Southern California Edison (SCE) in response to data requests submitted by the California Public Utilities Commission has undertaken a detailed engineering effort for the preferred route and all corresponding system elements for the proposed Presidential Substation Project (Project).[1] The following information provides an updated description of the proposed subtransmission line route and other project elements that have been modified as a result of performing additional engineering for the Project.[2]

Project Description 3.0

- *For the introduction of the Project Description, on Page 3-1,replace bullet point number two with the following information:*
  - Removal of approximately ~~79~~ 89 distribution poles and ~~5~~ nine subtransmission poles located within existing rights-of-way, and replacement with approximately ~~83~~ 66 subtransmission poles to accommodate ~~a~~ two new 66 kV subtransmission line segments that would feed the proposed substation from two existing 66 kV subtransmission lines. Construction of the new subtransmission lines would occur within approximately 3.5 miles of existing right-of-way.

- *For the introduction of the Project Description, on Page 3-1, replace bullet point number three with the following information:*
  - Related distribution components as follows:
    - Four new 16 kV distribution getaways at the proposed substation
    - For existing 16 kV distribution facilities along or near the new 66 kV subtransmission line route where new Light Weight Steel (LWS) 66 kV subtransmission poles would be constructed, the existing wood poles would be removed, and the existing distribution facilities would be transferred to the LWS 66 kV subtransmission poles. Approximately five new 16 kV distribution risers would be installed on LWS 66 kV subtransmission poles.
    - For existing 16 kV distribution facilities along the new 66 kV subtransmission line route where 66 kV subtransmission Tubular Steel Poles (TSPs) would be constructed, the wood poles would be removed, and new underground distribution facilities would be located along or near portions of the 66 kV subtransmission route, including the 66 kV

[1] This request is in response to CPUC Data Request Set # 2, Question 23, and CPUC Data Request Set # 3, Questions 1, 20, 25 and 34. Revised tables and maps will be attached to the project design update.

[2] Additional language has been inserted to reflect that the design modifications are in support of the detailed engineering effort.

tap point intersections, where 66 kV subtransmission TSPs are proposed.

- Two existing streetlight/wood pole combinations located within the 66 kV subtransmission line route would be removed and replaced with two new streetlights attached to new marbelite poles near the same locations. An additional existing streetlight/wood pole combination that is located adjacent to the 66 kV subtransmission line route and currently connected by an overhead electric line would be modified to accept service via an underground electric line.

- Approximately two existing 16 kV wood distribution poles adjacent to the 66 kV subtransmission line route would be replaced with two new 16 kV wood distribution poles to accommodate new 16 kV distribution risers that would connect to existing 16 kV taplines.

- To facilitate the undergrounding of the 16 kV distribution facilities, approximately five new 16 kV distribution risers would be installed on existing wood 16 kV distribution poles.

- *For section 3.1.1 Presidential Substation Description, sub-section Substation Drainage, on Page 3-5, replace sentence two of paragraph one with the following information:*

  At the northern boundary of the site, there ~~are a series of three~~ is an existing culvert~~s~~ that collects storm water run-off from the site, directing it beneath Olsen Road, and the runoff outfalls to a canyon north of Olsen Road.

- *For section 3.1.2 66 kV Subtransmission Source Line Description, on Page 3-9, replace the first sentence of paragraph two with the following two sentences:*

  The Proposed Project would utilize both Light Weight Steel (LWS) 66 kV subtransmission poles with 954 Stranded Aluminum Conductor (SAC) and 66 kV subtransmission Tubular Steel Poles (TSPs) ~~with polymer insulators and~~ with 954 Aluminum Conductor Steel Reinforced (ACSR) and polymer insulators. One 66 kV subtransmission TSP Riser Pole would be utilized at the substation site and two 66 kV subtransmission TSP Riser Poles would be required at the State Highway 23 crossing.

- *For section 3.1.2 66 kV Subtransmission Source Line Description, on Page 3-9, amend paragraph three as follows:*

  Light weight steel poles would be direct buried and extend approximately ~~65~~ 61 to ~~91~~ 75 feet above ground. The diameter of LWS 66 kV subtransmission poles are typically 1.5 to 2 feet at the base, and taper to approximately 1 foot at the top of the pole.

- *For Section 3.1.2 66 kV Subtransmission Source Line Description, on Page 3-9, amend paragraph four as follows:*

  ~~The~~ Subtransmission TSPs are generally used in areas of uneven terrain, freeway crossings, turning points, to obtain additional ground clearance, as riser poles to transition overhead to underground, and other locations where extra structure strength is required, or where both source lines to the substation are on the same structures. The 66 kV subtransmission TSPs utilized for the Proposed Project would extend between ~~70~~ 60 feet and 100 feet above ground, and the tallest poles would be used ~~at the crossing of State Highway 23~~ on the SCE Subtransmission Right-of-Way to tap the Moorpark-Thousand Oaks No. 2 66 kV circuit. The 66 kV subtransmission TSPs would be attached to a concrete foundation approximately 5 to 7 feet in diameter that extends between approximately 12 to 40 feet below ground and may extend up to 2 feet above ground.

