

3.0 PROJECT DESCRIPTION

This section provides a description of SCE's West of Devers (WOD) Upgrade Project (Proposed Project). The Proposed Project would be located primarily within the existing WOD corridor in the incorporated and unincorporated areas of Riverside and San Bernardino Counties including the Reservation, and the cities of Banning, Beaumont, Calimesa, Colton, Grand Terrace, Loma Linda, and Redlands (refer to Figure 1-1, West of Devers Project Area). The existing WOD corridor traverses a combination of residential, commercial, agricultural, recreation, and open space land uses.

The existing 220-kilovolt (kV) system west of Devers Substation consists of two 220 kV circuits connecting Devers and Vista substations, one circuit connecting Devers Substation with the San Bernardino Substation, one circuit connecting Devers Substation with El Casco Substation, and one circuit connecting El Casco Substation with San Bernardino Substation (Figure 3.1-1, Existing and Proposed 220 kV Configuration). These transmission lines are currently supported on a combination of double-circuit and single-circuit structures. Figure 3.1-1, Existing and Proposed 220 kV Configuration, provides a depiction of the existing transmission line configuration for the WOD corridor.

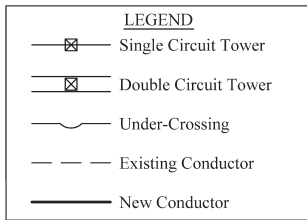
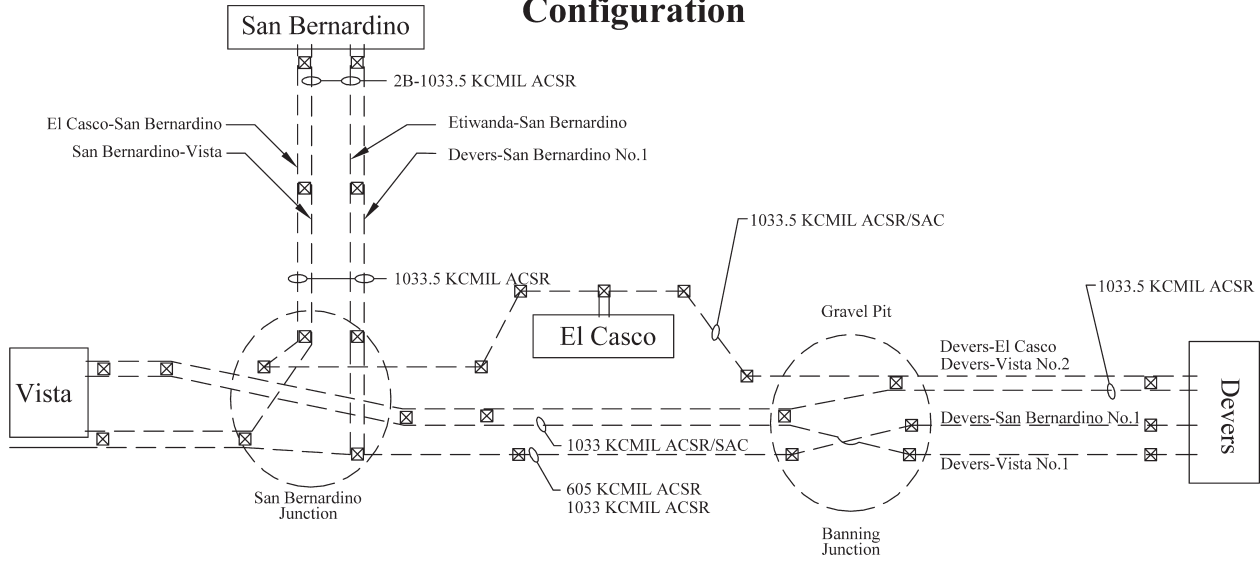
The Proposed Project would upgrade the existing WOD system by replacing existing 220 kV transmission lines and associated structures with new, higher-capacity 220 kV transmission lines and structures; modifying existing substation facilities; removing and relocating existing subtransmission (66 kV) lines; removing and relocating existing distribution (12 kV) lines; and making various telecommunication improvements. In particular, the Proposed Project would:

- Upgrade substation equipment within Southern California Edison's (SCE's) existing Devers, El Casco, Etiwanda, San Bernardino, and Vista substations in order to accommodate continuous and emergency power on the upgraded WOD 220 kV transmission lines. Upgrade SCE's existing Timoteo and Tennessee substations in order to accommodate the 66 kV subtransmission line relocations.
- Remove and upgrade the existing 220 kV transmission lines and structures primarily within the existing WOD corridor as follows:¹
 - Segment 1 would be approximately 3.5 miles in length and extend south from San Bernardino Substation to the San Bernardino Junction and include the following existing 220 kV transmission lines: Devers-San Bernardino, Etiwanda-San Bernardino, San Bernardino-Vista, and El Casco-San Bernardino.
 - Segment 2 would be approximately 5 miles in length and extend west from the San Bernardino Junction to Vista Substation and include the following existing 220 kV transmission lines: Devers-Vista No. 1 and Devers-Vista No. 2.

