



# **SUNRISE POWERLINK**

Suncrest Substation

## Surface Treatment Plan

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## **Background**

In accordance with mitigation measure V-7a of the Mitigation, Monitoring, Compliance, and Reporting Program (MMCRP) for the approved Sunrise Powerlink Project, SDG&E submits this Surface Treatment Plan for construction and operation activities at Suncrest Substation. The full text of V-7a is provided at the end of this document.

Mitigation measure V-7a requires SDG&E to submit a Surface Treatment Plan 90 days prior to (a) ordering the first structures that are to be color treated during manufacture, or (b) construction of any of the ancillary facility component, whichever comes first.

Suncrest (SCR) Substation will be located south of Bell Bluff Truck Trail, approximately 2.8 miles west of Japatul Valley Road, southwest of the Interstate 8 and Japatul Valley Road intersection, and east of the City of Alpine, California in San Diego County. The substation is located on SDG&E owned property in a rural, sparsely developed setting. The site is bordered by the Cleveland National Forest to the north, west, and south and private lands to the east. US Interstate 8 is approximately two miles north of the Substation.

## **Description of Construction Activities**

SCR will accommodate the termination of one 500 kV and two 230 kV transmission lines. Construction of the substation includes: grading and fencing of a 40 acre pad; construction of a single-story relay/control shelter and storage shelter; installation of a 300,000 gallon water tank with associated irrigation plumbing and fire hydrants; revegetation of disturbed slopes; and widening and paving an existing 2.6 mile access road. Electrical equipment installation includes: 500 kV and 230 kV circuit breakers; 500 kV and 230 kV disconnect switches; 500/230kV transformers; 500 kV series capacitor; 230 kV shunt capacitors; substation bus support and dead-end structures; buswork; and associated hardware and foundations. The layout of these items is depicted in Appendix A.

The tallest structures installed in the substation would be the 500 kV line and transformer dead-end structures. Maximum heights for these structures would be 130 feet and 75 feet, respectively. With the exception of a reduction in overall disturbance area impacts, there has been no change to the proposed construction activities for this site as compared to those described in the approved Final Environmental Impact Report/Environmental Impact Statement (FEIR/EIS).

## **Sensitive Receptors**

Appendix B, the Suncrest Substation Sight Line Exhibit, depicts the terrain surrounding SCR and the approximate sight lines from residences that may have partial views of the substation. As displayed in this exhibit, the existing undulating terrain will block the view of the substation from properties to the west, north, and east of the substation. Thus, the substation will be visible only from the south, southwest and southeast.

The closest existing residences to the southeast and south of the substation are

approximately  $\frac{3}{4}$  of a mile away. There are no nearby residences to the southwest of SCR. Depending on the relative elevations of these residences, they may have a partial view of the upper portions of the substation structures, specifically the A-frame termination and bus support structures. Based on property information, approximately twelve residences would have a partial view of some portion of the substation.

In addition, as shown in the visual simulations in Appendix C, there are distant, partial views of the substation and views of some of the transmission towers from a few locations along Japatul Valley Road approximately 1.8 miles southeast and approximately 2.8 miles southwest of the substation. These are the closest public viewing locations from main through roads in the Suncrest area.

Appendix C-1 simulates the view of SCR from approximately 2.8 miles southwest of the substation near the Key Viewpoint 69 identified in the Sunrise EIR<sup>1</sup>. This simulation depicts several 500kV towers with a distant view of the upper portions of several substation structures.. Appendix C-2 simulates the view of SCR from approximately 1.8 miles southeast of the substation on Japatul Valley Road near the intersection with Esperanza Lane. Although this location is slightly closer to the substation, there are only distant views of the transmission and substation structures. These simulations illustrate the characteristics of the selected substation site (terrain and distance to public viewpoints) that minimize the visual contrast of the Suncrest Substation structures with the existing landscape.

There is a single point of access to the substation via Bell Bluff Truck Trail (BBTT). Currently, the last two miles of BBTT is a dirt road that traverses SDG&E owned or other private property that is not accessible to the general public. This portion of the road provides access to two private properties in addition to the SDG&E owned property. There currently are two locked gates along this private portion of the road to control access. One gate is approximately 0.8 miles east of the substation and the second gate is approximately two miles east of the substation. As part of this project two locked gates will be established in approximately the same locations.