- *For Table 3.2 Typical Subtransmission Structure Dimensions, on Page 3-10, amend column three and four as follows:*

Pole Type	Approximate Diameter	Approximate Height Above Ground	Approximate Auger hole Depth	Approximate Auger Diameter
Light Weight Steel (LWS)	Between 1.5 and 2 feet	Between ~~65~~ 61 and ~~91~~ 75 feet	Between ~~7~~ 9 and ~~10~~ 11 feet	2 feet
Tubular Steel Pole (TSP)	Between 2 and 4 feet	Between ~~70~~ 60 and 100 feet	Not applicable	Not applicable
TSP Concrete Foundation	Between 3 to 5 feet	2 feet	Between 12 and 40 feet	Between 5 and 7 feet

- *For Section 3.1.2 66 kV Subtransmission Source Line Description, sub-section Subtransmission Line Connection to Existing Subtransmission Source Lines, on Page 3-10, amend the existing paragraph as follows:*

  Approximately ~~two~~ four existing 66 kV subtransmission TSPs within the existing SCE ROW (near the intersection of Read Road and Moorpark Road) would be replaced with ~~three~~ four new 66 kV subtransmission TSPs in the existing SCE ROW. In addition, approximately ~~three~~ five wood distribution poles within existing SCE ROW (near the intersection of Tierra Rejada Road and Sunset Valley Road) would be replaced with three new LWS 66 kV subtransmission poles and one 66 kV subtransmission TSP~~s~~. These new 66 kV subtransmission TSPs and LWS 66 kV subtransmission poles would extend approximately 70 to 100 feet above ground and would facilitate the connection of the new subtransmission source line to the existing 66 kV subtransmission lines.

- *For Section 3.1.2 66 kV Subtransmission Source Line Description, sub-section Subtransmission Line Connection to Existing Subtransmission Source Lines, on Page 3-10, insert the following as a new paragraph after the first full paragraph on this page:*

  The 16 kV distribution facilities would be placed underground within the 66 kV corridor near the intersection of Read Road and Moorpark Road and accordingly SCE would need to perform the following system work:

  - Place new 16 kV distribution risers on approximately two existing 16 kV wood distribution poles and one new LWS 66 kV subtransmission pole
  - Remove one wood guy pole (35-foot) and install approximately two distribution vaults for transformers and a switch
  - Reconnect an existing street light using an underground service

  The 16 kV distribution facilities would need to be relocated underground to create clearance for the new overhead 66 kV subtransmission facilities at the intersection of Sunset Valley Road and Tierra Rejada Road and accordingly, SCE would need to perform the following system work:

  - Place new 16 kV distribution risers on approximately two of the new LWS 66 kV subtransmission poles
  - Place a new 16 kV distribution riser on an existing wood subtransmission pole
  - Install approximately one new underground distribution vault with a transformer and switch
  - Replace an existing overhead streetlight/wood pole combination with a new marblelite street light pole and electrolier that would be served with new underground distribution service

- *For Section 3.1.2 66 kV Subtransmission Source Line Description, sub-section Subtransmission Line Routing to Substation, on Page 3-10, amend the first paragraph as follows:*

  Because the Proposed Project utilizes portions of existing ROW with existing overhead electrical infrastructure, approximately ~~79~~ 89 existing wood 16 kV distribution poles and nine 66 kV subtransmission poles would be replaced with 41 new LWS 66 kV subtransmission poles and 25 subtransmission 66 kV TSPs as part of the Proposed Project.

- *For Section 3.1.2 66 kV Subtransmission Source Line Description, sub-section Subtransmission Line Routing to Substation, on Page 3-10, amend the second paragraph as follows:*

  Approximately ~~24~~ 21 16 kV distribution poles (approximately 65 feet above ground) exist along Read Road between the intersection of Read Road and Moorpark Road and the intersection of Read Road and Sunset Valley Road. Twenty one of these 16 kV distribution poles would be replaced with approximately 24 18 new LWS 66 kV subtransmission poles and one new subtransmission 66 kV TSP of similar height. The existing 16 kV distribution circuit and facilities would be transferred to the new LWS 66 kV subtransmission poles and a 16 kV distribution riser would be placed on two of the LWS 66 kV subtransmission structures.

- *For Section 3.1.2 66 kV Subtransmission Source Line Description, sub-section Subtransmission Line Routing to Substation, on Page 3-10, amend the third paragraph as follows:*

  Approximately 20 24 16 kV distribution poles (approximately 35 feet above ground) exist along Sunset Valley Road between the intersection of Sunset Valley Road and Tierra Rejada Road and the intersection of Sunset Valley Road and Read Road. Twenty four of these 16 kV distribution poles would be replaced with approximately 20 new LWS 66 kV subtransmission poles (approximately 61 to 65 feet above ground) and one 66 kV subtransmission TSP. The existing 16 kV distribution circuit would be replaced with one circuit consisting of four 336 ACSR conductors, and existing facilities would be transferred to the new LWS 66 kV subtransmission structures and a 16 kV distribution riser would be placed on two of the LWS 66 kV subtransmission structures.

- *For Section 3.1.2 66 kV Subtransmission Source Line Description, sub-section Subtransmission Line Routing to Substation, on Page 3-13, amend the fourth paragraph and insert the remaining text as a new paragraph as follows:*

  Approximately 35 wood 16 kV distribution poles (between approximately 35 and 65 feet in height) extend east of the intersection between Read Road and Sunset Valley Road to the Presidential Substation Site. The 16 kV distribution facilities would need to be relocated underground at the intersection of Read Road and Sunset Valley Road to the Presidential Substation Site. Thirty five of these existing wood poles would be replaced with approximately 33 new TSPs 16 new 66 kV subtransmission TSPs along the right of way and two new 66 kV subtransmission TSPs within the substation. These TSPs will typically 70 feet (there would be two TSPS approximately 100 feet above ground to span conductor across State Highway 23. There would be one approximately 80-foot 66 kV subtransmission TSP Riser Pole (west side) and approximately one 85-foot 66 kV subtransmission TSP Riser Pole (east side) on each side of State Highway 23 to accommodate the underground subtransmission crossing of the highway. Please see Figure 3.3, Subtransmission Source Line Description, for these new structure locations.