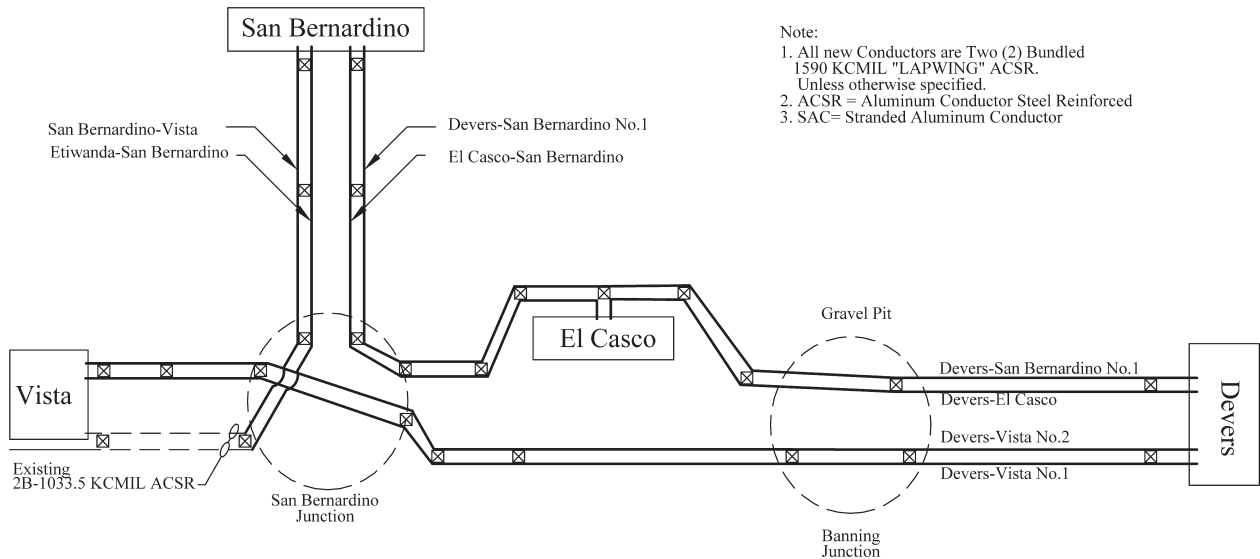
¹ The proposed transmission line elements have been divided into six segments for ease of description in this PEA.

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Existing 220 kV Configuration



Proposed 220 kV Configuration



- Note:
1. All new Conductors are Two (2) Bundled 1590 KCMIL "LAPWING" ACSR. Unless otherwise specified.
 2. ACSR = Aluminum Conductor Steel Reinforced
 3. SAC = Stranded Aluminum Conductor

Not to Scale



FIGURE 3.1-1

Southern California Edison
West of Devers Upgrade Project
Existing and Proposed 220 kV Configuration

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- Segment 3 would be approximately 10 miles in length and extend east from the San Bernardino Junction to El Casco Substation and include the following existing 220 kV transmission lines: Devers-Vista No. 1, Devers-Vista No. 2, El Casco-San Bernardino, and Devers-San Bernardino.
- Segment 4 would be approximately 12 miles in length and extend east from the El Casco Substation to San Gorgonio Avenue in the City of Banning and include the following existing 220 kV transmission lines: Devers-Vista No. 1, Devers-Vista No. 2, Devers-El Casco, and Devers-San Bernardino.
- Segment 5 would be approximately 9 miles in length and extend east from San Gorgonio Avenue in the City of Banning to the eastern limit of the Morongo Indian Reservation² at Rushmore Avenue and include the following existing 220 kV transmission lines: Devers-Vista No. 1, Devers-Vista No. 2, Devers-El Casco, and Devers-San Bernardino.
- Segment 6 would be approximately 8 miles in length and extend east from the eastern boundary of the Morongo Indian Reservation to Devers Substation and include the following existing 220 kV transmission lines: Devers-Vista No. 1, Devers-Vista No. 2, Devers-El Casco, and Devers-San Bernardino.
- Remove a portion (approximately 2 miles) of the existing San Bernardino-Redlands-Timoteo and San Bernardino-Redlands-Tennessee 66 kV subtransmission lines from within the existing WOD right-of-way (ROW) and reconstruct as follows:
 - The relocated San Bernardino-Redlands-Timoteo 66 kV Subtransmission Line would be approximately 2 miles in length and would reconnect to the San Bernardino-Redlands-Timoteo 66 kV Subtransmission Line inside Timoteo Substation.
 - The relocated San Bernardino-Redlands-Tennessee 66 kV Subtransmission Line would be approximately 3.5 miles in length and would reconnect to the San Bernardino-Redlands-Tennessee 66 kV Subtransmission Line at Barton Road.
- Remove a portion of the existing Dental and Intern 12 kV distribution circuits within the WOD ROW and relocate the circuits as follows:
 - The relocated Dental 12 kV Distribution Circuit would be approximately 1.5 miles in length and would reconnect to the existing Dental 12 kV circuit.
 - The relocated Intern 12 kV Distribution Circuit would be approximately 2.25 miles in length and would reconnect to the Intern 12 kV circuit.
- Install telecommunication lines and equipment for the protection, monitoring, and control of transmission lines and substation equipment.

² Approximately 3 miles of existing ROW would be abandoned and replaced with a new 3-mile alignment pursuant to the SCE-Morongo ROW agreement. In addition, this segment consists of an alternative to a new 3-mile alignment (220 kV Transmission Line Route Alternative 1), which is further explained in Section 3.14 Project Alternatives.

The Project Description is based on planning level assumptions. Exact details would be determined following completion of final engineering, identification of field conditions, availability of labor, material, and equipment, and compliance with applicable environmental and permitting requirements.