### **Surface Treatment**

The location of this substation was selected to provide the greatest possible natural screen from the public. As discussed, the site's natural contours result in the substation being completely hidden from receptors on the east, north, and west and mostly hidden from public view from the south, southwest and southeast. Therefore, SDG&E is proposing to use standard surface treatments with inherent minimal maintenance requirements at SCR. Reduced maintenance requirements will also limit the need for SDG&E to cause additional impacts to nearby receptors during operation, such as lighting, noise or disturbance of wildlife located in the surrounding area.

Moreover, views of major equipment, buildings and ancillary structures are only available from the substation yard itself which is not accessible to the general public. Accordingly, SDG&E proposes to use unpainted standard surface, gray concrete

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<sup>1</sup> Sunrise Powerlink EIR, Figure E.4.3-3B.

masonry blocks for the relay and control shelter and the storage shelter. A sample of the standard block is included as Appendix E-3. The transformer fire walls will be constructed of reinforced concrete without color treatment and the major electrical equipment with a painted finish will use SDG&E and industry standard colors as described below.

SDG&E is proposing to use a standard galvanized chain link steel fence to surround the substation due to the inherent security and maintenance free performance. The fence will be eight feet high topped with two feet of barbed wire strands. The fence will not be obtrusive from a distance of  $\frac{3}{4}$  of a mile.

The major structures, which will be partially visible from the south, southeast and southwest, are also proposed to be standard galvanized steel primarily due to the proven long-term durability, and minimal maintenance of these structures for up to 25+ years. In addition, as shown in the visual simulations included in Appendix C, the partial views of the tops of the structures will have a natural back-drop allowing the structures to blend in with the rocky hills and vegetation.

Another part of the overall surface treatment consideration is the landscaping and design of the retaining walls and other hardscape features related to the substation pad development. The walls were designed to incorporate non-linear features (both horizontal and vertical curves) to create a more natural appearance that blends with the existing undulating topography. There will be six plantable mechanically stabilized earth (MSE) retaining walls with heights up to 32 feet. Five will be located within the substation grading area and 1 along Bell Bluff Truck Trail. The plantable MSE retaining walls will be constructed of "buff" colored concrete blocks. A brochure including sample colors for this system is included as Appendix D-1.

Along Bell Bluff Truck Trail there will be 2 reinforced masonry retaining walls with a maximum height of 5 feet. The masonry retaining wall blocks will have a split face surfacing and be "La Paz" colored. Information regarding the wall blocks is included as Appendices D-3. Also, concrete lined drainage ditches will be constructed at various locations along the access road. These drainage ditches will be constructed with Omaha Tan colored, pre-mixed concrete. A Sample of Omaha Tan is included in the Davis Colors brochure attached as Appendix D-2.

Based on the stability of the exposed rock and soil material, in some portions of the cut areas near the substation pad, soil nail walls may be required. If during the excavation it is determined that a soil nail wall is required, it will be covered with stained and textured concrete to simulate a natural rock surface. If the soil nail wall is not required, this slope area will be revegetated with native plants.

Drainage ditches outside the substation pad will be constructed with "Omaha Tan" colored, pre-mixed concrete. Vertical concrete features outside of the substation such as headwalls will be stained to simulate the surrounding natural soil<sup>2</sup>. The staining

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<sup>2</sup> At the request of the CPUC, a sample vertical surface will be stained on site to allow an evaluation of the

material shall produce a spectrum of brown earth tone colors (from the color palate described in Table 1 below) closely matching those found on adjacent exposed soil and natural rock. Stain shall produce color variations and shades that help disguise the concrete surface when viewed at a distance. The stain colors will be permanent, UV resistant and color stable. The stain will be applied to allow for natural looking variations in shading. Information regarding the staining is included in Appendix D-4. These hardscape features, combined with the landscaping of the slope areas with vegetation native to the site, will allow the sloped areas around the substation to blend in with the natural features in the undisturbed areas surrounding the substation within approximately five years after the completion of construction.