  The 16 kV distribution facilities would need to be relocated underground at the intersection of Read Road and Sunset Valley Road to the Presidential Substation Site in order to accommodate the portions of the subtransmission route where subtransmission TSPs are proposed. Accordingly, SCE would need to perform the following system work:

- Install a duct bank containing four 5-inch conduits, vaults, ventpipes, distribution switches, replacement transformers within vaults and a padmount transformer
- Place 16 kV distribution risers on two of the new LWS 66 kV substransmission poles located to the north and west of the intersection of Sunset Valley Road and Read Road.
- Place 16 kV distribution risers on two of the existing wood 16 kV distribution poles
- Transfer an existing overhead streetlight/wood pole combination to a new marblelite street light pole and electrolier that would be served with new underground distribution service
- Replace approximately two existing 16 kV wood distribution poles with two new 16 kV wood distribution poles to accommodate new 16 kV distribution risers

- *For Section 3.1.2 66 kV Subtransmission Source Line Description, on Page 3-13, enter a new subsection with the following information:*

Relocation of Existing 16 kV Distribution Circuits

Due to the inclusion of subtransmission TSPs along portions of the subtransmission line route and other design criteria, portions of the existing 16 kV distribution circuits would need to be placed underground. SCE construction standards typically preclude most distribution equipment, such as transformers, regulators, capacitors, automatic reclosures, and most risers to be installed on subtransmission TSPs. Therefore, in order to provide sufficient clearance to allow the new 66 kV subtransmission line to be installed and to minimize the number of new structures and the structure heights, undergrounding of the existing 16 kV distribution circuits would need to occur near the intersection of Moorpark Road and Read Road, near the intersection of Sunset Valley Road and Tierra Rejada Road, and near the intersection of Read Road and Sunset Valley road extending east on Read Road and crossing under State Highway 23 until it reaches the Presidential Substation. A small portion of the new 16 kV distribution route would be on private property and utilize new ROW.

For the portions of the 66 kV subtransmission line route involving the use of LWS 66 kV subtransmission poles, the existing 16 kV distribution circuits and related equipment would be transferred to the new LWS 66 kV subtransmission poles. Please see Figure 3.3, Subtransmission Source Line Description, for the location of underground distribution.

- *For Section 3.1.2 66 kV Subtransmission Source Line Description, on Page 3-13, enter a new subsection with the following information:*

Replacement of Street Lights

At the intersection of Read Road and Sunset Valley Road, the intersection of Sunset Valley Road and Tierra Rejada Road, and the intersection of Moorpark and Read Road there would be a total of three streetlight/wood pole combinations that would need to be removed and replaced, or re-connected. The poles for which the streetlight/wood pole combinations are located currently conflict with the proposed 66 kV subtransmission line route. Two of the existing streetlight/wood pole combinations would be replaced with marblelite electroliers (concrete pole with underground connection) in order to accommodate the 66 kV subtransmission line route. In addition, one existing overhead connected streetlight/wood pole combination would be re-connected with an underground service requiring a new riser.

- *For Section 3.1.2 66 kV Subtransmission Source Line Description, on Page 3-13 enter a new subsection with the following information:*

State Highway 23 Subtransmission Line Crossing

SCE proposes to underground the two 66 kV subtransmission lines in order to cross State Highway 23 to connect to the Presidential Substation. Placing the subtransmission conductor underground would require the installation of an approximately 80-foot 66 kV subtransmission TSP Riser Pole near the end of Read Road just west of State Highway 23. The 66 kV subtransmission TSP Riser Pole would serve as the pole for which the conductor would be directed underground below State Highway 23. The conductor would extend from the west side of State Highway 23 to the east side of State Highway 23 where it would surface on an approximately 85-foot 66 kV subtransmission TSP Riser Pole located just east of State Highway 23. Undergrounding this portion of the 66 kV subtransmission route would include the installation of approximately six vaults and two circuits of three conductor 2000 kcmil copper cable each. For additional information regarding the undergrounding of the 66 kV subtransmission substructure under State Highway 23, please see section 3.2.2.

- *For section 3.1.3 Telecommunications System Description, on Page 3-13, amend the first paragraph as follows:*

Telecommunications facilities to be installed for the Proposed Project include fiber optic cable and relay protection equipment in the MEER. Fiber optic cable would be installed on the new LWS 66 kV subtransmission structures and connect to the existing SCE telecommunications system at the Moorpark-Thousand Oaks No. 2 66 kV subtransmission line. The telecommunications facilities would follow the 16 kV distribution facilities along the proposed subtransmission line routes. Using the same method as the 16 kV distribution, telecommunications would be attached to LWS 66 kV subtransmission poles where 16 kV distribution is overhead and telecommunications would be located within duct banks containing distribution conduits where distribution is underground. However, the fiber optic cable would be routed through pull boxes instead of the vaults that contain 16 kV distribution facilities.

- *For Section 3.2.2 66 kV Subtransmission Source Lines Installation, starting on Page 3-15, replace the existing Section 3.2.2 with the updated Section 3.2.2 below:*

  The following sections describe the construction activities associated with installing the 66 kV Subtransmission Source Lines for the Proposed Project.
  Survey. Subtransmission line construction activities would begin with the survey of the 66 kV subtransmission source line. Survey crews would stake the new pole locations, including reference points and centerline hubs. Survey crews would also survey the limits of grading for structure excavations.