Additionally, as it relates to each of the project components, the Project Description utilizes conservative ground disturbance assumptions based on preliminary engineering to estimate surface area disturbance. This expanded surface area disturbance is provided for the purpose of ensuring the environmental analysis included in Chapters 4.0 through 6.0 sufficiently analyzes the potential environmental impacts of conservative ground disturbance assumptions. The actual surface area disturbance is expected to be reduced following completion of final engineering.

Within Segment 6, the Proposed Project crosses approximately 3.5 miles of lands managed by the Federal Bureau of Land Management (BLM), which would be located primarily within the existing BLM ROW for the existing WOD transmission lines, although some disturbance may occur outside the existing ROW. SCE will seek a revised ROW grant from the BLM to accommodate the Proposed Project. The ROW grant may require an amendment to the BLM's California Desert Conservation Area Plan. The BLM's consideration of the ROW grant would trigger environmental review under the National Environmental Policy Act (NEPA), and the BLM will act as the NEPA lead agency.

Within Segment 5, the Proposed Project crosses approximately 8 miles of the Reservation Trust Lands (Reservation) of the Morongo Band of Mission Indians (Morongo). Within this segment, approximately 3 miles of existing WOD ROW would be abandoned and replaced with a new 3-mile alignment pursuant to the ROW agreement. SCE and Morongo entered into a ROW agreement that covers the entire Segment 5 ROW,³ as further explained in Section 3.13, Project Alternatives. Based on the SCE-Morongo ROW agreement, SCE will apply to the Federal Bureau of Indian Affairs (BIA) for the grant of ROW across the new 3-mile alignment across Morongo tribal trust lands, and Morongo will consent to SCE's application.⁴

The Proposed Project would increase the system transfer capacity from approximately 1,600 megawatts (MW) to 4,800 MW.

3.1 Proposed Project Components

The components of the Proposed Project are described in more detail below:

³ As part of the SCE-Morongo ROW agreement, SCE and Morongo have requested authorization from the Federal Energy Regulatory Commission (FERC) and the CPUC to lease transfer capability of the Proposed Project. If such FERC and CPUC regulatory approvals are not obtained, Morongo would have the right to terminate the SCE-Morongo ROW agreement. Without this ROW agreement, SCE may need to propose a new project that does not cross the Reservation, which would be comparatively more difficult and costly.

⁴ Pursuant to 25 U.S.C. § 323.

3.1.1 Substation Description

There are no new substations proposed as part of the Proposed Project. Modifications to existing substation equipment would be performed to accommodate continuous and emergency power on the WOD 220 kV transmission lines between Vista, San Bernardino, El Casco, Etiwanda, and Devers substations.

Additionally, modifications would also be performed at Timoteo and Tennessee substations to accommodate the 66 kV subtransmission line relocations. The required substation modifications would not result in any change to the height or width of the existing substation facilities.

3.1.1.1 Modifications to Existing Substations Description

Work at Vista, San Bernardino, El Casco, and Devers substations would occur on the Proposed Project-related 220 kV facilities and would include replacement of disconnect switches, circuit breakers, foundations, and reconductoring line positions. Work at Etiwanda Substation would occur within the existing Mechanical and Electrical Equipment Room (MEER) and include installation of new protection relay equipment. Work at Tennessee and Timoteo Substations would include replacement of circuit breakers and foundations.

All substation-related work would be conducted within the existing substation walls or fence lines. Figure 3.1-2, Existing Substation Locations, shows the general locations of each of these substations and the boundary of the fence lines surrounding each substation.⁵ The Proposed Project would not result in changes to access, parking, drainage patterns, or modifications to perimeter walls or fencing at the existing substations. Improvements to the existing substations are described below.

Devers Substation

Devers Substation is an existing 500/220/115/12 kV substation located north of the Interstate 10 Freeway and northwest of the City of Palm Springs in Riverside County. While Devers Substation contains 500 kV, 220 kV, 115 kV, and 12 kV equipment, the Proposed Project would involve only modifications to the 220 kV equipment. Work at Devers Substation would occur on the 220 kV switchrack and within the MEER.

