resource Conservation District of San Diego County. Implementation of the plan would help stabilize soil in graded areas and waterways and reduce erosion and sedimentation. The plan would designate BMPs that would be implemented during construction activities. Erosion control efforts, such as hay bales, water bars, covers, sediment fences, sensitive area access restrictions (e.g., flagging), vehicle mats in wet areas, and retention/settlement ponds, would be installed before extensive soil clearing and grading begins. Mulching, seeding, or other suitable stabilization measures would be used to protect exposed areas during construction activities. Revegetation plans, the design and location of retention ponds and grading plans would be submitted to the CDFG and USACOE for review in the event of construction near waterways.
56	Although the release of particulate matter (PM_{10}) associated with project construction is insignificant relative to ambient PM_{10} levels, the following protocols would be employed: • Prohibiting construction grading on days when the wind is significant, where feasible. • Covering all trucks hauling soil and other loose material, or require at least 2 feet of freeboard. • Erecting snow-fence type windbreaks in areas identified as needed by SDG&E. • Limiting vehicle speeds to 15 mph on unpaved roads. • Treating unpaved roads with chemical stabilizers or by watering as necessary. • Applying soil stabilizers to inactive construction areas on an as-needed basis. • Placing perimeter silt fencing, watering as necessary, or adding soil binders to exposed stockpiles of soil and other excavated materials
57	To minimize mud and dust from being transported onto paved roadway surfaces, pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
58	To the extent feasible, any other air pollution control measures approved by the district and the EPA as equivalent may be used.
59	If suitable park and ride facilities are available in the project vicinity, construction workers would be encouraged to carpool to the job site to the extent feasible. The ability to develop an effective carpool program for the project would depend upon the proximity of carpool facilities to the job site, the geographical commute departure points of construction workers, and the extent to which carpooling would not adversely affect worker show-up time and the project's construction schedule.
60	To the extent feasible, unnecessary construction vehicle and idling time would be minimized. The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warmup times following startup that limit their availability for use following startup. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project would apply a "common sense" approach to vehicle use, if a vehicle is not required for use immediately or continuously for construction activities, its engine would be shut off. Construction foremen would include briefings to crews on vehicle use as a part of preconstruction conferences. Those briefings would include discussion of a "common sense" approach to vehicle use.
61	To reduce visual contrast, new pole locations would correspond with spacing of existing transmission line structures where feasible and within the limit of pole design. The normal span would be modified to correspond with existing towers where feasible, but not necessarily at every new pole location.
62	To reduce potential visual impacts at highway, canyon, and trail crossings, poles would be placed at the maximum feasible distance from the crossing within limits of pole design.
63	In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie the adjacent human remains until the remains have been investigated, as outlined in Section 10564.5 of the CEQA Guidelines, the Native American Grave Protection Act and its implementing regulations, California Health and Safety Code 7050.5, and California Public Resources Code Section 5097.98.
64	During construction, SDG&E would remove boulders uphill of structures that pose potentially high risk of landslide damage to those structures and would position structures to span over potential landslide areas to the greatest extent feasible.
65	In disturbed areas where construction equipment has caused compaction of soils (e.g., staging areas, structure sites, temporary spur roads), soils would be decompacted as necessary prior to seeding and reclamation would occur to enhance revegetation and reduce potential for erosion.
66	Underground Service Alert would be notified a minimum of 48 hours in advance of earth-disturbing activities in order to identify buried utilities.

B.7 General References

CPUC (California Public Utilities Commission). 2000. Order Instituting Investigation into Assembly Bill 970 Regarding the Identification of Electric Transmission and Distribution Constraints, Actions to Resolve Those Constraints, and Related Matters Affecting the Reliability of Electric Supply. November 2.

_____. 2003. Order Instituting Investigation into Implementation of Assembly Bill 970 Regarding the Identification of Electric Transmission and Distribution Constraints, Actions to Resolve Those Constraints, and Related Matters Affecting the Reliability of Electric Supply (Decision D.03-02-069). February 27.

SDG&E (San Diego Gas and Electric Company). 2002a. Proponent's Environmental Assessment (PEA) for the Miguel-Mission 230 kV #2 Project. Submitted to the California Public Utilities Commission. July 12.

_____. 2002b. Application of San Diego Gas & Electric Company (U 902 E) for a Certificate of Public Convenience and Necessity for the Miguel-Mission 230 kV #2 Project. July 12.

_____. 2003a. Response of San Diego Gas & Electric to CPUC Data Request No. 1. May 1.

_____. 2003b. Response of San Diego Gas & Electric to CPUC Data Request No. 1. May 9.

_____. 2003c. Response of San Diego Gas & Electric to CPUC Data Request No. 1. May 20.

_____. 2003d. Response of San Diego Gas & Electric to CPUC Data Request No. 1. May 23.

_____. 2003e. Response of San Diego Gas & Electric to CPUC Data Request No. 1. May 27.

_____. 2003f. Response of San Diego Gas & Electric to CPUC Data Request No. 1. May 30.

_____. 2003g. Response of San Diego Gas & Electric to CPUC Data Request No. 2. October 22.

_____. 2003h. Response of San Diego Gas & Electric to CPUC Data Request No. 3. October 20.

_____. 2003i. Response of San Diego Gas & Electric to CPUC Data Request No. 4. November 4.

_____. 2004a. Response of San Diego Gas & Electric to CPUC Data Request No. 5. January 6.