  Access Roads and Site Preparation. Existing paved public roads and unpaved access roads would be utilized. Access to the substation construction site would be via Olsen Road and Madera Road (both paved public roadways). The subtransmission line construction activities would utilize the following paved asphalt roads:

  - Read Road
  - Sunset Valley Road
  - Tierra Rejada Road
  - Moorpark Road
  - Madera Road
  - Olsen Road

  ~~An unpaved dirt road provides access to the distribution circuit between State Highway 23 and the substation site, and is approximately 0.5 mile long. It is anticipated that approximately 0.3 mile of this access road may require rehabilitation to support subtransmission line construction activities. To rehabilitate this portion of the access road, the area would first be cleared and grubbed of vegetation. The access road would then be blade-graded to remove potholes, ruts, and other surface irregularities, sloped to minimize soil erosion, and re-compacted to provide a smooth and dense riding surface capable of supporting heavy construction equipment. The access road would have a minimum drivable width of 14 feet~~.

  Stabilization of the existing dirt access road on the east side of Highway 23 (identified in red in Figure 1) would require utilizing a Hilfiker Wall (mechanically stabilized earth) MSE Wall, Gabion Retaining Walls (maximum height 10.5 feet), and reinforced geogrids. Grading for this portion of the access road would result in approximately 1,645 cubic yards of cut and 1,430 cubic yards of fill; any excess cut soil may be used as fill for the Presidential Substation site. This access road would have a minimum drivable width of 14 feet. A metal and wood post railing would be used, where required, per the California Department of Transportation, Standard Plans for metal guard railing. A reinforced concrete slab would be constructed as protection from heavy vehicles where the proposed access road crosses over an existing culvert.

The 66 kV subtransmission line route would include the use of additional existing unpaved roads located within a private avocado grove. These unpaved access roads would have a minimum width of 14 feet, where practical. Three-point vehicular turn-around areas, used for ingress and egress, and a semi-level pad, used for operation and maintenance, would be graded. Grading for this portion would require construction of Gabion Retaining Walls (ranging in height from 2 to 9 feet). The removal of approximately 13 avocado trees would be necessary to provide for this access road. Where the proposed access road crosses over existing storm drain pipes along the harvest road, these small pipes would be encased in concrete slurry for protection from heavy vehicles.

Grading of access road for this portion would result in approximately 2,300 cubic yards of cut and 500 cubic yards of fill. The excess cut soil could be used as a fill for the Presidential Substation site.

Existing storm drain inlets located along the unpaved access roads would be replaced with small concrete catch basins and traffic rated basin covers. If existing stone retaining walls located adjacent to these inlets interfere with the upaved access roads as modified, the retaining walls would be removed and a new retaining wall (maximum height of 3.5 feet) would be constructed out of the road.

Grubbing and clearing would be required for use of an existing unpaved access road off of Olsen/Madera Road.

Metal plates or concrete caps would be used, when necessary, to temporarily cover existing culverts located on the paved access road (identified in green in Figure 1) during construction of the 66 kV subtransmission line.

There is a topographic low along the access road that directs storm water from an area north of Olsen Road to the Tierra Rejada Valley. ~~A wet crossing would be installed in the dirt access road within the topographic low to minimize impacts to water quality.~~ The low point currently drains into the existing valley. ~~The wet crossing would be located approximately 0.2 mile east of State Highway 23 and the design would be based on the results of the geotechnical investigation (described below) conducted for the project and would be incorporated into SCE's final engineering design for the Proposed Project~~. [Based upon additional due diligence and investigation, SCE has determined that no wet crossing would be required at this location.]

An approximate 5 foot radial area around each 66 kV LWS pole and an approximate 10 foot radial area around each 66 kV TSP would be cleared of vegetation to provide a safe working area during construction. Hand crews would remove the vegetation with pruners and gas powered weed trimmers. A tool truck would transport the hand crews and equipment to each location.

Light Weight Steel Pole Installation. LWS poles would be installed in the native soil in holes bored approximately 24 to 30 inches in diameter and 10 to 12 feet deep (approximately 1.2 cubic yards of soil would be removed). LWS poles are normally installed using a line truck. Once the LWS poles have been set in place, the excavated material would be used to backfill the hole. If the excavated material is not suitable for use as backfill, imported clean fill material, such as clean dirt and/or pea gravel, would be used. The excavated material would be distributed at each pole site, used to backfill excavations from removal of nearby wood poles, used at the substation site, or used in the rehabilitation of existing access roads. Alternatively, the excavated soil may be disposed of at a local landfill in accordance with all applicable laws.

The approximately 20 LWS 66 kV subtransmission poles along Sunset Valley Road would be set in caissons.

Tubular Steel Pole Installation. The TSPs would be attached to a concrete foundation approximately 5 to 7 feet in diameter that extends between approximately 12 to 40 feet below ground and may extend up to 2 feet above ground (approximately 22 cubic yards would be removed). After holes for the footings have been bored, a steel (rebar) cage would be inserted into the hole, and then concrete would be poured into the hole to a level up to 2 feet above the natural surface. After the concrete has cured, the TSP would be bolted onto the footing. The excavated material would be distributed at each pole site, used to backfill excavations from removal of nearby wood poles, used at the substation site, or used in the rehabilitation of existing access roads. Alternatively, the excavated soil may be disposed of at a local landfill in accordance with all applicable laws.