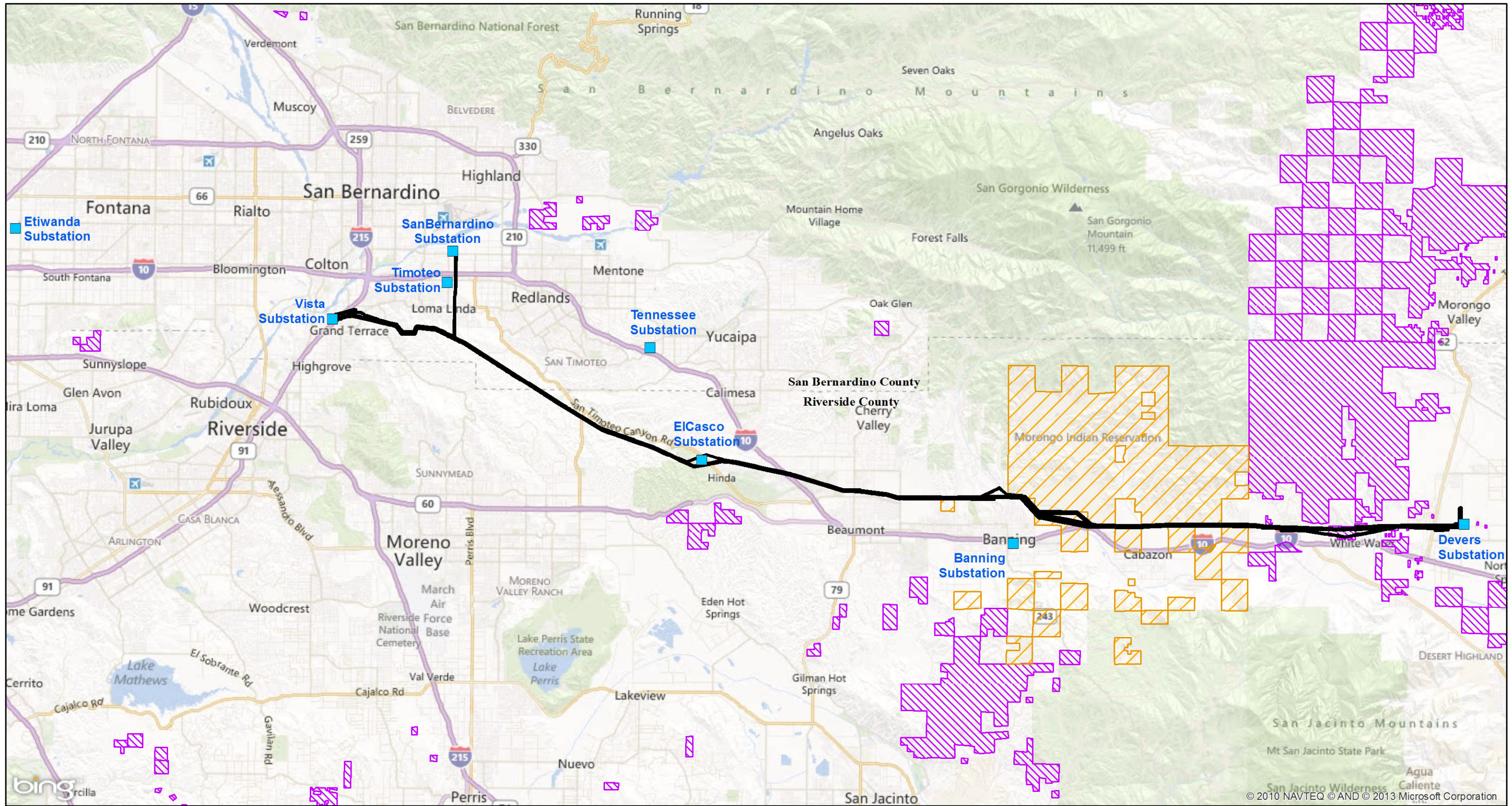
The 220 kV switchrack currently has 11 positions. Two of the existing positions would be upgraded to higher capacity by installing new aluminum conductor steel-reinforced (ACSR) conductor. This work includes the following:

⁵ Modifications to existing substations associated with telecommunications activities are described in Section 3.1.4.1, Facilities at Existing Substations.

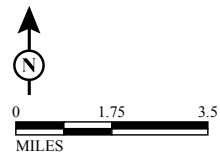
3.0 PROJECT DESCRIPTION

- Replace two existing 220 kV circuit breakers (CBs) with new CBs⁶;
- Replace ten group operated disconnect switches;
- Install six bus supports on new foundations;
- Replace up to twelve existing bus supports, as needed;
- Replace existing equipment foundations to accommodate new equipment and reconnect to existing conduit and grounding; and
- Replace protective relaying equipment inside the MEER.

⁶ All existing 220 kV circuit breakers at Devers, El Casco, Vista, and San Bernardino Substations are SF₆ gas type and will be replaced with new higher amperage SF₆ gas type circuit breakers. The dimensions of the new 220 kV circuit breakers would be similar to the existing 220 kV circuit breakers.



- LEGEND**
- Transmission Line Right-of-Way
 - Substations
 - U.S. Bureau of Land Management Lands
 - Morongo Indian Reservation