The 300,000 gallon concrete water tank (approximately 50 foot in diameter by 26 feet tall) will be finished with “buff” colored concrete paint (Monolith #32BR). A sample of this paint is included as Appendix E-1 and product data information for the paint is included in Appendix D-5. The water tank will be constructed approximately a thousand feet northeast of the substation pad and will not be visible from the west, south and east due to the existing topography. There may be a partial view of the upper portion of the tank from Interstate 8 which is roughly two miles north of the tank location.

Table 1 summarizes the colors proposed for the major elements of the substation and associated site development features. The elements within the substation will use standard colors that are currently used at SDG&E bulk power substations in similar settings. Special consideration was given to the treatment of the slopes that will be created as part of the substation grading operation. These features combined with the landscaping planned for these areas will help blend the developed area with the surrounding native landscape.

<b>Structure</b>	<b>Color</b>	<b>Finish</b>
Relay/Control Shelter	Standard light gray concrete block	Unpainted concrete block
Storage Shelter	Standard light gray concrete block	Unpainted concrete block
Transformers	ANSI 70 (Gray)	Factory applied finish
Breakers	ANSI 70 (Gray)	Factory applied finish
Insulators	ANSI 70 (Gray)	Manufactured porcelain or epoxy
Chain Link Fencing	Gray	Untreated galvanized steel
Structures	Gray	Untreated galvanized steel
Transformer Concrete Fire Walls	Standard light gray concrete	Unpainted concrete
Concrete lined detention basins	Standard light gray concrete	Unpainted concrete
Retaining Walls	Buff	Verdura 40 colored concrete units <sup>3</sup>

effectiveness of the colors and process. As discussed in the Inspection section of this report, the CPUC will be notified when the sample is available for review.

<sup>3</sup> Soil Retention Products Inc., 2501 State Street, Carlsbad, CA 92008, <http://www.soilretention.com/verdura->

<b>Structure</b>	<b>Color</b>	<b>Finish</b>
Reinforced Concrete Block Retaining Walls along BBTT	La Paz	Splitface Block <sup>4</sup>
Concrete drainage ditches outside the substation	Omaha Tan #5084, Davis Colors <sup>5</sup>	Color mixed with concrete at batch plant
Concrete inlet and outlet drainage structures outside of the substation fence with visible vertical surfaces	Brown earth tones selected from the Lithochrome Chemstain Classic Colors (CS-1 Black, CS-2 Padre Brown, CS-14 Dark Walnut, CS-15 Antique Amber, and CS-16 Faded Terracotta), L.M. Scofield Company <sup>6</sup>	Field applied acid-based concrete stains
Concrete Water Tank	Monolith/32BR, matte finish, Tnemec Series 156 Enviro-Crete Paint <sup>7</sup>	Field applied concrete paint over cast in place smooth concrete
Water System Equipment Shelter	Buff	Field applied paint or manufacture applied finish

### Schedule

Construction activities at the substation are anticipated to last approximately 17 months. Construction will begin upon receipt of an approved Notice to Proceed. Below is a schedule of construction activities required for the complete construction of the substation:

<b>Activity Description</b>	<b>Start Date</b>	<b>Finish Date</b>
Site Development – Equipment & Materials Storage Yard	M1	M1
Site Development - Clearing & Grubbing	M1	M2
Site Development - Access Road (Bell Bluff Truck Trail) Upgrade	M1	M3
Site Development - Substation Pad Development	M2	M8
Foundation Construction	M7	M11
Installation of Cable Trench and Conduit	M8	M15
Installation of Ground Grid	M9	M12
Steel Structure Erection	M9	M11
Installation of water supply system	M8	M11
Installation of irrigation system and landscaping	M7	M13
Control Shelter and Maintenance Shelter Construction	M9	M12
Series Capacitor Installation	M11	M17
Installation of Substation Bus & Equipment	M12	M15
Finish Grading & Paving within Substation Yard	M14	M16
Finish Grading & Paving of Access Roads	M12	M13
Testing & Commissioning	M16	M17
Demobilization	M17	M17

specs.html

<sup>4</sup> RCP Block & Brick, Inc., 8240 Broadway, Lemon Grove, CA 91945,

[http://www.rcpblock.com/products\\_block\\_splitface-colors.html](http://www.rcpblock.com/products_block_splitface-colors.html)