The TSPs would be delivered in sections to each foundation by truck, lifted into place with a crane, and bolted into place.

Conductor Stringing. Conductor pulling would be in accordance with SCE specifications and similar to process methods detailed in the IEEE Standard 524-1992 (Guide to the Installation of Overhead Transmission Line Conductors).
Conductor stringing set-up locations are approximately 150 feet by 30 feet in size, and require level areas to allow for maneuvering of the equipment. When possible, these locations would be located on existing level areas and existing roads to minimize the need for grading and cleanup. Typically, conductor pulls occur every 6,000 feet on flat terrain or less in rugged terrain, and at all turning points. Circuit outages, pulling times, and safety protocols needed for conductor stringing would be determined prior to work to ensure that safe and quick installation of conductor is accomplished.
Conductor stringing operations begin with the installation of travelers, or rollers, on the bottom of each of the insulators using bucket trucks. The rollers allow the conductor to be pulled through each structure until the entire line is ready to be pulled

to the final tension position. Following installation of the rollers, a sock line (a small cable used to pull the conductor) would be pulled onto the rollers from structure to structure using bucket trucks. Once the sock line is in place, it would be attached to the conductor and used to pull, or string, the conductor into place on the rollers using conventional pulling equipment at pull and tension sites along the line. The conductor would be pulled through each structure under a controlled tension to keep it elevated and away from obstacles, thereby preventing third-party damage to the line and protecting the public. Conductor wire installation may include the use of guard structures at roadway crossings.

Highway 23 Underground 66 kV Installation. SCE proposes to underground the two new 66 kV subtransmission circuits that make up the 66 kV subtransmission source line at the vicinity of State Highway 23. In order to underground this portion of the 66 kV subtransmission route, SCE proposes to install two 66 kV subtransmission TSP Riser Poles, approximately 900 linear feet of 2000 copper cable consisting of 2 runs of 3 cables per run, 6 pre-cast concrete vaults and an underground duct bank to house the cables. The duct substructure will consist of PVC conduits, approximately 5 inches in diameter, and a 4/0 Bare Copper ground wire that are placed within a trench, or inserted in a bore casing, then fully encased in concrete. The trench is then backfilled with sand slurry The six concrete encased conduits, which would contain the two 66 kV subtransmission circuits, are approximately 900 feet in length, measuring from the 66 kV subtransmission TSP Riser Pole to be located on the west side of State Highway 23 to the 66 kV subtransmission TSP Riser Pole to be located on the east side of State Highway 23.

The following components of the undergrounding installation would occur within a temporary construction area approximately 900 feet by 50 feet, as depicted in Figure XX:

- Excavation of open cut trench;
- Installation of underground vaults;
- Installation of a steel casing beneath the freeway; and
- Installation of underground cable.

Open Cut Trench

In order to construct the substructure that would contain the underground 66 kV subtransmission line, SCE would excavate a trench approximately 72 inches deep by 24 inches wide by approximately 250 feet long between the 66 kV subtransmission TSP Riser Pole and the start of the bore construction located on the west side of State Highway 23. SCE would also excavate a trench approximately 72 inches deep by 24 inches wide by approximately 200 feet long between the bore construction and the 66 kV subtransmission TSP on the east side of State Highway 23. Once the PVC ducts and a 4/0 Bare Copper ground wire are placed within the trench, the ducts and a 4/0 Bare Copper ground wire would be fully encased in concrete and the trench would then be backfilled with sand slurry.

In order to excavate the trench and install the duct substructure, a temporary construction area of 25 feet in width adjacent to the entire length of the trench would be needed for construction equipment and related construction activities. The equipment needed includes, 1 ton crew truck, backhoe for excavation of trench, dump trucks for soil disposal, work trucks for material deliveries such as pre-cast vaults, conduit, concrete encasement, and sand slurry, and working space needed for crews to install the underground conduit.

Underground Vaults

Within approximately 250 feet of the trench on the west side of State Highway 23, two vaults would be installed near the new 66 kV subtransmission TSP Riser Pole. Within the approximately 200 feet of the trench on the east side of State Highway 23, four vaults would be installed. Two vaults would be installed near the new 66 kV subtransmission TSP Riser Pole and two vaults would be installed near the bore pit location on the east side of the freeway, depending on final engineering considerations. The installation of each vault requires the excavation of a hole of approximately 12.5 feet wide, 22.5 feet long, and 13.5 feet deep. The outside dimensions of each vault are approximately 11.5 feet wide, 21.5 feet long, and 11.5 feet tall. The vaults are set to a depth so that the main body is a minimum of 18 inches below the surface. The only surface exposure would be a 4 foot by 5 foot opening to provide access into the vault. In order to install the vaults, a temporary area approximately 50 foot wide by 100 foot long would be needed for construction equipment and activities around each vault location. This includes a backhoe needed to dig the holes, trucks to deliver material, a crane to set the vaults, equipment trailer, dump truck, asphalt grinder, and working space needed for crews to install the vaults

Bore Construction

Bore construction would be necessary in order to underground the 66 kV subtransmission lines beneath State Highway 23. Bore pits would need to be established on both sides of State Highway 23 and would temporarily impact an area approximately 40 feet wide, 60 feet long, and could slope to a depth of 10-15 feet deep (depending on surface conditions), refer to Figure XX. The bore excavation beneath the freeway would be approximately 36 inches in diameter by 450 feet in length. The installation of the 66 kV substructure beneath State Highway 23 would include but would not be limited to the following activities:

- Locate any existing underground utilities;
- Excavate bore pits;
- Place trench shield;
- Lower bore equipment into place with crane (launch pit);
- Begin drill and push procedure (typically 10 foot sections);
- Install approximately 36-inch in diameter steel bore casing;
- Pull-in duct with plastic spacers and a 4/0 Bare Copper ground wire; and
- Pump casing full of required concrete or slurry mix.