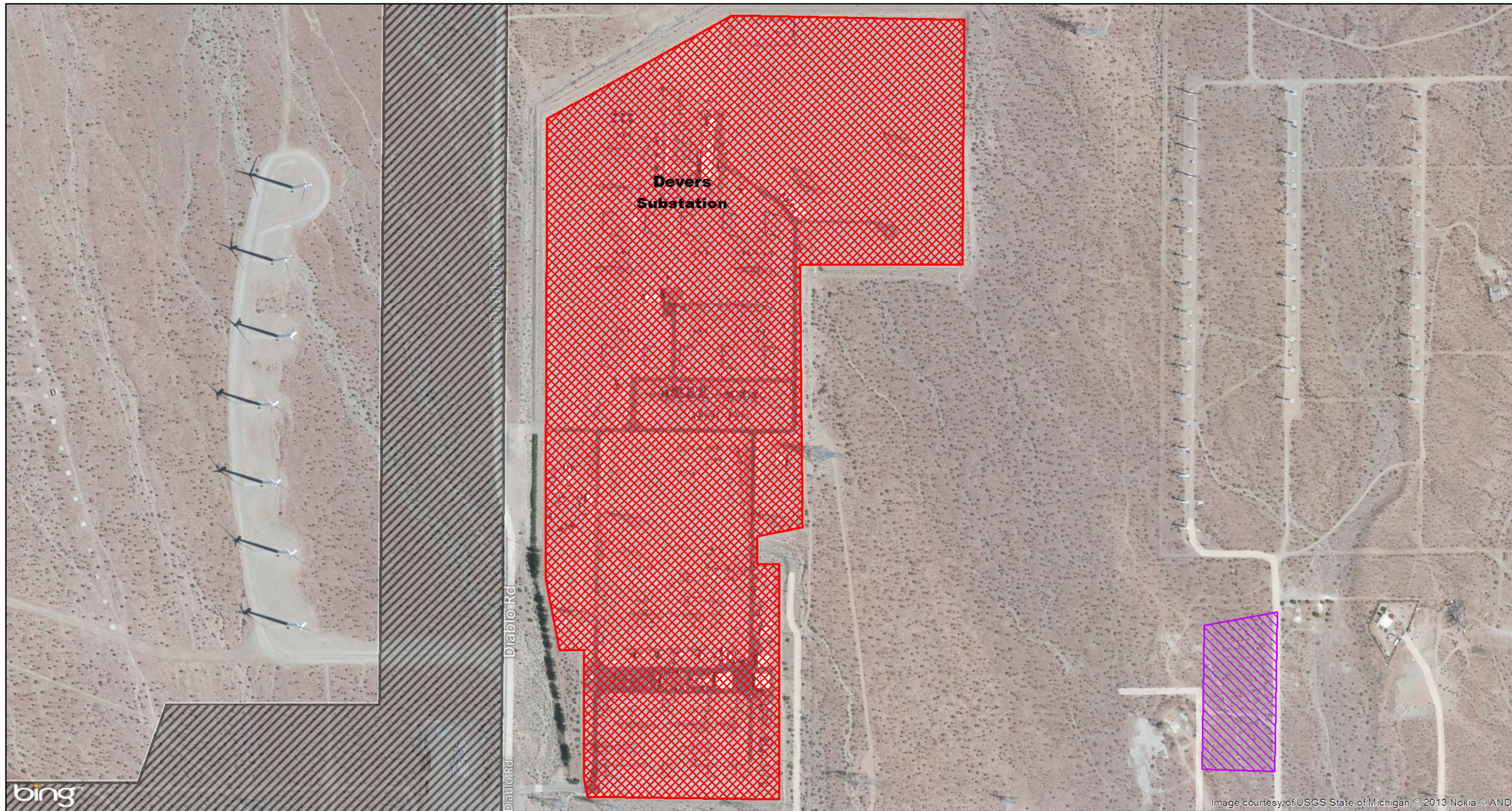
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FIGURE 3.1-2
 Sheet 1 of 8

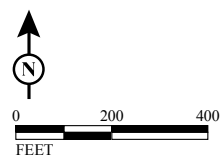
*Southern California Edison
 West of Devers Upgrade Project
 Existing Substation Locations*

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LEGEND

-  Area Within Substation Fence Line
-  Transmission Line Right-of-Way
-  U.S. Bureau of Land Management



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FIGURE 3.1-2

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LEGEND

-  Area Within Substation Fence Line
-  Transmission Line Right-of-Way



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FIGURE 3.1-2

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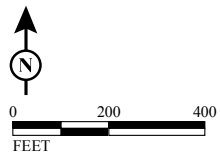
*Southern California Edison
West of Devers Upgrade Project*

Existing El Casco Substation Location

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- LEGEND**
- Area Within Substation Fence Line
 - Transmission Line Right-of-Way



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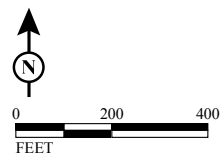
FIGURE 3.1-2
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LEGEND

-  Area Within Substation Fence Line
-  Transmission Line Right-of-Way



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FIGURE 3.1-2

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*Southern California Edison
West of Devers Upgrade Project*



Existing San Bernardino Substation Location

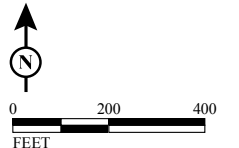
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- LEGEND**
-  Area Within Substation Fence Line
 -  Transmission Line Right-of-Way