<sup>5</sup> Davis Colors, 3700 East Olympic Blvd., Los Angeles, CA 90023, <http://www.daviscolors.com>

<sup>6</sup> L.M. Scofield Company, 6533 Bandini Boulevard, Los Angeles, CA 90040, <http://www.scofield.com>

<sup>7</sup> Tnemec Company, Inc., 6800 Corporate Drive, Kansas City, MO 64120,

<http://www.tnemec.com/product/overview/?rw=1&prw=Series-156-EnviroCrete&st=color>

Concrete staining will occur towards the end of site development and the landscaping schedule will depend on what time of year the site development is completed. Ideally, landscaping would be installed in late fall to optimize plant success.

### **Inspection**

For the vertical surface concrete staining outside the substation fence, SDG&E will notify the CPUC when a sample surface has been treated at the site and is ready for review. In order to minimize the impact to this phase of construction, SDG&E will request that the CPUC arrange to have a representative review and provide comments on the sample within 2 weeks of the notification date anticipated during the first quarter of 2011.

To demonstrate compliance of the entire substation installation with V-7a, within 30 days following the start of commercial operation, anticipated in 2012, SDG&E shall notify the BLM and CPUC that all buildings and structures are ready for inspection.

### **Maintenance Procedure**

The appearance of the standard and pre-colored concrete material used in the retaining walls, drainage ditches, transformer fire walls, control shelter and maintenance shelter would not be expected to deteriorate. The appearance of the stained concrete is also considered permanent and not expected to deteriorate. The factory finished major equipment including the transformers and breakers would not be expected to require repainting for 15 to 20 years. Standard galvanized steel structures and fencing would be expected to weather slightly and dull over the first two years but remain maintenance free for more than 25 years. SDG&E's existing substation maintenance programs address the repainting of equipment and would resolve any deterioration issues associated with the structures and equipment.

### **Compliance with Mitigation Measure**

The remoteness, natural topography, private properties surrounding the substation site, limited access route and substation design combine to minimize the potential public views of the substation. In addition, the special treatment of the cut and fill slopes around the substation pad and the revegetation of the slopes with native plant materials is anticipated to result in blending the overall substation development into the natural surroundings. As a result, the development is in compliance with the visual contrast reduction goals of mitigation measure V-7a.

### **Applicable Mitigation Measure**

*V-7a: Reduce Visual contrast associated with ancillary facilities.*

SDG&E shall submit to BLM and CPUC a Surface Treatment Plan describing the application of colors and textures to all new facility structures, buildings, walls, fences, and components comprising all ancillary facilities including substations. The Surface Treatment Plan must reduce glare and minimize visual intrusion and contrast by blending the facilities with the landscape. The Treatment Plan shall be submitted to BLM and CPUC for approval at least 90 days prior to (a) ordering the first structures that



are to be color treated during manufacture, or (b) construction of any of the ancillary facility component, before the Plan can be approved, within 30 days of receiving that notification, SDG&E shall prepare and submit for review and approval a revised Plan: The Surface Treatment Plan shall include:

- Specification and 11" x 17" color simulations at life size scale, of the treatment proposed for use on project structures, including structures treated during manufacture.
- A list of each major project structure, building, tower and/or pole, and fencing specifying the color(s) and finish proposed for each (colors must be identified by name and by vendor brand or a universal designation)
- Two sets of brochures and or/color chips for each proposed color
- A detailed schedule for completion of the treatment
- A procedure to ensure proper treatment maintenance for the life of the project.

SDG&E shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated onsite, until SDG&E receives notification of approval of the Treatment Plan by the BLM and CPUC. Within 30 days following the start of commercial operation, SDG&E shall notify the BLM and CPUC that all buildings and structures are ready for inspection.