The equipment needed includes a backhoe, boom truck/ crane loader, excavator, bore machine, welding machine, trench shields, concrete truck, dump truck, and a flat bed truck.

Underground Cable

The underground cable would be installed between each vault to each 66 kV subtransmission TSP Riser Pole. Typically, cable would be pulled from vault to vault using a cable pulling machine and cable tensioner. Cable is also pulled from the vaults near the 66 kV subtransmission TSP Riser Poles to the top of each pole using a crane. After the cable is installed, the cable is spliced in each vault and underground cable termination insulators are installed on the 66 kV subtransmission TSP Riser Poles to connect the underground cable to the overhead wire. These construction activities would occur in the area depicted in Figure XX. Equipment needed would include a crane, cable pulling machine, cable reel/ tensioner, line truck, and splicing rig.

Excavated material from the undergrounding construction activities would be distributed at each structure site to backfill excavations of removed poles or in the rehabilitation of existing access roads or disposed of off site in accordance with applicable laws. Alternatively, excavated material may be disposed of at an authorized off-site disposal facility.

SCE would work closely with the applicable jurisdictions to secure the necessary permits to underground the new 66 kV subtransmission line under State Highway 23.

Removal of Existing Poles. ~~Existing 16 kV distribution circuits and communications facilities would be transferred to the new structures and the existing poles would be removed (including the below-ground portion).~~ Existing 16 kV distribution circuits and communications facilities would be transferred to the new structures, where applicable (e.g. portions of the route involving LWS 66 kV subtransmission poles), and the existing poles would be removed (including the below-ground portion).
The standard work practice for removing a pole is to attach a sling at the upper end of the pole, using boom or crane equipment, while using a hydraulic jack at the base to vertically lift the pole until it can be lifted out of the ground. Excavation around the base of the pole is only required in the event the base of the pole has been encased in hardened soil or man-made materials (e.g., asphalt or concrete), or where there is evidence that the pole has deteriorated to the point that it would splinter or break apart by the jacking and pulling operation described above.

Once the pole is removed, the hole would be backfilled using imported fill in combination with soil that may be available as a result of excavation for the installation of LWS poles or TSP foundations. The backfill material would be thoroughly tamped and the filled hole would be leveled to grade.

Energizing 66 kV Subtransmission Lines. The final step in completing the 66 kV Subtransmission Source Line construction involves energizing the new conductors. The existing Moorpark-Thousand Oaks No. 2 and Moorpark-Royal No. 2 66 kV subtransmission lines would be de-energized in order to connect the new Presidential Substation 66 kV subtransmission source lines. De-energizing and reconnecting the subtransmission lines to the new poles may occur at night when electrical demand is low to reduce the need for electric service outages. Once the connections are made, the subtransmission lines would be returned to service (re-energized).

Guard Structures. For the safety of the public, guard structures (which are temporary facilities designed to stop the movement of a conductor should it momentarily drop below a conventional stringing height during conductor stringing activities) may be installed, as needed, at transportation and utility crossings to protect vehicular and pedestrian traffic located at Sunset Road, Read Road, and Madera Road.

Typical guard structures are 60 to 80 feet tall standard wood poles, and depending on the width between the conductor points being supported on the permanent structures, the number of guard poles installed on either side of a crossing would be between two and four. The guard structures are removed after the conductor is secured to the permanent structures. In some cases, the wood poles could be substituted with the use of specifically equipped boom-type trucks with heavy outriggers staged to prevent the conductor from dropping.

Alternate (non-intrusive) methods for preventing conductor from falling beneath a specified height across major roadway crossings include;

- Temporary netting could be installed to protect some types of under-built infrastructure;
- Detour all traffic off a roadway at the crossing position;
- Implement a controlled continuous traffic break while stringing operations are performed; or
- Strategic placement of special line trucks with extension booms on the highway deck.

Based on a review of the number of road crossings that would be needed along the currently proposed route, SCE has estimated that approximately 12 guard structures could be installed to facilitate construction. Please note that these estimates are preliminary as the types of guard structures that would be required for crossings and the number of crossings necessary would be field verified upon completion of final design. Public agencies differ on their policies for preferred methods to protect public safety during conductor and shield wire stringing operations. SCE would work closely with the applicable jurisdiction to secure the necessary permits to string conductor across all transportation and utility crossings.

- *For Section 3.2.3 Telecommunications Construction, on Page 3-18, for paragraph one amend the first sentence as follows:*

The overhead telecommunications cable would be installed by attaching cable to the 66 kV subtransmission poles, where applicable (e.g. portions of the route involving

LWS 66 kV subtransmission poles), in a manner similar to that described above for conductor stringing.

- *For Section 3.2.3 Telecommunications Construction, on Page 3-18, insert a new paragraph directly after the first paragraph with the following information:*

  SCE proposes to install a separate telecommunications pullbox systems adjacent to any new distribution vaults. The distribution and telecommunications conduits would be located in the same duct bank, but the conduits would be routed through the appropriate structure.