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FIGURE 3.1-2
 Sheet 6 of 8

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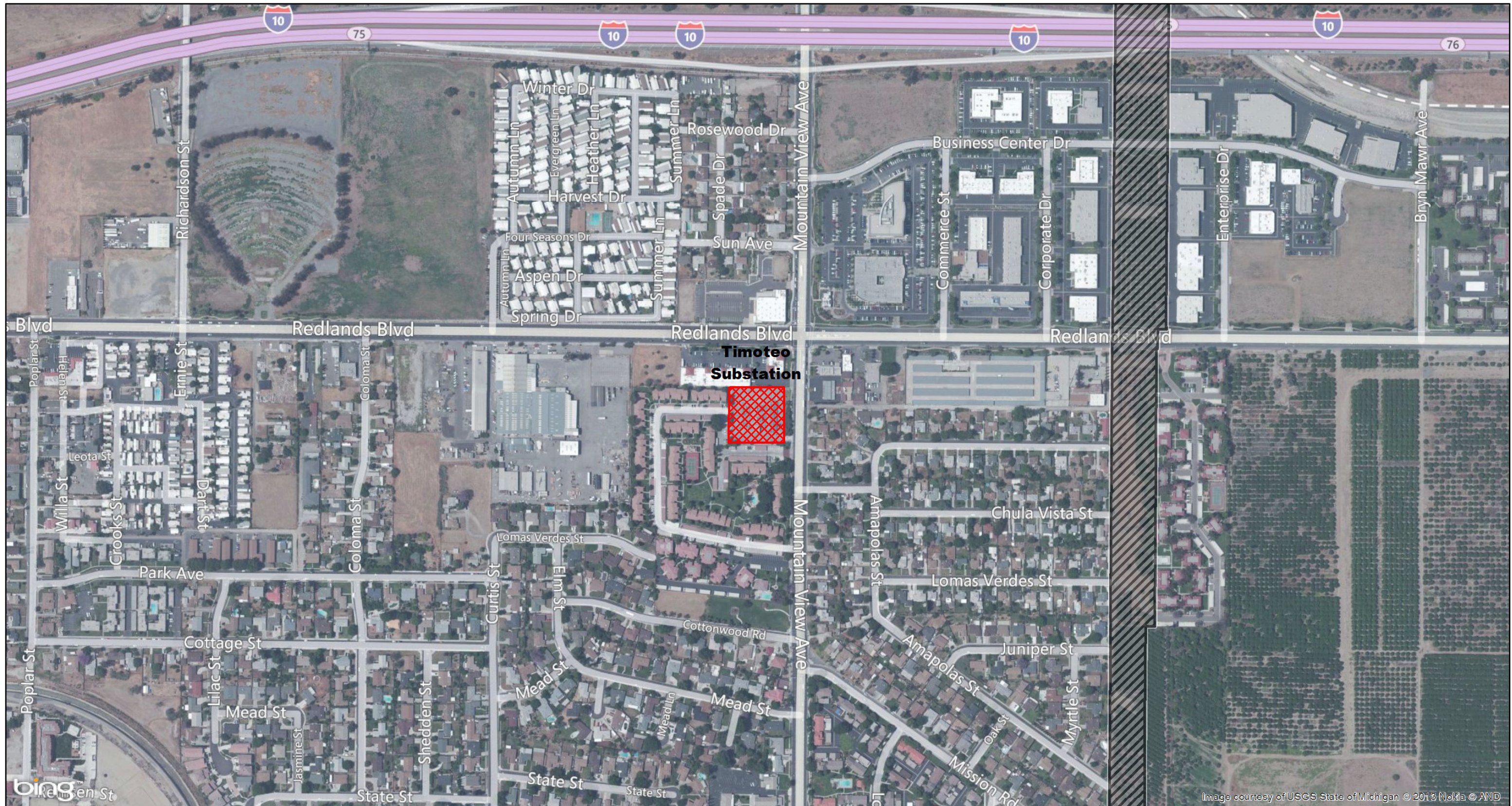


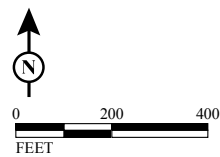


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LEGEND

-  Area Within Substation Fence Line
-  Transmission Line Right-of-Way



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FIGURE 3.1-2

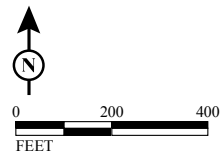
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*Southern California Edison
West of Devers Upgrade Project
Existing Timoteo Substation Location*

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- LEGEND**
-  Area Within Substation Fence Line
 -  Transmission Line Right-of-Way



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FIGURE 3.1-2
 Sheet 8 of 8

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El Casco Substation

The El Casco Substation is an existing 220/115/12 kV substation located off of San Timoteo Canyon Road west of the City of Beaumont in Riverside County. While El Casco Substation contains 220 kV, 115 kV, and 12 kV equipment, the Proposed Project would involve only modifications to the 220 kV equipment. Work at El Casco would occur on the 220 kV switchrack and within the MEER.

The 220 kV switchrack currently has seven positions. The conductor for two positions would be replaced with new higher capacity ACSR conductor. This work includes the following:

- Replace five existing 220 kV CBs with new CBs;
- Replace ten group operated disconnect switches; and
- Replace existing equipment foundations to accommodate new equipment and reconnect to existing conduit and grounding;

Vista Substation

Vista Substation is an existing 220/115/66 kV substation located west of the Interstate 215 Freeway and north of Newport Avenue in the City of Grand Terrace. While Vista Substation contains 220 kV, 115 kV, and 66 kV equipment, the Proposed Project would involve only modifications to the 220 kV equipment. Work at Vista Substation would occur on the 220 kV switchrack and within the MEER.

The 220 kV switchrack currently has 12 positions. The conductor for two positions would be replaced with new higher capacity ACSR conductor. The following work would be conducted:

- Replace four existing 220 kV CBs with new CBs;
- Replace eight group operated disconnect switches;
- Install four bus supports on new foundations;
- Replace up to four existing bus supports, as needed;
- Replace existing equipment foundations to accommodate new equipment and reconnect to existing conduit and grounding;
- Modify the existing ground grid to accommodate installation of new transmission structures; and
- Replace protective relaying equipment inside the MEER.

San Bernardino Substation

San Bernardino Substation is an existing 220/66/12 kV substation located north of San Bernardino Avenue and east of Mountain View Avenue in the City of Redlands. While San Bernardino Substation contains 220 kV, 66 kV, and 12 kV equipment, the Proposed

Project would involve only modifications to the 220 kV equipment. Work at San Bernardino substation would occur on the 220 kV switchrack and within the MEER.

The 220 kV switchrack currently has seven positions. The conductor for two positions would be replaced with new higher capacity ACSR conductor. The following work would be conducted:

- Replace six existing 220 kV CBs with new CBs;
- Replace twelve group operated disconnect switches;
- Install eight bus supports on new foundations;
- Replace existing equipment foundations to accommodate new equipment and reconnect to existing conduit and grounding;
- Modify the existing ground grid to accommodate installation of new transmission structures; and
- Replace protective relaying equipment inside the MEER.

Etiwanda Substation

Etiwanda Substation is an existing 220/66/12 kV substation located north of Sixth Street and west of Etiwanda Avenue in the City of Rancho Cucamonga. Work at Etiwanda Substation would occur within the MEER.

The following work would be conducted:

- Replace protective relaying equipment inside the MEER.

Timoteo Substation

Timoteo Substation is an existing 66/12 kV substation located near the intersection of Redlands Boulevard and Mountain View Avenue in the City of Loma Linda. While Timoteo Substation contains both 66 kV and 12 kV equipment, the Proposed Project would involve only modifications to the 66 kV equipment. Work at Timoteo Substation would occur on the 66 kV switchrack and within the MEER.

The 66 kV switchrack has six positions. The following work would be conducted at two positions as part of the Proposed Project:

- Replace two oil-type 66 kV CBs with new SF6 gas-type CBs;
- Install twelve surge arresters; and
- Replace existing equipment foundations to accommodate new equipment and reconnect to existing conduit and grounding.

Tennessee Substation

Tennessee Substation is an existing 66/12 kV substation located at Avenue E and 18th Street in the City of Yucaipa. While Tennessee Substation contains both 66 kV and 12

kV equipment, the Proposed Project would involve only modifications to the 66 kV equipment. Work at Tennessee Substation would occur on the 66 kV switchrack and within the MEER.

The 66 kV switchrack has six positions. The following work would be conducted at one position as part of the Proposed Project:

- Replace one oil-type 66 kV CB with a new SF₆ gas-type CB;
- Install six surge arresters; and
- Replace existing equipment foundations to accommodate new equipment and reconnect to existing conduit and grounding.

3.1.1.2 Ground Surface Improvements for Substation Modifications

As explained above, new equipment foundations would be required at several existing substation locations resulting in the import and/or export of soil and import of concrete. A summary of substation soil and concrete quantities is provided in Table 3.1-A, Substation Cut/Fill Grading and Surface Improvements Summary.

Table 3.1-A: Substation Cut/Fill Grading and Surface Improvements Summary

| Element | Material | Approximate Surface Area (square feet) | Approximate volume (cubic yards) |
|--|----------|---|-------------------------------------|
| Devers Substation | | | |
| Substation equipment foundations, cut | Concrete | 1,200 | 110 |
| Substation equipment foundations, import | Concrete | 1,000 | 210 |
| Site Fill | Soil | 200 | — |
| Site Cut | Soil | — | 100 |
| El Casco Substation | | | |
| Substation equipment foundations, cut | Concrete | 800 | 50 |
| Substation equipment, import | Concrete | 1,000 | 60 |
| Site Cut | Soil | 200 | 10 |
| Vista Substation | | | |
| Substation equipment foundations, cut | Concrete | 1,200 | 110 |
| Substation equipment foundations, import | Concrete | 1,000 | 200 |
| Site Fill | Soil | 200 | — |
| San Bernardino Substation | | | |
| Substation equipment foundations, cut | Concrete | 2,900 | 330 |
| Substation equipment foundations, import | Concrete | 1,600 | 260 |

Table 3.1-A: Substation Cut/Fill Grading and Surface Improvements Summary

| Element | Material | Approximate Surface Area (square feet) | Approximate volume (cubic yards) |
|--|----------|--|----------------------------------|
| Site Fill | Soil | 1,300 | 60 |
| Timoteo Substation | | | |
| Substation equipment foundations, cut | Concrete | 70 | 5 |
| Substation equipment foundations, import | Concrete | 60 | 4 |
| Site Fill | Soil | 10 | 1 |
| Tennessee Substation | | | |
| Substation equipment foundations, cut | Concrete | 30 | 2 |
| Substation equipment foundations, import | Concrete | 40 | 2 |
| Site Cut | Soil | 10 | — |

Excess soil excavated from the substation locations, as described below, may be used as fill for other project elements or disposed off site at a properly licensed waste facility. Similarly, excess soil excavated from other project elements may be used at the substation locations identified below.

3.1.1.3 Substation Lighting

Approximately 10 new and 30 replacement lights would be installed on the switchracks for the upgraded line positions at Devers, El Casco, Vista, San Bernardino, Timoteo, and Tennessee substations. Under normal operating conditions, the substations would not be illuminated at night. Lighting would be manually operated and used only when required for maintenance outages or emergency repairs occurring at night. The lighting would typically consist of low intensity Light Emitting Diode (LED) lights located in the switchyard around the circuit breakers and in areas where operating and maintenance activities may take place during evening hours. These maintenance lights would be directed downwards to reduce glare outside the facility.

3.1.2 220 kV Transmission Line Description

The Proposed Project would include the removal and upgrade of approximately 181 circuit miles of existing 220 kV line facilities (approximately 48 corridor miles) primarily within existing WOD corridor. The proposed transmission line elements have been divided into six segments for ease of description in this PEA. The segments are identified in Figure 3.1-3, Transmission Line Route Description. The Proposed Project would include removal and rebuilding of all or portions of these existing 220 kV lines:

- Devers-Vista No. 1;
- Devers-Vista No. 2;
- Devers-El Casco;

- El Casco-San Bernardino;
- Devers-San Bernardino;
- San Bernardino-Vista; and
- Etiwanda-San Bernardino.