  The underground telecommunications cable would be installed by pulling the cable in the same conduit bank (different conduit) that the distribution system would use and provide. A truck with a cable reel would be set up at one end of the section to be pulled, and a truck with a winch would be set up at the other end. Fiber strands in the cable from one reel would be spliced to fiber strands in the cable from the next reel to form one continuous path. One reel typically holds 20,000 feet of telecommunication cable.

- *Insert a new section 3.2.4 16 kV Distribution Circuit Construction and add the following information, on Page 3-18:*

  3.2.4 16 kV Distribution Circuit Construction

  The purpose of this section is to describe the construction activities associated with the need to underground 16 kV distribution facilities along portions of the 66 kV subtransmission route.

  Installation of 16 kV Distribution Underground Along Portions of the Subtransmission Route. The installation of a distribution duct bank would include trenching approximately 52 inches deep by 24 inches wide for the length of approximately 12,500 feet along those portions of the 66 kV subtransmission line route where 66 kV subtransmission TSPs would be constructed. The amount of soil to be removed would be approximately 5,000 cubic yards. There would be approximately 13 vaults and 13 pull boxes associated with undergrounding of distribution facilities along a portion of the subtransmission route. In addition, a trench totaling approximately 750 feet, approximately 42 inches deep and 24 inches wide would be constructed to re-connect existing tap lines. There would be one 4 inch conduit installed in these trenches and the amount of soil to be removed would be approximately 195 cubic yards.

  Access Roads. Additional access rights may be required along the new underground 16 kV distribution line on private property east of State Highway 23. New easements may be needed to utilize existing unpaved roads. At this time, the existing unpaved roads need to be evaluated to determine if they meet SCE requirements. There is the potential for these roads to be widened or rehabilitated.

- *For Table 3.3 Construction Equipment Use Estimations, on page 3-23, please amend the following cells seen in black and add new cells as presented below:*

Activity and Number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
Substation Construction			
Survey (2 people)	10	2-Survey Trucks	8
Grading (15 people)	90	1-Dozer 2-Loader 1-Scraper 1-Grader 1-Water Truck 2-4X4 Backhoe 1-4X4 Tamper 1-Tool Truck 1-Pickup 4X4	4 4 3 3 2 2 2 2 2
Fencing (4 people)	10	1-Bobcat 1-Flatbed Truck 1-Crewcab Truck	8 2 4
Civil (10 people)	60	1-Excavator 1-Foundation Auger 2-Backhoe 1-Dump truck 1-Skip Loader 1-Water Truck 2-Bobcat Skid Steer 1-Forklift 1-17 ton Crane 1-Tool Truck	4 6 hours/day for 15 days and 3 hours/day for 15 days 3 2 3 3 3 4 2 hours/day for 45 days 3
MEER (4 people)	20	1-Carry-all Truck 1-Stake Truck	3 2
Electrical (10 people)	70	2-Scissor Lifts 2-Manlifts 1-Reach Manlift 1-15 ton Crane 1-Tool Trailer 2-Crew Trucks	3 3 4 3 hours/day for 35 days 3 2
Wiring (5 people)	25	1-Manlift 1-Tool Trailer	4 3

Activity and Number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
Transformers (6 people)	30	1-Crane 1-Forklift 2-Crew Trucks 1-Low Bed Truck	6 hours/day for 10 days 6 2 4
Maintenance Crew Equipment Check (2 people)	30	2-Maintenance Trucks	4
Testing (2 people)	80	1-Crew Truck	6
Asphalting (6 people)	15	2-Paving Roller 1-Asphalt Paver 1-Stake Truck 1-Tractor 1-Dump Truck 2-Crew Trucks 1-Asphalt Curb Machine	4 4 4 3 3 2 3
Landscaping (6 people)	15	1-Tractor 1-Dump Truck	6 3
66 kV Subtransmission Source Line Construction			
Survey (~~2~~ 4 people)	~~10~~ 4	2-1/2 Ton Pick-Up Truck 4x4	8
Access Roads (~~3~~ 5 people)	~~5~~ 7	~~2-Crew Trucks (Gasoline)~~ ~~2-Light Trucks~~ 1-Water Truck ~~1-Crawler D6~~ ~~1-Crawler D8~~ 1-~~Motor~~ Road Grader 1- 1-Ton Crew Cab, 4x4 1- Backhoe/Front Loader 1- Drum Type Compactor 1- Track Type Dozer 1- Lowboy- Truck/Trailer	~~2~~ ~~2~~ ~~2~~ 8 ~~10~~ ~~10~~ ~~5~~ 4 2 6 4 6 6
Remove Existing Wood Poles (Subtransmission and Distribution) (~~8~~ 6 people)	6	1- 1-Ton Crew Cab Flat Bed, 4x4 1- Rough Terrain Crane Truck 1- Compressor Trailer 1- Flat Bed Truck/ Trailer	5 6 6 8

Activity and Number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
Remove Existing TSPs (8 people)	4	2- 3/4-Ton Pick-up Truck, 4x4 2- 1-Ton Crew Cab Flat Bed, 4x4 1- Compressor Trailer 1- 80-Ton Rough Terrain Crane 1- Dump Truck 1- Backhoe/Front Loader	5 5 5 6 6 6
Pole Framing and Setting (10 people)	113	2 Crew Trucks (Gasoline) 1 5-Ton Framing Truck 2 30-Ton Line Trucks 2 Light Trucks 2 Bucket Trucks 1 Water Truck 2 Truck Mounted Cranes 1 30 Ton Crane 2 Backhoes	10 10 10 10 10 10 10 10 10
Steel Pole Haul (4 people)	17	2- 3/4-Ton Pick-up Truck, 4x4 1- Rough Terrain Crane 1- 40' Flat Bed Truck/ Trailer	5 6 8
Steel Pole Assembly (8 people)	33	2- 3/4-Ton Pick-up Truck, 4x4 2- 1-Ton Crew Cab Flat Bed, 4x4 1- Compressor Trailer 1- 80-Ton Rough Terrain Crane	5 5 5 6
Steel Pole Erection (8 people)	33	1- 3/4-Ton Pick-up Truck, 4x4 1- 1-Ton Crew Cab Flat Bed, 4x4 1- Compressor Trailer 1- 80-Ton Rough Terrain Crane	5 5 5 6
TSP Footing Installation (4 to 6 7 people)	33 50	2 Crew Trucks(Gasoline) 1- Crew Truck 2 Truck Mounted Cranes 21-Backhoes/Front Loaders 1- Water Truck 1 Drilling Rig 1- Cement Concrete Mixer Truck 1- Auger Truck 1- Boom/ Crane Truck 3- Concrete Mixer Truck 1- Dump Truck	10 8 10 10 8 10 8 10 10 5 5 5 5 5

Activity and Number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
Conductor/ Cable Installation (12 20 people)	7 12	2- 1 Ton Crew Cab Flat Bed, 4x4 2-Wire Truck & Trailer 1- Dump Truck (trash) 4- Bucket Trucks 1- 3 Drum Straw Line Puller 1- Slicing Rig 1- Static Truck/Tensioner 2- Boom/Crane Trucks 1-Conductor Pulling Machine 1-Conductor Tensioner (Gasoline) 2-30 Ton Line Trucks 2-Crew Trucks 2-Truck Mounted Cranes	6 8 2 2 8 6 2 2 6 6 6 10 10 10
Material Delivery (3 people)	6	60-Foot Flat Bed Pole Truck Forklift	8 5
Guard Structure Installation * (6 People)	4	1- ¾ Ton Pick Up Truck, 4x4 1- 1- Ton Crew Cab Flat Bed, 4x4 1- Compressor Trailer 1- Auger Truck 1- Extendable Flat Bed Pole Truck 1- Rough Terrain Truck 1- Bucket Truck	6 6 6 6 6 8 4
Guard Structure Removal * (6 People)	3	1- ¾ Ton Pick Up Truck, 4x4 1- 1-Ton Crew Cab Flat Bed, 4x4 1- Compressor Trailer 2- Extendable Flat Bed Pole Truck 1- Rough Terrain Crane 1- Bucket Truck	6 6 6 6 8 4
Underground Construction ** (6 people)	28	1- 1-Ton Flatbed truck 1- 4-Ton Bobtail dump truck 1- 10 wheel dump truck 1- Backhoe/Front Loader 1- Equipment Trailer 1- 40Hp. Concrete Saw 1- Asphalt Grinder 1- Crane Truck 1- Compressor Trailer	6 6 6 6 8 6 6 8 4

Activity and Number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
Bore Construction ** (8 people)	22	1-Large Rubber Tire Backhoe JD 710 1-Boom Truck/Crane Truck 1- Excavator 1-Welder/Generator 4-Trench Shields 1-Dump Truck 1-Bore Machine with Power Pack 2- Concrete Mixer Trucks	6 8 6 8 8 4 8 5
Restoration (5 7 people)	4	1-Ton Crew Cab 4x4 1- Water Truck 1- Road Grader 1- Backhoe/Front Loader 1- Drum Type Compactor 1- Track Type Dozer 1- Lowboy Truck/Trailer	8 2 8 6 6 6 6 3
Telecommunications Construction			
Fiber Optic Installation (4 people)	10	1-Pickup Truck (Gasoline) 2-Heavy Duty Trucks	8 8
Distribution Underground Along Portions of Subtransmission Route			
Civil (13 people)	62	2- Backhoes 4- Dump Trucks 1- Roller 1- Grinder 1- Delivery Truck (vault & pull box) 4- Cement Trucks	8 8 8 8 8 8
Electrical (14 people)	43	1- Rodder Truck 1- Cable Dolly 2- Companion Vehicle 1- Splice Truck 1- Double Bucket Truck 1- Troubleman Truck	8 8 2 8 8 8
Electrical (3 people)	2	1-Line Truck 1-Companion Vehicle	8 2
Olsen Road Getaway Construction			
Trenching Laying Conduit Encasement Slurry (10-12 People)	104	2-Backhoes 1-Dump Truck 2-Crew Trucks 1-Cement Truck	8 8 8 8

Activity and Number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
Asphalt Paving (4 People)	7	1-Dump Truck 1-Crew Truck 1-paving Roller	8 8 8
Vault Delivery (1 Person)	9	1-Four Ton Truck with a Crane	4
Cable Pulling (7 People)	10	1-Router Truck 1-Cable Carousel	8 8
Switch Installation (4 People)	10	1-Line Truck 1-Pickup Truck	8 8
Cable Splicing (4 People)	30	2-Vans	8
Switching (2 People)	2	2-Troublemen Trucks	8
Acceleration/Deceleration Lane			
Acceleration/ Deceleration (10 People)	90	2-Skip Loader 1-Grader 2-Dump Truck (Super 10- 3 axle) 1-Barber Green Paving Machine 1-Roller 4-Crew Trucks 2-Trailers	8 8 (1st 3 weeks) 8 8 (3 days) 8 (7 days) 8 4
Irrigation			
Irrigation- On Site (7 People)	20	1-Bobcat 1-Power Trencher 1-Crew Truck	8 8 8