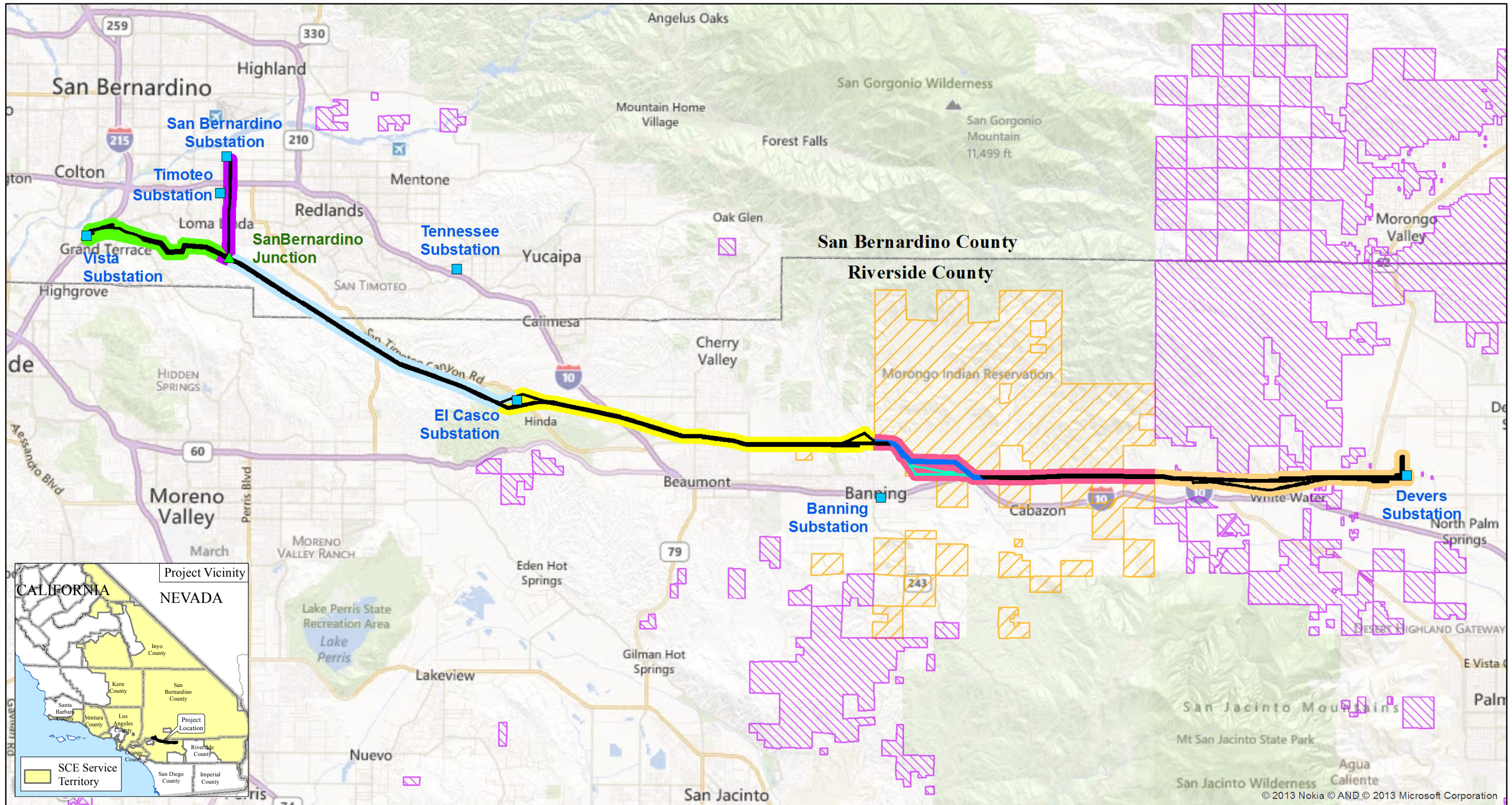
The Proposed Project would primarily be constructed on a combination of new 220 kV double-circuit lattice steel towers (LSTs), double-circuit tubular steel poles (TSPs), and single-phase⁷ TSPs.

Each of the proposed 220 kV transmission lines would consist of overhead wires (conductors), which form three electrical phases. These conductors would be supported by LSTs and/or TSPs and would be electrically isolated from the structures by insulators. In addition to the conductors, structures, and insulators, the proposed transmission structures would be equipped with overhead ground wires and/or optical fiber ground wires for shielding⁸ and/or telecommunication purposes.

⁷ Normally a transmission structure would support all three electrical phases of a circuit. In this case, a single-phase TSP will only support one phase of a circuit. Single phase TSPs are typically used to enable shorter poles to be utilized to go under or around other electrical circuits, equipment, or terrain.

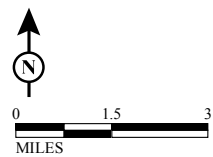
⁸ Shielding provides protection from lightning strikes.

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LEGEND

- Existing Transmission Line Right of Way
- Existing Transmission Line Right of Way to be Removed
- Proposed and Alternative Transmission Line Right of Ways
- Substations
- Junctions
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- U.S. Bureau of Land Management
- Morongo Reservation



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FIGURE 3.1-3

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West of Devers Upgrade Project
 Transmission Line Route Description

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